



U.S. DEPARTMENT OF
ENERGY



Transition 2020

Organization Overviews

Table of Contents

Staff Offices

Energy Information Administration	2	Office of the Chief Information Officer	35
Advanced Research Projects Agency-Energy (ARPA-E)	5	Office of Management	39
Office of International Affairs	9	Office of Small and Disadvantaged Business Utilization	43
Office of Congressional and Intergovernmental Affairs.	13	Office of Intelligence and Counterintelligence	46
Office of Enterprise Assessments	17	Office of Economic Impact and Diversity	49
Office of Public Affairs	20	Office of Hearings and Appeals	54
Office of General Counsel	23	Office of the Inspector General	58
Office of the Chief Financial Officer	28	Office of Strategic Planning and Policy	62
Office of the Chief Human Capital Officer	31	Office of the Ombudsman	65

Under Secretary of Energy

Under Secretary of Energy	68	Office of Electricity	101
Office of Cybersecurity, Energy Security, and Emergency Response	72	Bonneville Power Administration	105
Office of Fossil Energy	75	Southeastern Power Administration	109
Arctic Energy Office	83	Southwestern Power Administration	112
Office of Nuclear Energy	85	Loan Programs Office.	121
Office of Indian Energy Policy and Programs.	92	Office of Environment, Health, Safety and Security	125
Office of Energy Efficiency and Renewable Energy	95	Office of Project Management.	132

Under Secretary for Science

Under Secretary for Science	138	Office of Technology Transitions	155
Office of Science.	143	Office of Environmental Management	159
Artificial Intelligence and Technology Office	153	Office of Legacy Management	163

Under Secretary for Nuclear Security

Under Secretary for Nuclear Security and Administrator, National Nuclear Security Administration	168	NNSA Office of Management and Budget	214
NNSA Office of Policy and Strategic Planning	175	NNSA Office of Acquisition and Project Management.	218
NNSA Office of Cost Estimating and Program Evaluation.	179	NNSA Office of the General Counsel	221
NNSA Office of Defense Programs	181	NNSA Office of the Associate Administrator for Information Management and Chief Information Officer	223
NNSA Office of Defense Nuclear Nonproliferation	185	NNSA Kansas City Field Office	226
NNSA Office of Naval Reactors.	190	NNSA Los Alamos Field Office	231
NNSA Office of Emergency Operations	194	NNSA Livermore Field Office	234
NNSA Office of Safety, Infrastructure, and Operations	198	NNSA Nevada Field Office	238
NNSA Office of Defense Nuclear Security.	203	NNSA Production Office	242
NNSA Office of Counterterrorism and Counterproliferation.	207	Sandia Field Office.	245
NNSA Office of External Affairs	211	NNSA Savannah River Field Office.	248

Energy Information Administration

Supporting the DOE Mission

The U.S. Energy Information Administration's (EIA) programs directly support DOE by providing policy-neutral data and analyses on petroleum, natural gas, coal, electric, renewable, and nuclear energy, along with end-use energy consumption information for the residential, commercial, and manufacturing sectors. By law, EIA's data, analyses, and forecasts are independent of approval by any other officer or employee of the United States Government.

Mission Statement

EIA collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$125,000,000
FY 2020 enacted	\$126,800,000
FY 2021 request	\$128,700,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 359

History

The Department of Energy Organization Act of 1977 established EIA as the primary federal government authority on energy statistics and analysis, building upon systems and organizations first established in 1974 following the oil market disruption of 1973.

Functions

EIA was created by section 205 of the Department of Energy Organization Act of 1977 (Pub. L. 95-91, codified at 42 U.S.C. § 7135). The Department of Energy Organization Act of 1977 specifies that:

- EIA shall establish a National Energy Information System (System) to describe and facilitate

analysis of energy supply and consumption to meet Federal, State, and Congressional needs. The System shall include information regarding production, distribution, ownership, consumption, transportation and marketing of energy resources. The System shall include information regarding various domestic and international sensitivities of energy resources and changes of patterns of energy supply and consumption.

- EIA shall maintain adequate resources to establish scientific, engineering, statistical and technological capabilities to perform analysis of energy information, including verifying its accuracy and independently evaluating its adequacy and comprehensiveness.
- The Administrator shall review energy information gathered by other agencies and make recommendations about the collection and reporting of such information.
- EIA shall provide periodic reports to Congress and the public to provide a comprehensive picture of energy resources, and shall make information available at the request of Congress.
- 15 U.S.C. § 796 grants authority to collect information and directs Federal Energy Administration, and later, by incorporation EIA, to publish a quarterly report regarding imports of energy sources, domestic reserves, refinery activities, and petroleum inventories and to file quarterly reports with the President and Congress.

Recent Organization Accomplishments

EIA constantly monitors and adjusts its program, as needed, to ensure that it is able to provide its customers with comprehensive coverage of the evolving energy sector. EIA's statistical and analysis reports include the following:

Hourly Products

U.S. Electric System Operating Data, Hourly Electric Grid Monitor (beta version), New England Dashboard

Daily Products

Today in Energy, Southern California Daily Energy Report, Daily Energy Report (internal government use only)

Weekly Products

Weekly Natural Gas Storage Report (a principal Federal economic indicator), Natural Gas Storage Dashboard, Weekly Petroleum Status Report, Gasoline and Diesel Fuel Update, Weekly Coal Production Report, This Week in Petroleum, Natural Gas Weekly Update, Heating Oil and Propane Update (October–March)

Monthly Products

Short-Term Energy Outlook, Monthly Energy Review, Petroleum Supply Monthly, Petroleum Marketing Monthly, Monthly Crude Oil and Natural Gas Production, Natural Gas Monthly, Drilling Productivity Report, Electric Power Monthly, Electricity Monthly Update, Monthly Solar Photovoltaic Module Shipments Report, Monthly Densified Biomass Fuel Report

Quarterly Products

Quarterly Coal Report, Quarterly Coal Distribution Report, Domestic Uranium Production Quarterly Report, Financial Review

Annual Products

Annual Energy Outlook, International Energy Outlook, Natural Gas Annual, Annual Coal Report, U.S. Crude Oil and Natural Gas Proved Reserves, Electric Power Annual, Uranium Marketing Annual Report, U.S. Energy-Related Carbon Dioxide Emissions, Petroleum Supply Annual, Refinery Capacity Report

Other Products, Tools, and Services

Energy Consumption and Efficiency Data (i.e., Residential Energy Consumption Survey, Commercial Buildings Energy Consumption Survey, Manufacturing Energy Consumption Survey), State Energy Portal, International Energy Portal, Country Analysis Briefs, U.S. Energy Mapping System, Electricity Data Browser, Petroleum Imports Browser, Coal Data Browser, API (Application Programming Interface), Excel Add-In, Energy in Brief, Energy Explained, Energy Kids

Special Data and Analysis Reports (recent examples)

Trends and Expectations Surrounding the Outlook for Energy Markets, Weekly U.S. and Regional Crude Oil Stocks and Working Storage Capacity.

Leadership Challenges

High level challenges currently being faced by the organization:

- Modernizing EIA's information management systems to a more efficient, and maintainable IT platform that increases automation and standardizes processes across the energy survey programs.
- Enhancing EIA's analysis tools, including an assessment of EIA's energy modeling capabilities to address emerging global trends.
- Implementing a strategic workforce development plan that meets EIA's evolving mission requirements and accounts for changing workplace dynamics (e.g., increased remote telework).

Critical Events and Action Items

Key weekly release events

Weekly Petroleum Status Report – each Wednesday
Weekly Natural Gas Storage Report (principal Federal economic indicator) – each Thursday

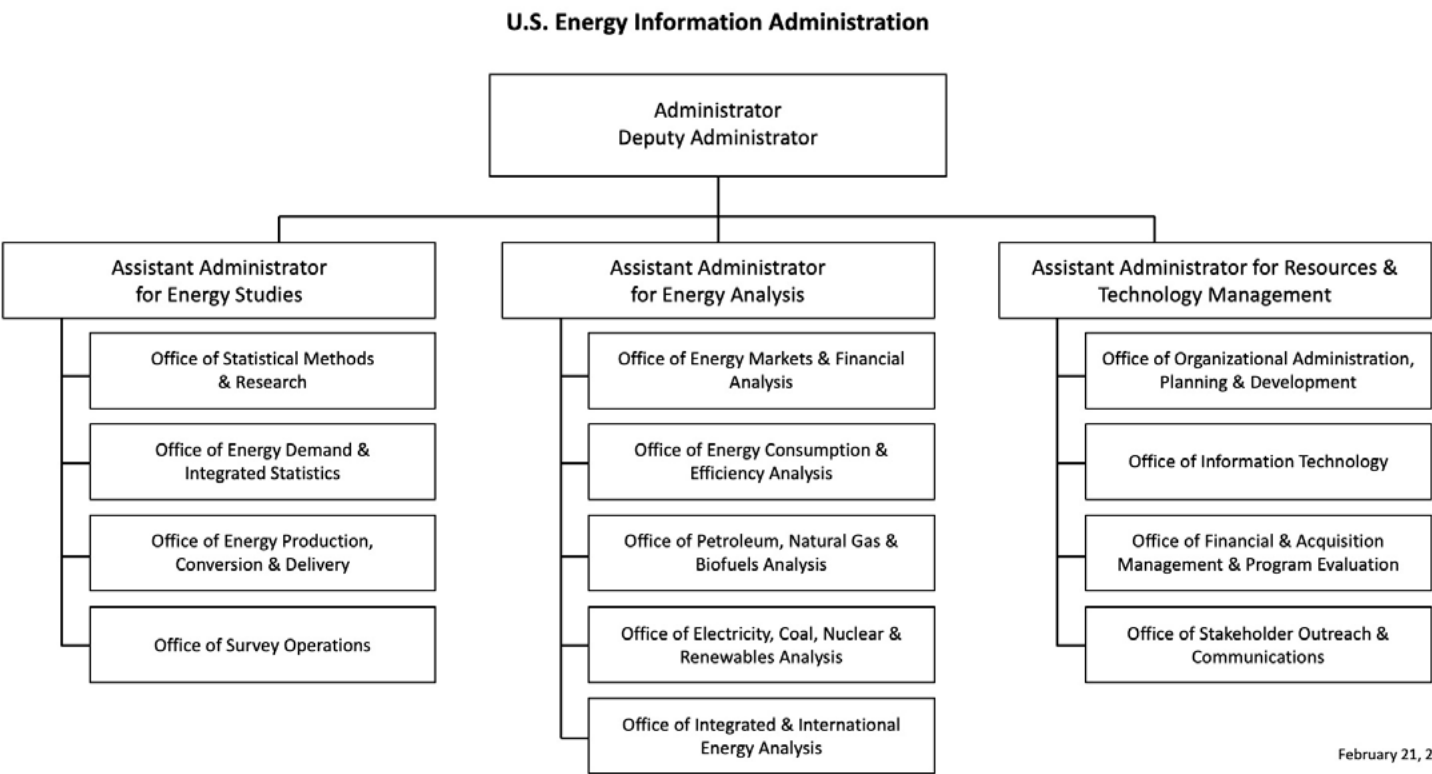
Key monthly release events

January Short-Term Energy Outlook (STEO) – January 12, 2021 (forecast period extended through 2022)
February STEO – February 9, 2021
March STEO – March 9, 2021

Key annual release events

Annual Energy Outlook (AEO2021) – release scheduled for January 2021

Organizational Chart



Advanced Research Projects Agency-Energy (ARPA-E)

Supporting the DOE Mission

DOE's mission is, in part, to enhance U.S. security and economic growth through transformative science, technology innovation, and market solutions to meet our energy, nuclear energy, and environmental challenges.

The Advanced Research Projects Agency-Energy (ARPA-E) supports DOE's mission differently than other programs because it focuses on high risk/high potential advanced energy technologies. Pursuant to its authorizing statute – The America COMPETES Act of 2007 – ARPA-E accelerates “transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty.” Its role is to identify, fund and actively manage research projects that will overcome the long-term and high-risk technological barriers preventing a potentially transformational technological innovation from the stage where private investment can drive it into a marketable product.

Using a highly entrepreneurial funding model and a portfolio approach, ARPA-E supports specific transformational energy technologies where a short-term R&D effort can deliver game-changing results over a defined period of time. ARPA-E's portfolio of technologies can potentially work in synergy to address multiple goals simultaneously. The Agency supports a number of competitive approaches to reach technology targets, but ultimately lets the private sector select those approaches best for business.

ARPA-E's Program Directors, acknowledged leaders in their respective fields of science and engineering, pitch new technical programs to agency leadership. The agency's streamlined awards process enables ARPA-E to act quickly and catalyze cutting-edge areas of energy research, with rigorous program design, competitive project selection processes, and active program management to ensure thoughtful

expenditures. Program Directors establish milestones with researchers and in the event those milestones are not met, projects can be terminated in short order. ARPA-E's Program Directors play an active role in project management, including regular reviews of project progress.

ARPA-E prioritizes projects that will enhance the economic and energy security of the United States and ensures that we maintain a technological lead in developing and deploying advanced energy technologies. ARPA-E evaluates all of the proposals that it receives to determine whether or not they support these objectives.

Mission Statement

ARPA-E's mission is to overcome long-term and high-risk technological barriers in the development of energy technologies. Its goal is to “enhance the economic and energy security of the United States through the development of energy technologies” that (1) “reduce imports of energy from foreign sources; (2) reduce energy-related emissions, including greenhouse gases; (3) improve the energy efficiency of all economic sectors; and (4) ensure that the United States maintains or re-establishes a technological lead in developing advanced energy technologies.”

Budget

Fiscal Year	Budget
FY 2019 enacted	\$366,000,000
FY 2020 enacted	\$425,000,000
FY 2021 request	\$0

Human Resources

The ARPA-E Director is authorized under The America COMPETES Act to use special hiring authority to bring on technical staff without regard to civil service constraints. ARPA-E technical staff are hired for 2-3 year terms, in order to ensure a steady stream of new ideas and approaches. The agency is always hiring and refreshing its staff.

As of September 2020, ARPA-E has ~55 Federal employees. ARPA-E currently leases the 8th floor suite of 950 L'Enfant Plaza in Washington, DC.

History

In 2005, leaders from both parties in Congress asked the National Academies to “identify the most urgent challenges the U.S. faces in maintaining leadership in key areas of science and technology,” as well as specific steps policymakers could take to help the U.S. compete, prosper, and stay secure in the 21st Century.

In its report for Congress, *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, the National Academies called for decisive action, warning policymakers that U.S. advantages in science and technology – which made the country a world leader for decades – had already begun to erode.

The report recommended that Congress establish an Advanced Research Projects Agency within the U.S. Department of Energy (DOE) modeled after the successful Defense Advanced Research Projects Agency (DARPA) – the agency credited with such innovations as GPS, the stealth fighter, and computer networking.

In 2007, Congress passed and President George W. Bush signed into law The America COMPETES Act, which officially authorized ARPA-E’s creation. In 2009, Congress appropriated \$400 million to the new Agency, which funded ARPA-E’s first projects. Since 2009, ARPA-E has funded more than 950 potentially transformational energy technology projects. Many of these projects have already demonstrated early indicators of technical success. For example, as of September 2020:

- 166 ARPA-E projects have attracted more than \$6.5 billion in private sector follow-on funding.
- 86 companies were formed by ARPA-E projects, including QuantumScape, which just announced its IPO and \$3 billion valuation.
- 229 projects have partnered with other government agencies to further development.
- ARPA-E projects have resulted in the U.S. Patent and Trademark Office issuing 609 patents.

Functions

In order to overcome the long-term and high-risk technological barriers in the development of energy technologies, ARPA-E is:

- Identifying and promoting revolutionary advances in fundamental sciences
- Translating scientific discoveries and cutting-edge inventions into technological innovations
- Accelerating transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty

ARPA-E coordinates closely with other DOE programs, the rest of the federal government, academia, and the private sector to identify “white space” where others are not making investments in innovation and where ARPA-E’s support would be appropriate. Typically, these technologies involve entirely new learning curves, which offer the prospect of transformational and disruptive technologies with dramatically improved cost-to-performance ratios compared to present-generation technologies.

The inherent design of ARPA-E makes it impossible to predict in detail the specific technologies that will garner future investment. Nevertheless, ARPA-E envisions building from existing learning, often in a nonlinear and unexpected fashion, with a focus on both transportation and stationary energy, in the following broad areas:

- Artificial Intelligence
- Fusion
- Nuclear
- Carbon Capture and Storage
- Electrification
- Biofuels
- Hydrokinetic Power

Recent Organization Accomplishments

- In 2020, ARPA-E launched the first-of-its-kind Seeding Critical Advances for Leading Energy technologies with Untapped Potential (SCALEUP) program. SCALEUP builds from ARPA-E’s primary R&D focus to support the scaling of high-risk and potentially disruptive new technologies across the full spectrum of energy applications. SCALEUP is a means to address promising energy technologies that require scale-up or pre-pilot projects to enable a path to market and ultimately lead to realized commercial impact.

SCALEUP performers are required to have at least one Commercialization Partner. Commercialization Partners may include potential customers, end-users, suppliers, corporate investors, manufacturers, and distributors, etc. Financial Partners, which may include venture capitalists, accelerators/incubators, angel/impact investors, etc. are optional, but are considered in the selection process.

Two projects were selected under a “Fast Track” option offered to applicants who could justify the urgency of their funding need in order to receive funding at an accelerated pace relative to the full program timeline. ARPA-E developed the “Fast-Track” in response to disruptions in the investor and R&D financing communities caused by COVID-19, as well as related capital concerns on the part of a number of SCALEUP applicants. Teams not selected for the “Fast-Track” option are still eligible and under consideration for funding under the full SCALEUP program, where selections are anticipated in January 2021.

- Project Selections

Program	Project Selections	Award	Announcement Date
DIFFERENTIATE	23	\$15mm	11/19/19
BETHE	15	\$32mm	04/07/20
PERFORM	10	\$25mm	04/23/20
GEMINA	9	\$27mm	05/13/20
FLECCS	12	\$11.5mm	07/13/20
REPAIR	10	\$33mm	08/06/20
REEACH	8	\$18.5mm	08/26/20
ASCEND	9	\$14.5mm	08/26/20
SMARTFARM	6	\$16.5mm	09/01/20
GAMOW	14	\$29mm	09/02/20

- Funding Opportunities (currently in the application and selection phases as of 10/1/2020):

Program / Funding Opportunity	Announcement Date
SHARKS FOA	04/09/20
ULTIMATE FOA	04/21/20
ECOSynBio FOA	09/10/20

- Competitions

Competition	Winners	Award	Announcement Date
GO Competition Challenge 1	10	\$3.4mm	02/12/20

Leadership Challenges

COVID-related impacts on agency and performer operations: COVID-related remote work requirements and travel bans have forced many ARPA-E research performers to either slow down or, in some cases, stop work. ARPA-E will continue to work with funded researchers to ensure they can start work when conditions allow and where necessary, will modify cooperative agreements to extend the time period they have to complete their research.

Program Director/Technology-to-Market Advisor recruiting: limited terms require constant recruiting: ARPA-E Program Directors and Technology-to-Market Advisors are hired for limited 2 to 3-year terms. This ensures a steady stream of new ideas in the agency, but also requires leadership to maintain constant recruitment efforts. The nature of ARPA-E programs requires the top tier of scientific minds as program directors, and these individuals are in high demand.

Implementation of SCALEUP Projects: ARPA-E plans to select most of the performers under its first-of-its-kind SCALEUP program in January 2021. These are different than past ARPA-E projects in that they are closer to commercialization and require different forms of support. ARPA-E leaders, Program Directors, and Technology-to-Market Advisors will need to develop new procedures and policies to support SCALEUP performers.

2021 ARPA-E Summit – May 2021: ARPA-E is scheduled to hold its 11th Energy Innovation Summit in May 2021 at the Gaylord National Convention Center in National Harbor, Maryland. In addition to the normal challenges associated with managing such a large event, COVID-19 will likely impact Summit operations in a manner yet to be determined. ARPA-E leadership will need to work with its Summit production partner, eventPower, to adapt Summit operations to provide the safest event possible, while still providing the energy innovation community the opportunity to network at one of its premiere events.

Critical Events and Action Items

SCALEUP program selection announcements

SCALEUP performer selections are scheduled to be announced in January 2021. ARPA-E will want to drive significant interest in the projects, as the program's goal is to get them to pre-pilot stage with private sector support.

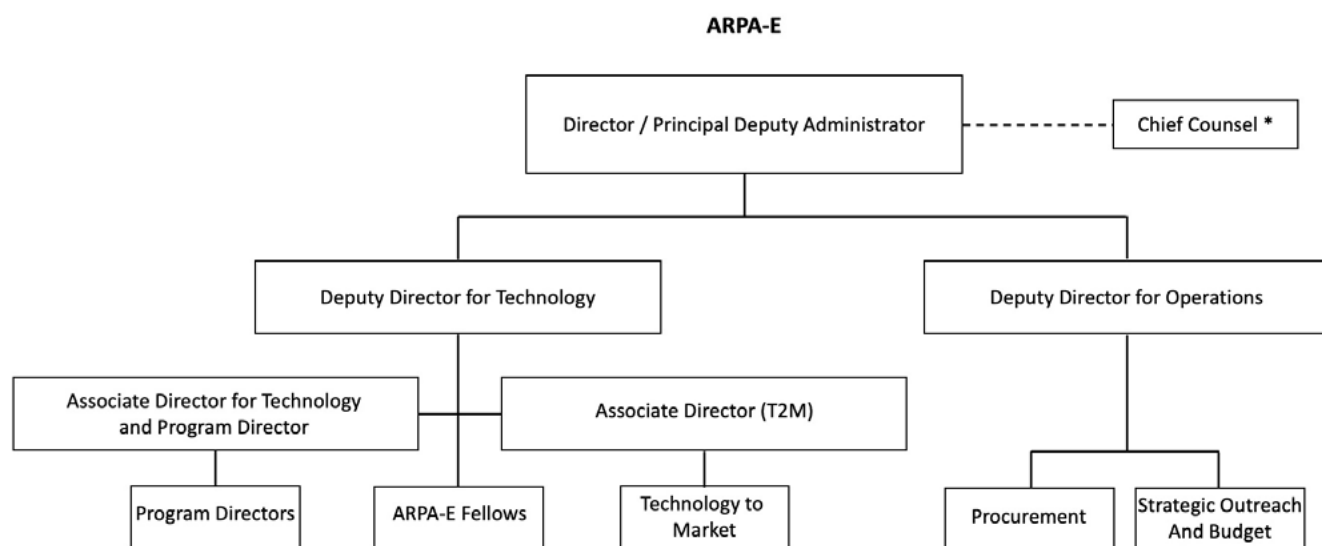
2021 Energy Innovation Summit

ARPA-E and its production partner, eventPower, will need to execute the 2021 Summit likely with changes from most year's operations due to COVID-19-related restrictions.

OPEN 2021 Funding Opportunity

Historically, ARPA-E holds an OPEN funding opportunity every three years. Budget-permitting, ARPA-E will need to conduct the review and selection process, which typically includes thousands of applications across a wide range of energy-related technical areas.

Organizational Chart



* ARPA-E Chief Counsel Functionally Reports to DOE General Counsel

Office of International Affairs

Supporting the DOE Mission

The Office of International Affairs (IA) has the primary responsibility for addressing international energy issues affecting the United States on behalf of the Department of Energy. The office seeks to:

- Promote American Energy Dominance, including expansion of markets for U.S. energy and energy technology exports as the U.S. changes from an energy importer to an energy exporter.
- Advance the U.S. competitive energy philosophy utilizing all fuels and all technologies.
- Enhance global energy security and enhance foreign investment protections in countries vulnerable to malign influence.

Mission Statement

The Office of International Affairs (IA) is the Primary DOE coordinator for the international implementation of activities across all program offices for the Secretary and Deputy Secretary advancing U.S. economic and energy security goals, including countering malign activities.

IA is also responsible for promoting US energy exports and trade to support growth, supporting ally and partner diversification of energy sources and supplies, strengthening global energy supply chains.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$22,878,000
FY 2020 enacted	\$26,825,000
FY 2021 requested	\$32,959,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 73

History

The Office of International Affairs was established when the Department of Energy Organization Act

of 1977 was passed. This Act also required an Assistant Secretary for International Affairs (IA-1). Since the Department was established in response to the oil price shocks in the 1970s, international affairs was always heavily involved in providing energy security for the United States.

Functions

IA's functions include:

Energy Security, Efficiency and Diversity of Supply

Enhance global energy security through diversification, resilience, and access to secure and reliable energy sources.

Work to counter malign influence through implementation of the Foreign Investment Risk Review and Modernization Act of 2018; ensuring the energy security of NATO and other allies.

Provide independent technical and policy advice for the Administration

Bilateral and Multilateral Engagement.

Maintain high-level cooperation with key energy partners.

Create a vibrant global regulatory and innovation ecosystem, in which the United States is the leader and strategically collaborates with allies and partners.

Market Development.

Develop and maintain energy markets to promote U.S. energy exports and trade.

Promote and protect the U.S. innovation base through results-oriented science and technology collaborations with allies and partners.

Regional Expertise.

Through regional expertise, The the Office of International Affairs leads the Department's coordination of global efforts to develop and execute policy and technical energy programs to promote security for the United States and its partners and allies; U.S. economic growth that benefits American business and people; and global political stability and prosperity through

energy development. The regional offices of IA leverage years of global relationships with both foreign and domestic stakeholders to serve as the principal advisor to the Secretary of Energy on all International Energy issues.

IA maintains regular bilateral engagements with numerous countries including: Australia, Brazil, Canada, Egypt, Greece, India, Iraq, Israel, Japan, Jordan, Libya, Mexico, Poland, Qatar, Romania, Saudi Arabia, South Africa, UAE, United Kingdom, and Vietnam.

Recent Organization Accomplishments

Oil Demand Shock Actions Under COVID-19

IA played an instrumental role in domestic and international discussions with G20 and OPEC producing countries in order to advocate programs to balance the supply and demand of the oil market and reduce the negative impact from COVID-19.

Civil Nuclear Projects

IA is in the process of completing the signings of two Intergovernmental Agreements (IGA) with Poland and Romania for the development of civil nuclear reactors, supporting U.S. technology, and U.S. contractor support (EPC's). These agreements will serve as a template for the region.

IA leads the interagency effort to bolster U.S. civil nuclear technology in Europe to ensure level playing field for US vendors; strengthen bilateral cooperation with long-term investment relation; thwart malign influence of Russia and China; and provide reliable, safe and clean energy options for allies and partners. IA is also pursuing civil nuclear development in the UK, Slovenia, Brazil and various other countries.

Partnership for Transatlantic Energy Cooperation (P-TEC)

Through IA's leadership in the P-TEC four lines of discussion, working groups were established on the topics of critical infrastructure, nuclear energy, security of fuel supply, and energy efficiency and renewable energy. As a result of this, member countries are developing programs to assure the desynchronization of the Baltics from Russian influence and promote integration into the European grid. Member countries are also working

to ensure their security of supply through key interconnectors for natural gas and small scale LNG terminals throughout Europe.

P-TEC was founded to support the energy goals of the Three Seas Initiative (3S1) by providing support to European countries as they seek to reduce their energy dependence on Russia. P-TEC includes participation from 23 countries and European Union, as well as State and USAID. Participation is broken up into the four working groups (as described above) and each is co-chaired by a DOE Office and a P-TEC member country.

International Energy Agency (IEA)

IA has completed two strategic petroleum reserve agreements with Australia (leasing agreement) and New Zealand (ticketing arrangement) to help countries meet their IEA obligations.

IA-1 serves as a governing board member of the IEA and DOE has leadership roles on many IEA committees. Our leadership led to the creation of the Energy Efficiency Hub and the Nuclear Innovation Clean Energy (NICE) Future Initiative and Carbon Capture Utilization and Storage (CCUS) Initiative under the Clean Energy Ministerial.

The IEA provides authoritative and policy-relevant statistics, modeling, analysis, and activity coordination with a core focus on energy security. In recent years, the IEA has further developed its clean energy capacities with a systems-wide, "all fuels, all technologies" approach in sync with U.S. policy.

U.S. LNG Export Opportunities

IA helped facilitate LNG export opportunities for several countries including Croatia, Portugal, Greece, Israel, Morocco and Vietnam.

Committee on Foreign Investment in the United States (CFIUS)

IA implements the CFIUS program for the Department of Energy and reviews approximately 250 cases per year with an average of 40 active cases to address national security concerns over foreign exploitation of certain investment structures. Based on the expansion of CFIUS' jurisdiction and authority under the Foreign Investment Risk Review Modernization Act of

2018 (FIRRMA), IA anticipated this will rise to 1,000 investigations per year.

Energy Partnerships with UAE and Israel

Following on the recently signed Abraham Accords, IA is forming and developing strategic energy partnerships with the UAE and Israel to promote energy security and prosperity in the region.

Serbia and Kosovo

Following the President's signing of the Serbia-Kosovo Economic Normalization Agreement (ENA) IA leads a delegation of technical experts to the region to conduct an assessment for management of their cross-border lake and for energy diversification in the region.

Iraq Strategic Energy Dialogues

IA helped to facilitate \$6 billion in energy deals between U.S. companies and Iraq that were announced during the Prime Minister's visit to the White House in August 2020.

Israel-U.S. Binational Industrial Research and Development (BIRD) Program

In 2019, through the BIRD Energy program IA selected 7 projects for funding and invested \$6.4 million in cooperative Israel-U.S. clean energy projects. The total value of the approved projects was \$15.4 million, which includes \$9 million of cost share from the companies selected for funding.

BIRD Energy is a joint program between the U.S. Department of Energy, the Israel Ministry of Energy jointly with the Israel Innovation Authority, and the BIRD Foundation. This program develops innovation through U.S.-Israel cooperation on a range of clean energy technologies, including renewable energy, energy efficiency, natural gas, and energy-water technologies.

G20

IA coordinates DOE's G-20 activities, including U.S. engagement in the energy working groups and the G20 Energy Ministers' meetings, and supports the White House in executing its G-20 strategies. IA negotiated the G20 Energy Communique for the United States on September 28, 2020.

Leadership Challenges

Budget Constraints

Budget constraints prohibited the office from supporting over \$3 million worth of initiatives that would promote our objectives.

COVID-19

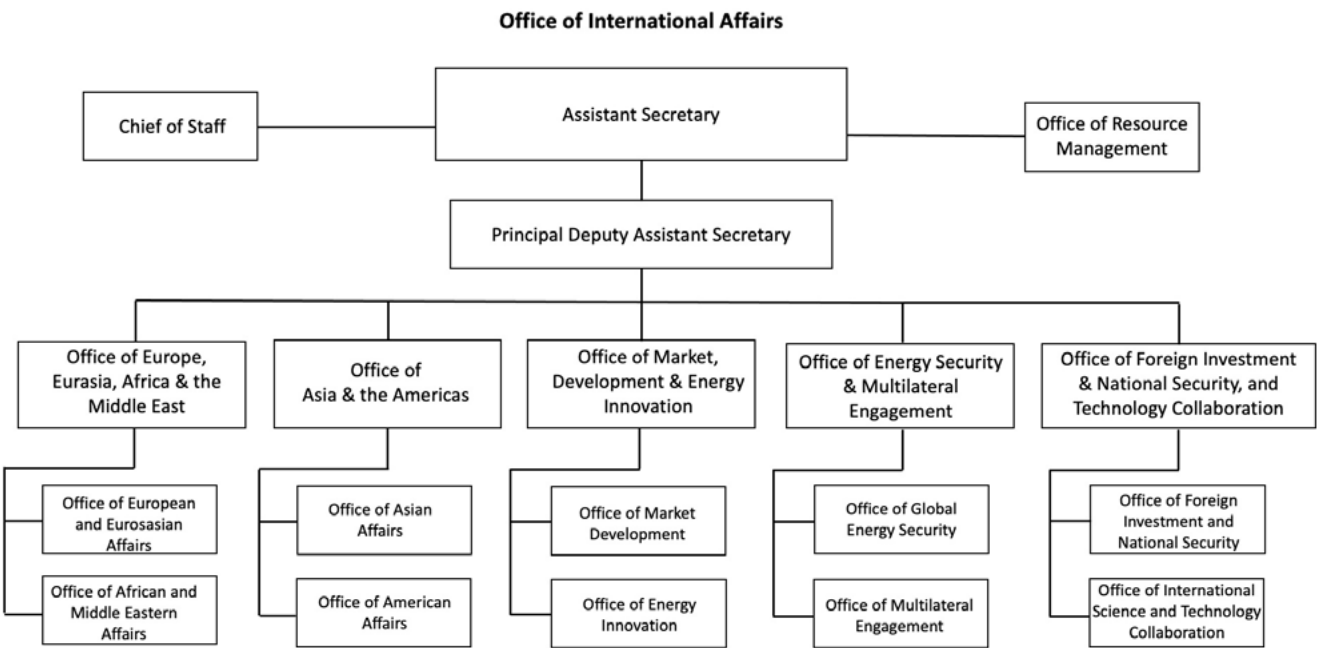
The COVID-19 pandemic has significantly limited our ability to travel and to foster personal connections with our allies and counterparts. At the same time, the pandemic has placed a higher demand on virtual international events and reduced staff in the building to assist with said events.

Critical Events and Action Items

2021 Q1 critical events and action items, in chronological order:

- Munich Security Conference (February 2021)
- Partnership for Transatlantic Energy Cooperation (P-TEC) Virtual Ministerial (February 2021 if not held late 2020)
- US-EU Energy Summit (March TBC)
- SMR U.S.-E.U. Conference (March TBC)
- CERA Week (March 1-5, 2021)
- International Energy Agency (IEA) Governing Board Meeting (March 24-25, 2021)
- Gulf of Aqaba Energy Dialogue (TBD)
- Eastern Mediterranean Gas Forum Ministerial (TBD)
- Strategic Energy Dialogues with KSA, UAE, Egypt, Qatar, and South Africa

Organizational Chart



Office of Congressional and Intergovernmental Affairs

Supporting the DOE Mission

The Assistant Secretary for Congressional and Intergovernmental Affairs (CI) manages overall relations with Members of Congress and supports the Secretary as the chief strategic advisor on all interactions with congressional and state officials. CI also facilitates the confirmation process of all DOE Senate confirmed officials and notifies Congressional members and State officials of DOE announcements, initiatives, proposals, and grants which may affect their respective jurisdictions, across the full range of DOE's energy, national security, environmental, and science and technology missions, and assures any appropriate follow-up is provided.

Mission Statement

To promote the Secretary's, Department's, and Administration's policies, legislative initiatives, and budget requests with the Congress, State, territorial, Tribal, and local government officials, and other Federal agencies. CI is also responsible for managing and overseeing the Department's liaison with Members of Congress, other levels of governments, and stakeholders, which includes consumer liaison and public interest groups.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$6,200,000
FY 2020 enacted	\$4,395,000
FY 2021 requested	\$5,626,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 33

Functions

The CI functions are organized around the following major constituency groups: Congressional, Intergovernmental, Tribal, and External Affairs.

Congressional Affairs

CI provides oversight, management, and direction of legislative strategies in connection with the Department's policy and program initiatives, and ensures that the Department's positions are properly communicated with the Congress. CI provides advice and guidance to the Secretary, Deputy Secretary, and Under Secretaries on policy issues and Members' interests and concerns, and facilitates accurate, timely information and responses to the Congress. Congressional interactions and hearings on National Nuclear Security Administration (NNSA) issues are handled by the NNSA Office of External Affairs. Issues involving appropriations and appearances before the appropriations committees are handled by the External Coordination Office in the Office of the Chief Financial Officer (CFO).

Hearings

CI prepares Departmental officials for congressional hearings, including confirmation, programmatic, and oversight hearings before authorizing committees. CI works in close coordination with the CFO, which leads preparations for budget hearings. In this capacity, CI manages testimony development, prepares DOE officials for engaging in hearings, and manages the Department's response to questions for the record. The Department's primary authorizing committees are: Senate Energy and Natural Resources; Senate Armed Services; House Energy and Commerce; House Armed Services; and House Science and Technology.

Budget

CI works in partnership with the CFO and Public Affairs offices on an annual basis as the CFO leads coordination and preparation of Departmental officials for the roll-out of the President's Budget to Congress. This includes multiple meetings, briefings, and hearings before the congressional committees of jurisdiction.

Congressional Communications

CI, with the support of specific Program Offices, responds to congressional requests and inquires,

and prepares all Departmental officials for meetings, briefings, site visits, and engagements with Members of Congress, Congressional staff, or committees. CI notifies Congressional members of DOE announcements, initiatives, proposals, and grants which may affect their respective states across DOE's energy, national security, environmental, and science and technology missions, and assures any appropriate follow-up is provided. The CFO manages and coordinates briefings for the Energy and Water Appropriations Subcommittee staff in the House and Senate and provides all notifications to the appropriations committees, as needed.

Legislation

CI provides counsel, advice, and support on all legislative and non-legislative initiatives of Congress and the legislative implications of major Departmental programs and policies. CI works in counsel with the Office of General Counsel who officially manages, and catalogues, all legislation introduced to Congress that could affect DOE programs. The CFO leads the engagement with the appropriations committees on DOE annual funding bills.

Oversight and Investigations

CI coordinates with the Office of General Counsel in managing Congressional oversight and investigations requests, including the document production process.

Intergovernmental and External Affairs (IGEA)

CI maintains ongoing communications with governors, state legislators, tribal, and local officials across the country. CI proactively engages stakeholders to ensure that their views are considered as part of the Department's decision making process. CI also communicates routinely with all relevant stakeholders on DOE announcements, initiatives, proposals, and grants, and assures appropriate follow-up.

The Department has a physical presence in 30 states. Of those, much of CI's focus is on 12 states where multiple, ongoing DOE missions are executed (California, Colorado, Idaho, Illinois, Ohio, Kentucky, Nevada, New York, New Mexico, South Carolina, Tennessee, and Washington).

CI interacts on a regular basis with intergovernmental and tribal associations including but not limited to: the National Governors Association; regional governors associations; National Association of Attorneys General; National Congress of American Indians; National League of Cities; National Conference of State Legislatures; National Association of Counties; U.S. Conference of Mayors; Southern States Energy Board; and the National Association of State Energy Officials. The focus of CI's work with these organizations is to communicate the activities of DOE programs, policies, and initiatives and solicit these groups' views, comments, and concerns. These efforts extend to a broad group of constituencies, to include business/industry, civic groups, colleges, universities, foundations, trade associations, and energy-oriented organizations.

Tribal Affairs

CI engages with the 566 federally-recognized tribes, and the tribes' more than 250 reservations. This includes: advising and informing DOE senior officials on the potential impacts of Departmental programs on tribal interests and culture; developing and enhancing working relationships with Tribal leaders and organizations and entities working with tribal governments; representing DOE with sovereign Tribal governments and at tribal meetings and conferences; and recommending policies and procedures for on-going collaboration between DOE and tribes.

Recent Organization Accomplishments

CI has accomplished the following activities during the course of the 116th Congress.

Successful Nomination Hearings

During the course of FY 20 CI has supported the timely execution of multiple nominations hearing including the nomination of a new Secretary and Deputy Secretary of Energy. Earlier in the Congress CI also helped facilitate nomination hearings for the Assistant Secretary for Nuclear Energy, the Assistant Secretary for Energy Efficiency and Renewable Energy, the Assistant Secretary for Environmental Management, the General Counsel, the Director of the Advanced Research Projects Agency-Energy, and others.

Congressional Hearings

CI has supported Departmental participation in 52 hearings over the course of FY19/20 and helped to provide responses to 962 questions from Member of Congress.

State Negotiations

CI has been integral in maintaining and advancing relationships with stakeholders at the state level. In some cases CI has been a key partner in bringing states to the negotiating table to resolve differences and advance mutually beneficial solutions to shared challenges.

Congressional Engagement

CI has also helped to facilitate approximately 500 congressional member and staff briefings and advance congressional and intergovernmental notification of nearly 200 important DOE priorities, events, advancements, and funding announcements.

Industry Engagement

CI held numerous conference calls and industry roundtables over the course of the year to connect energy industries and stakeholders with Departmental leadership to help inform, and advance, DOE policies. These conversations spanned all of the applied energy sectors and helped inform the Department's, and Administration's, response to the COVID-19 pandemic and to major disruptions in energy markets resulting from that event.

Tribal and Arctic equities

CI continues to be a key component in planning, organizing, and executing the Department's interactions with tribes. This includes participation in the Indian Country Energy and Infrastructure Working Group and in planning, organizing, and conducting the National Tribal Energy Summit which occurs every two years. CI also helped advance the Department's re-establishment of the Arctic Energy Office in Fairbanks, Alaska.

Leadership Challenges

CI leadership challenges include:

Financial Constraints

CI received a reduction of \$1.9 million in funding as part of the FY 2020 appropriations process.

This has created a situation where the office faces significant funding constraints to accomplish its mission. CI has implemented aggressive cost cutting, is working with the Office of the Chief Financial Officer to gain additional funding and remain solvent, and has requested increased financial resources as part of the FY21 and FY22 budget process.

New Administration Confirmation

Manage the confirmation process for new Administration officials in a smooth and timely manner with fewer staff given the political nature of CI's workforce.

Stakeholder Coordination

Coordinate a high volume of stakeholder inquiries in the new Administration's energy priorities and leadership. Historically, CI has also organized roundtable events to connect the newly installed Secretary with organizations representing major energy industries and elected officials.

Staffing Resource Constraints

CI has an authorized staff level of 33 employees of these approximately 20 are Schedule-C positions. CI will lose more than half of its workforce during a transition making management of constrained staff resources while Schedule-C positions are filled an ongoing challenge. This is exacerbated by the fact that the beginning of the calendar year is often a busy time for CI due to the rollout of the President's budget request and required associated hearings and briefings.

Critical Events and Action Items

3-month events

Prepare the incoming DOE Secretary nominee for confirmation hearings, including DOE program briefings and congressional courtesy visits.

Develop issue-specific questions and answers, and briefings and background information on new Administration DOE and legislative issues.

Manage confirmed DOE Secretary's initial round of congressional hearings.

Advise on and schedule appropriate Secretarial participation in "Big Seven" Intergovernmental

Groups' Annual Washington DC Meetings (occurring in February and March) and conduct "meet-and-greet" roundtables with major energy industry trade associations if deemed appropriate.

6-month events

Manage the confirmation process for all DOE nominees (anticipate 2-4 nomination hearings to include waves of multiple nominees in each hearing).

Finalize and begin implementing an outreach and communications strategy with Members of Congress and leaders of major constituent groups (e.g., industry, environmental, academic groups).

Rollout the FY 2022 revised DOE Budget Request to Congress.

Manage program oversight and issue hearings for Program Secretarial Offices.

Coordinate the DOE Secretary and Deputy Secretary congressional, intergovernmental, and external

affairs engagements during anticipated travel and tours of the DOE complex and field sites.

Assist with Departmental priorities for inclusion in major legislative packages to include, but not limited to, the National Defense Authorization Act, and other major legislative packages that could contain DOE equities.

12-month events

Continue execution of the outreach and communications strategy with Members of Congress and leaders of major constituent groups (e.g., industry, environmental, academic groups).

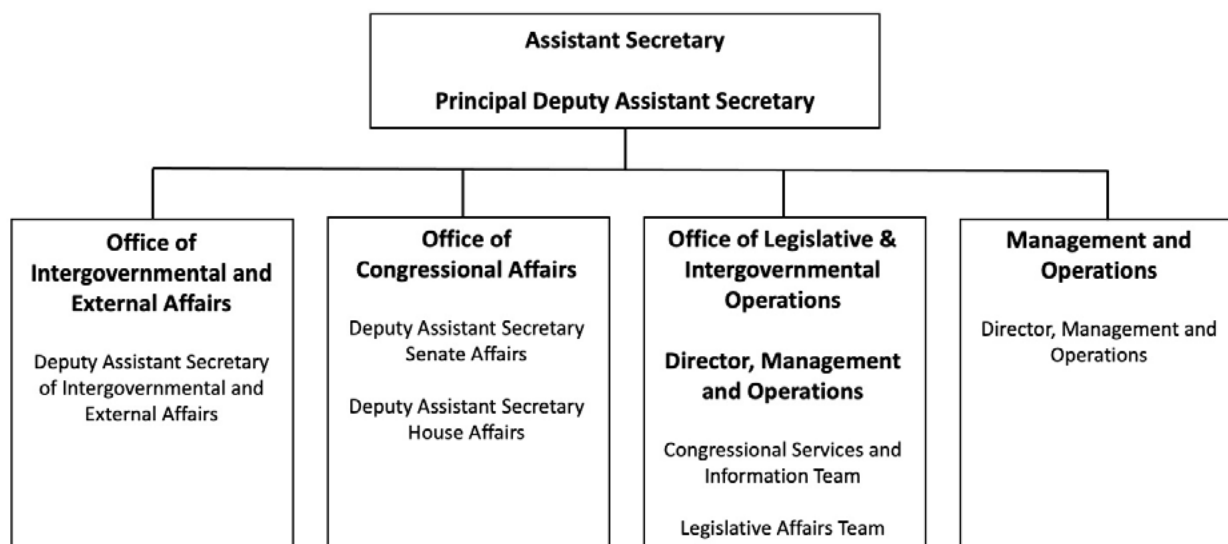
Continue engagement and outreach on annual legislative priorities.

Develop and implement August congressional recess travel schedule for the DOE Secretary, Deputy Secretary, and Under Secretaries.

Assist the CFO with engagement on conference negotiations of appropriations legislation.

Organizational Chart

Office of Congressional and Intergovernmental Affairs



Office of Enterprise Assessments

Supporting the DOE Mission

The Office of Enterprise Assessments (EA) supports the Department's mission priorities for the secure, safe, and efficient operation of the nuclear weapons complex, science and energy research, and environmental cleanup by (1) conducting independent assessments of security, cybersecurity, and safety performance throughout the Department, (2) holding contractors accountable for violations of security and safety regulations, and (3) providing training programs that further technical competence and institutionalize enterprise security and safety lessons learned. EA, reporting directly to the Secretary of Energy, is organizationally independent of the DOE entities that develop and implement safety and security policies and programs so it can provide objective and timely information to DOE senior leadership on whether national security material and information assets are appropriately protected and whether Departmental operations provide for the safety of employees and the public. EA activities serve as an important check-and-balance that assists the Department in meeting its obligations as a self-regulating entity.

Mission Statement

The Office of Enterprise Assessments supports the Secretary of Energy and other stakeholders by enhancing DOE's safety, security, and cybersecurity programs. We do this through independently evaluating the effectiveness of requirements, performance, and risk management; conducting objective and effective enforcement activities; and providing high-quality training.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$76,770,000
FY 2020 enacted	\$78,779,000
FY 2021 request	\$81,584,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 94

History

EA was established in 2014 to provide separation for its independent functions from a much larger organization that also included DOE's safety and security policy functions. The core missions of independent oversight, enforcement and training have existed within other organizations for more than three decades.

Functions

EA's primary functions include:

Implementing the Congressionally-authorized DOE enforcement program to promote overall improvement in the Department's nuclear safety, worker safety and health, and classified information security programs.

Managing the Independent Oversight Program, providing the Office of the Secretary, DOE and contractor managers, Congress, and other stakeholders with an independent enterprise evaluation of the adequacy of DOE policy and the effectiveness of line management performance in safeguards and security; cybersecurity; nuclear safety, emergency management; environment, safety, and health; and other critical functions.

Operating the National Training Center, the Department's designated Center of Excellence for Security and Safety Training and Professional Development, which establishes and provides training and education for Departmental leadership and federal and contractor staff nationwide in the areas of health, safety, security, and professional development, thereby strengthening the expertise available to meet the current and future mission needs of the Department.

Recent Organization Accomplishments

Conducted a DOE-wide Pandemic Lessons Learned Review in 2020. EA partnered with several DOE line management program offices to conduct interviews and review documents across laboratory and field organizations, both Federal and contractor, as well as DOE Headquarters. The team collected more than 3,000 specific comments, resulting in more than 80 lessons learned, in addition to identifying

best practices that may be utilized to enhance Departmental responses to similar crises in the future. A final report will be issued before the end of calendar year 2020.

Performed approximately 15 announced and unannounced cybersecurity assessments during FY 2020 of DOE classified and unclassified information management systems to identify potential cyber security weaknesses that could lead to compromise of sensitive DOE information. Developed new remote technical vulnerability and penetration testing capabilities that proved especially useful for continuing cybersecurity assessments during the COVID-19 pandemic.

Conducted approximately 15 safeguards and security assessments during FY 2020, including force-on-force exercises and limited-notice safeguards and security performance tests, at DOE / NNSA sites with strategic levels of national security assets, Special Access Programs and Sensitive Compartmented Information Facilities to provide assurances that national security assets entrusted to the Department are being protected from theft, sabotage, diversion, or loss.

Conducted approximately 40 nuclear, worker safety and health, and emergency management assessments during FY 2020 to identify weaknesses in DOE operations that could harm workers or the public. These activities included:

- A DOE-wide assessment of radioactive waste packaging and shipping practices undertaken at the request of the Deputy Secretary of Energy. The assessment included 16 site evaluations that culminated in a crosscutting analytical report identifying best practices and recommendations intended to promote organizational learning and improved performance in radioactive waste management throughout DOE;
- Continued emphasis on assessing major nuclear facility design, construction, and modification projects to include evaluations of safety design basis documents for the Tank Side Cesium Removal Project, Waste Treatment and Immobilization Plant Low-Activity Waste Facility, and Waste Encapsulation and Storage Facility at the Hanford Site; the Material Storage Facility at the Pantex Plant; the Tritium Facility at the Savannah River Site; and the Versatile Test Reactor at the Idaho National Laboratory; and

- A crosscutting assessment of safety culture sustainment processes at eight sites across the DOE enterprise. The assessment evaluated the maturity of these processes and provided insights for fostering and supporting continuous improvement in this area, which has been the subject of Government Accountability Office and Defense Nuclear Facilities Safety Board scrutiny.

Initiated five enforcement cases, completed four fact-finding visits and one regulatory program assistance review, and evaluated nearly 200 noncompliance reports during FY 2020. In addition, instituted a strategy to enhance the effectiveness of DOE's nuclear safety, worker safety and health, and information security enforcement programs through expanded use of civil penalty and remedy authorities, accelerated initiation of enforcement investigations, and renewed risk-based regulatory reviews to improve contractor adherence to DOE safety and information security requirements.

Through the National Training Center:

- In collaboration with the National Nuclear Security Administration and Office of the Chief Human Capital Officer, developed and implemented a new DOE enterprise-wide learning management system to provide a consolidated common platform for federal and contractor employee development, expansive course catalog access, and career development modules;
- Issued more than 14,000 completion certificates representing more than 130,000 student hours of training attendance during FY 2020; and
- Instituted transformational changes in the DOE Federal Technical Capabilities Program by revising corporate program requirements, developing new program-specific technical qualification standards, and establishing systems to support an enterprise approach to continuing training. This program is integral to DOE's commitment to recruiting, deploying, developing, and retaining a technically competent workforce that will accomplish DOE missions in a safe and efficient manner.

Leadership Challenges

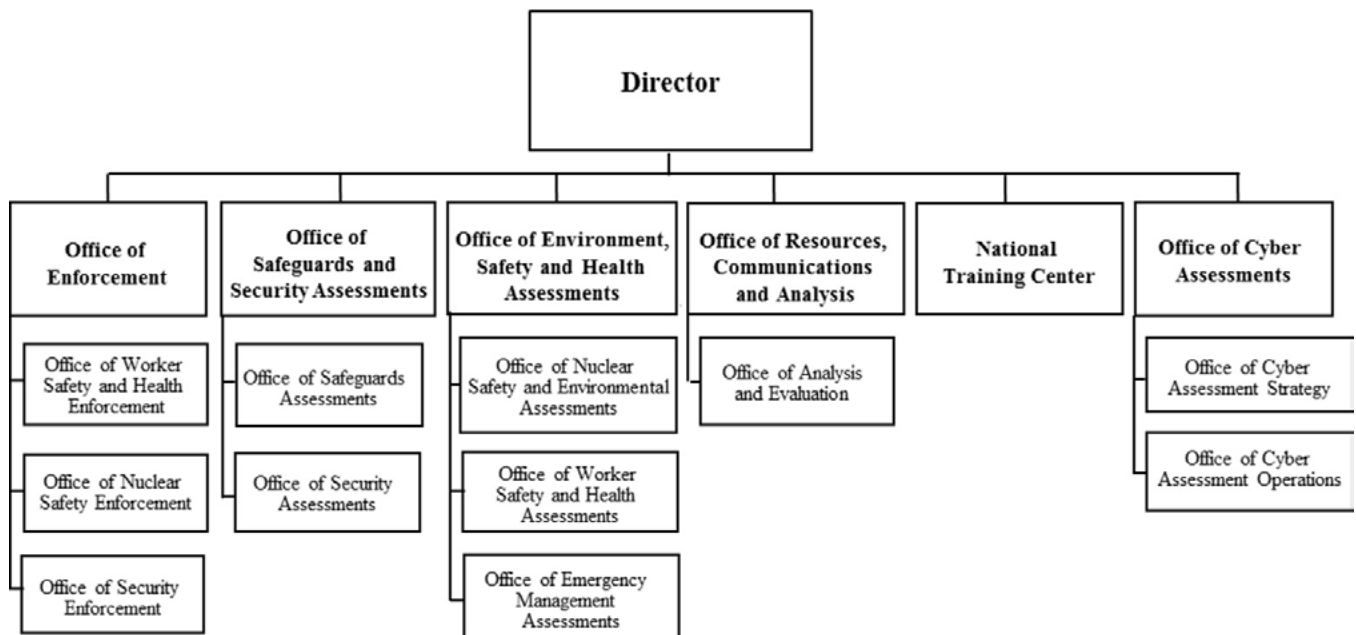
None.

Critical Events and Action Items

Departmental action on the findings of the Pandemic Lessons Learned Review. EA will share best practices and lessons learned and encourage DOE line management to benefit from the findings in ongoing pandemic responses and in preparing for similar situations in the future.

Organizational Chart

Office of Enterprise Assessments



Office of Public Affairs

Supporting the DOE Mission

The Department of Energy's (DOE) mission is to ensure America's security and prosperity by addressing its energy, environmental, and nuclear challenges through transformative science and technology solutions. The Office of Public Affairs supports this mission by communicating these priorities to the public.

Mission Statement

The Office of Public Affairs (PA) is the principal point of contact for the Department of Energy with the news media and general public.

PA is responsible for ensuring that the public is informed about the Department's activities as well as the priorities and policies of the Secretary and the President with regard to energy policy, nuclear security, and scientific discovery.

PA advises the Secretary and other Department officials on all aspects of media relations, digital outreach, and communications opportunities. The Office also helps guide and produce remarks and public statements for the Secretary, Deputy Secretary, and senior leadership. The Office manages both the technical and editorial aspects of Energy.gov, the Department's public facing web platform, and administers all top-level DOE-branded social media accounts.

PA advises Department leadership on digital communications best practices and provides digital service to the public.

PA prepares and issues Department press releases and media advisories and serves reporters assigned to the Department by responding to inquiries, arranging interviews, and conducting news conferences. The Office also coordinates the public affairs units of all Department organizations and coordinates and advises the communications staffs of the 17 National Laboratories. The Office ensures that information provided to the news media by the Department is current, complete, and accurate.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$6,594,000
FY 2020 enacted	\$4,000,000
FY 2021 request	\$5,954,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 30

Functions

Strategic Communications

The Office of Public Affairs strategic communicators develop communications plans that tell the story of the Department of Energy and National Laboratories while promoting the Administration's energy policy goals.

Strategic Communications looks ahead to the next 3 – 6 months to identify proactive opportunities to drive a positive and accurate narrative for DOE offices and the Administration.

This includes:

- Integrating holistic communications that advance DOE priorities across all communications channels.
- Balancing program office priorities and announcements within both the Department and broader D.C., national, and global energy market news cycles.
- Supporting all engagements for the Secretary, the Deputy Secretary, and other key leaders – determining the strategic objectives and leading the planning process to ensure alignment on key themes, priority audiences, and tactics (e.g., media outreach, editorial boards, op-eds, planned remarks, digital updates, social media amplification, etc.), and tracking all deliverable.
- Working on emerging and breaking issues.
- Launching major announcements and reports.
- Coordinating with other departments and partners in the Administration.
- Leading special projects (e.g., STEM Rising, Direct Current podcast, etc., as detailed below).
- Aligning external communications objectives with internal communications efforts in order to inform and energize DOE staff.

Speechwriting

The Office of Public Affairs speechwriters develop all written material, including, speeches, talking points, blog posts, responses to Q&A's, and opinion pieces for senior departmental leadership.

Digital Communications

The Office of Public Affairs digital team supports the technical maintenance of Energy.gov, the Department of Energy's primary public-facing website, and the creation of multimedia and social media content for the general public that tells the story of the Department – WHO we are, WHAT we do, and WHY it matters.

Media Affairs

The Office of Public Affairs media affairs team is responsible for managing all media relations efforts across the DOE enterprise. This includes all engagement within the Department's program offices as well as DOE's laboratories, plants, and sites.

Recent Organization Accomplishments

Communications Accomplishments

In 2020, 130 speeches to date have been delivered and over 570 in the past four years.

The Speechwriting team works closely with the Secretary, Deputy Secretary, Undersecretaries, and department senior staff to craft speeches and op-eds that further the communications and policy goals of DOE.

In 2020, 27 opinion pieces have been written and placed around the country to date.

PA developed DOE accomplishment snapshot documents and crafted and designed the Nuclear Fuel Working Group report and multiple Department-wide policy rollouts.

Digital Accomplishments

Social Media: In 2019, PA rolled out the implementation of Sprout Social for social media management across the enterprise, including several of our National Labs. Today, we have **100 active profiles** in Sprout with **135 employees** using the service across 33 unique groups. This product allows DOE to collaborate and streamline Department/Lab-wide messaging. (See DOE's Year in Digital for 2020 below)

DOE'S YEAR IN DIGITAL FOR 2020 (JAN. 1 – SEPT. 23).				
Engagements	Over 3 million engagements combined on Twitter, Facebook, Instagram, and LinkedIn.			
Engagements per channel	Twitter: 1.80 million engagements	Facebook: 1.07 million engagements	Instagram: 35,530 engagements	LinkedIn: 180,322 engagements
Follower Growth 2019 – 2020	Twitter: 1,146,054 +5.4 %	Facebook: 362,645 +2.7 %	Instagram: 101,146 +10.43 %	LinkedIn: 127,434 +38 %
Operations	Improvements to the day-to-day operations of Energy.gov include: <ul style="list-style-type: none">• Improved Energy.gov speed and reliability by migrating to Amazon cloud hosting;• Improved site security and updating Energy.gov from Drupal 7 to 8; and• Improved cost controls and financial health by establishing new contract task orders.			
Content	Continue developing informative content and promoting the Department through various brands/channels, including: <ul style="list-style-type: none">• Direct Current – The DOE podcast covered topics ranging from artificial intelligence to COVID-19 to Mars exploration;• STEM Rising – Over 100 articles and approximately 25 videos highlighting the Department's commitment to students and diversity;• Energy 101 – Professional, animated, educational videos about energy sources and technology;• Launched landing pages for COVID-19 Hub, Artificial Intelligence & Technology Office (AITO), and Arctic Energy Office and redesigned the International Affairs page as well as many more program office updates; and• Created two official seals/logos: AITO and Arctic Energy Office.			

Media Affairs Accomplishments

The Office of Public Affairs media affairs team issues approximately 300 releases on average each year. As of September 2020, 198 press releases have been issued to date.

PA media affairs also handles booking and staffing principal interviews. In 2020, there have been an average of 50 interviews a month conducted by DOE principals, including the Secretary, the Deputy Secretary, Under Secretaries, and Assistant Secretaries.

PA media affairs generated earned media for each of the accomplishments laid out in this report over the course of the Administration.

Leadership Challenges

PA is an extremely fast-paced working environment, and leadership will need to ensure adequate staffing quickly in order to maintain the pace.

The Department's National Laboratories are spread throughout the country and have their own communications staffs. Ensuring coordination with the Labs and across the enterprise generally is critical to the overarching public affairs strategy.

Critical Events and Action Items

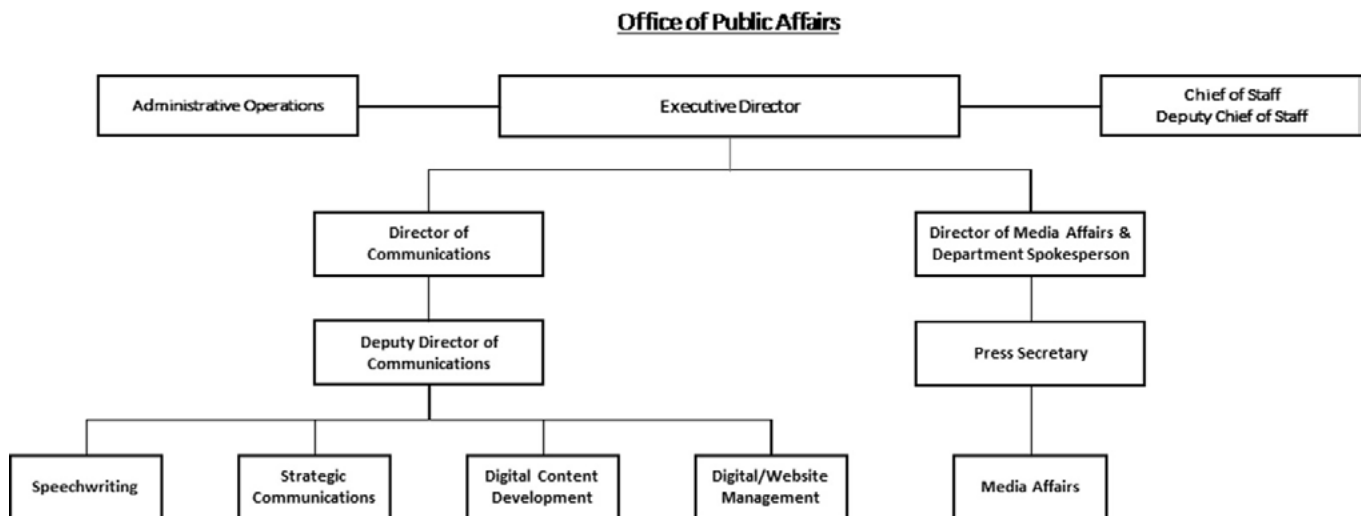
DOE Budget Rollout

PA will be responsible for coordinating with the Offices of the Chief Financial Officer and the Congressional and Intergovernmental Affairs on the public rollout of the Department's proposed budget.

CERA Week 2021

PA will play a major role in supporting CERA Week 2021, the largest international energy conference which takes place in Houston, Texas, annually.

Organizational Chart



Office of General Counsel

Supporting the DOE Mission

The Office of the General Counsel (GC) is responsible for providing comprehensive legal services to the Secretary, Deputy Secretary, and all Departmental elements—except the Federal Energy Regulatory Commission (FERC)—and for effectively representing the Department as counsel before Federal, State, and other governmental agencies and courts. These services are intended to advance the missions and objectives of the Department through advice, negotiation, rulemaking, legislation, regulatory enforcement, and, when necessary, litigation; and to ensure that the Department operates in compliance with all pertinent laws and regulations. GC is organized so as to provide each Departmental element (Fossil Energy, Science, etc.) with “program counsel” specifically skilled in its unique issues. Separate elements of GC provide specialized legal expertise for issues that affect many program offices, such as procurement, fiscal, regulatory, and environmental law.

Mission Statement

The General Counsel is charged by the Secretary of Energy with the authority to determine the Department’s authoritative position on any question of law. The Office of the General Counsel provides legal advice, counsel, and support to the Secretary, the Deputy Secretary, and program offices throughout DOE to further the Department’s mission of ensuring America’s security and prosperity by addressing its energy, environmental and nuclear challenges through transformative science and technology solutions.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$33,075,000
FY 2020 enacted	\$33,075,000
FY 2021 request	\$35,111,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 145

History

The position of the General Counsel (GC-1) is established as a Senate-confirmed Presidential appointment in the Department of Energy Organization Act, Public Law 95-91, Section 202(e).

Functions

The Office of the General Counsel consists of all the attorneys in the Department that report directly or indirectly to the General Counsel. GC is organized so as to provide each Departmental element (Fossil Energy, Science, etc.) with “program counsel” specifically skilled in its unique issues. Separate elements of GC provide specialized legal expertise for issues that affect many program offices, such as procurement, fiscal, regulatory, and environmental law. In general, the legal staffs of those elements that have their own counsel outside of headquarters GC also report to the General Counsel, including the Chief Counsels for the Loan Programs Office, ARPA-E, and each of the Department’s field offices. The most significant exception is the General Counsel for the National Nuclear Security Administration (NNSA) who reports to the NNSA Administrator.

Headquarters

The Office of the General Counsel (Headquarters) is comprised of the Immediate Office of the General Counsel, five program area Deputy General Counsels supported by eleven Assistant General Counsels (AGCs), the Director of the Office of Standard Contract Management, the Director of the Office of NEPA Policy and Compliance, and their staff. The functions and responsibilities of these offices are summarized below. Greater detail on the responsibilities of each AGC office described below is provided separately.

Immediate Office of the General Counsel: General Counsel & Deputy General Counsel (GC-1)

The General Counsel is ultimately responsible for determining the Department’s authoritative position on any question of law for guidance of all Departmental elements and officials. To do so, he or she directs, manages, and supervises all DOE

activities conducted by GC. In this connection, general functions and responsibilities undertaken by the General Counsel include establishing policies, issuing guidance, defining procedures, and rendering decisions pertaining to the General Counsel's areas of responsibility, including but not limited to providing counsel to the Secretary and to senior DOE officials; ensuring the provision of adequate legal support and services to DOE's program areas; representing DOE in legal matters, as required; and overseeing the performance of legal services by the Chief Counsel and Chief Patent Counsel of each of the Field Offices.

Deputy General Counsel for Administration (GC-20)

The Deputy General Counsel for Administration serves as DOE's Designated Agency Ethics Official and directs, manages, and supervises the Department's activities and functions assigned to the AGC for Ethics and Personnel Law (GC-21) and the Associate General Counsel for Finance and Information Law (GC-22). These offices serve as program counsel for the Offices of Management (MA) (on non-procurement matters); Economic Impact and Diversity (ED); the Energy Information Administration (EIA); Chief Financial Officer (CFO); Human Capital Management (HC); the Chief Information Officer (CIO); and Public Affairs (PA).

Many of the major functions and responsibilities of the AGC, the Associate GC and their offices involve: serving as DOE's Alternate Designated Agency Ethics Official (AGC for Ethics and Personnel Law) and managing the Department's ethics program for Federal employees; and providing legal services and review in connection with issues concerning the Freedom of Information Act (FOIA), the Privacy Act, records management, the Federal Advisory Committee Act (FACA), property, equal opportunity, personnel and appropriations law, and DOE's organizational structure.

Deputy General Counsel for Litigation, Regulation and Enforcement (GC-30)

The Deputy General Counsel for Litigation, Regulation, and Enforcement directs, manages, and supervises the Department's activities and functions assigned to the AGC for Litigation (GC-31); the AGC for Legislation, Regulation and Energy Efficiency (GC-33); and the AGC for Enforcement (GC-32). The AGC for Legislation, Regulation and

Energy Efficiency (GC-33) serves as program counsel for the Office of Energy Efficiency and Renewable Energy (EERE) and the Office of Congressional and Intergovernmental Affairs (CI), and regulatory counsel for the Department. The AGC for Litigation and the AGC for Enforcement do not formally serve as program counsel for any DOE program office.

Many of the major functions and responsibilities of these AGCs and their offices involve: directing the agency's participation in litigation in which the Department is a party (which is almost all conducted by the Department of Justice) as well as its activities and functions with respect to the Department's contractors' litigation (which is conducted by contractor-retained counsel); promoting compliance with and prosecuting violations of DOE regulations promulgated under the Energy Policy and Conservation Act; providing for internal DOE review all DOE legislative proposals and obtaining Office of Management and Budget (OMB) clearance of these proposals; acting as the DOE contact point with OMB on all non-budget legislative matters; participating in the analysis and formulation of DOE positions and comments on enrolled bills and other agencies' proposed regulations, legislative matters, and testimony; and providing legal advice on administrative law and Executive Orders applicable to rulemaking, including legal review of draft regulations.

Deputy General Counsel for Environment and Compliance (GC-50)

The Deputy General Counsel for Environment and Compliance directs, manages, and supervises the activities and functions assigned to the AGC for Environment (GC-51), the AGC for International and National Security Programs (GC-53), and the Director of the Office of NEPA Policy and Compliance (GC-54). These offices serve as program counsel for the Offices of Environmental Management (EM); Legacy Management (LM); Environment, Health, Safety and Security (AU); Enterprise Assessments (EA); Intelligence and Counterintelligence (IN); Policy (OP); and International Affairs (IA).

Many of the major functions and responsibilities of the AGCs, Director and their offices involve: providing legal advice regarding environmental protection, compliance with the National Environmental Policy Act, and other applicable

environmental protection laws, regulations, federal facility agreements, and other requirements; interactions with the Defense Nuclear Facilities Safety Board; defense and nuclear nonproliferation programs, including negotiating and drafting international agreements as appropriate; security, intelligence, and counterintelligence matters; international agreements relating to international science and technology cooperation, international trade, and investment activities, and other Departmental programs involving international cooperation.

Deputy General Counsel for Transactions, Technology, and Contractor Human Resources (GC-60)

The Deputy General Counsel for Transactions, Technology, and Contractor Human Resources directs, manages, and supervises the activities and functions assigned to the AGC for Procurement and Financial Assistance (GC-61); the AGC for Technology Transfer and Intellectual Property (GC-62); and the Office of the AGC for Contractor Human Resources (GC-63).

The major functions and responsibilities of the GC-61 office include: providing legal advice regarding DOE programs and functions involving procurement, financial assistance, and other transactions laws, regulations, policies, and activities; providing legal advice regarding source selection strategies and processes for major procurement actions throughout the DOE complex; managing and directing the defense of DOE procurement actions, including solicitations, competitive range decisions, and contract awards when such actions are protested to the Government Accountability Office; representing DOE in connection with contract disputes before the Civilian Board of Contract Appeals and providing assistance to the Department of Justice in connection with litigation relating to DOE contract cases; assisting in drafting, negotiating, and reviewing DOE solicitation documents and contracts, including procurement contracts, interagency agreements, funding opportunity announcements, grants, cooperative agreements, and technology investment agreements; advising the Office of Project Management and Assessments, the Project Management Risk Committee, and the Energy Systems Acquisition Advisory Board on DOE project matters; and advising the Office of Small and

Disadvantaged Business Utilization on issues related to the Department's small business achievement. The major functions and responsibilities of the GC-62 office include: providing legal advice regarding DOE programs involving intellectual property and technology transfer laws, regulations, policies, and issues, including the formulation of DOE's patent policy; and the representation of DOE's interests in intellectual property and technology transfer matters, including patents, trademarks, copyrights, trade secrets, and related matters. GC-62 also coordinates the activities of field patent counsel regarding intellectual property and technology transfer matters. The major functions and responsibilities of the GC-63 office include: providing legal advice pertaining to DOE contractor labor standards; labor relations; workforce restructuring; employee pensions and other benefits and compensation; and other related issues as necessary, as well as providing policy support on contractor labor standards, labor relations, and workforce restructuring issues.

Deputy General Counsel for Energy Policy (GC-70)

The Deputy General Counsel for Energy Policy directs, manages, and supervises the activities and functions assigned to the AGC for Electricity and Fossil Energy (GC-76); the AGC for Civilian Nuclear Programs (GC-72); and the Director of the Office of Standard Contract Management (GC-73). These offices serve as program counsel to the Offices of Fossil Energy (FE); Electricity (OE); Nuclear Energy (NE); Indian Energy Policy and Programs (IE); Policy (OP), Science (SC); and Cybersecurity, Energy Security, and Emergency Response (CESER).

Many of the major functions and responsibilities of AGC offices GC-72 and GC-73 involve working with DOE programs on: the management, storage, and disposal of high-level nuclear waste and spent nuclear fuel;; nuclear energy fuel cycle activities; nuclear liability matters, including the Price-Anderson Act, indemnification under Public Law 85-804; DOE regulatory and NRC licensing authority under the Atomic Energy Act; agreements and initiatives relating to domestic science and technology cooperation; and the core functions established by the Nuclear Waste Policy Act of 1982 (NWPA), as amended, that pertain to the Nuclear Waste Fund and the management of the Standard Contracts for the Disposal of Spent Nuclear Fuel and/or High-Level Radioactive Waste (10 CFR 961)

with Government and nuclear utilities; review of annual settlement claims for damages due to the partial breach of the Standard Contracts; and support of the Department of Justice in the negotiations of new settlements, extensions of existing settlements, and as the primary factual witness for DOE in litigation related to the Standard Contracts.

The major functions and responsibilities of the GC-76 office include: providing legal advice and counsel in connection with DOE's fossil energy programs, including the Strategic Petroleum Reserve; Naval Petroleum Reserves; Home Heating Oil Reserves; clean coal research and demonstration programs; and imports and exports of natural gas. GC-76 attorneys work closely with the staff of the Office of Fossil Energy in drafting opinions and orders in response to applications for authorization under section 3 of the Natural Gas Act to import or export natural gas, including liquefied natural gas (LNG). GC-76 also serves as program counsel for DOE's electricity and non-nuclear emergency preparedness programs, which are primarily handled by the Office of Electricity. GC-76 also provides legal support and advice regarding CESER's efforts to prepare and respond to threats to the energy sector; conduct research and development on tools to meet those threats; and engage with energy sector entities on behalf of the federal government. In addition to its roles as program counsel, GC-76 advises the General Counsel on Power Marketing Administration (PMA) legal matters, reviews PMA rate orders, and works with PMA counsel; represents DOE facilities in electric and gas utility rate cases before state public utility commissions; and represents the Department in FERC proceedings when transmission, generation, or reliability matters affecting the PMAs or DOE facilities arise.

Field

The Department employs a complement of lawyers who work in the field, including Chief Counsel, Chief Patent Counsel, Power Marketing Administration General Counsel, and their staffs.

Chief Counsel

There is a Chief Counsel at the majority of DOE field offices. Where there is no legal staff at a field office, those offices are serviced by the Chief Counsel at

other field offices or at Headquarters. The Chief Counsel at the following offices are employees of their respective offices but are supervised by a Headquarters Deputy General Counsel: Chicago, Environmental Management Consolidated Business Center, Golden, Idaho, National Energy Technology Laboratory, Oak Ridge, Richland, Savannah River, and Strategic Petroleum Reserve. This supervision includes preparation of performance evaluations with input from the respective offices. Chief Counsels also have day-to-day client relationships with the field managers and staff at the offices where they are located.

The Chief Counsels of ARPA-E and the Loan Program Office are employees of their respective offices, but are supervised by the Principal Deputy General Counsel. This supervision includes preparation of performance evaluations with input from the respective offices.

All of the Chief Counsels have access to the General Counsel whenever they require.

Chief Patent Counsel

Chief Patent Counsels are responsible professionally to the AGC for Technology Transfer and Intellectual Property, pursuant to the guidance and direction of the General Counsel, but are supervised by a Chief Counsel. The AGC for Technology Transfer and Intellectual Property ensures that the necessary professional consultation occurs with the Chief Patent Counsel through a variety of means, including monthly conference calls with all the Chief Patent Counsels, and an annual Chief Patent Counsel meeting. Although not specified in Departmental guidance, both the AGC for Technical Transfer and Intellectual Property and the Chief Counsel have a role in the selection and evaluation of Chief Patent Counsels.

Power Marketing Administration General Counsel

Each of the four Power Marketing Administrations (PMA) has a General Counsel. The Deputy General Counsel for Energy Policy ensures that appropriate GC offices interact as appropriate with PMA General Counsels to ensure that the PMAs, as components of the Department, receive adequate legal services where necessary, that appropriate professional consultation occurs, and that there is consistency in legal interpretations between GC HQ and the PMAs.

Recent Organization Accomplishments

The Office of the General Counsel has provided legal advice, counsel, and support for the Department including: successfully resolving various litigation matters; prevailing in several bid-protests; successfully supporting program office missions and implementing Administrative policies and programs; and playing a pivotal role in the issuance and publication of several high-profile rulemakings. Through the efforts and accomplishments of the Office, the Department stands to save millions of dollars. Furthermore, the Office of the General Counsel has played a crucial role in the Department's response to the COVID-19 Pandemic.

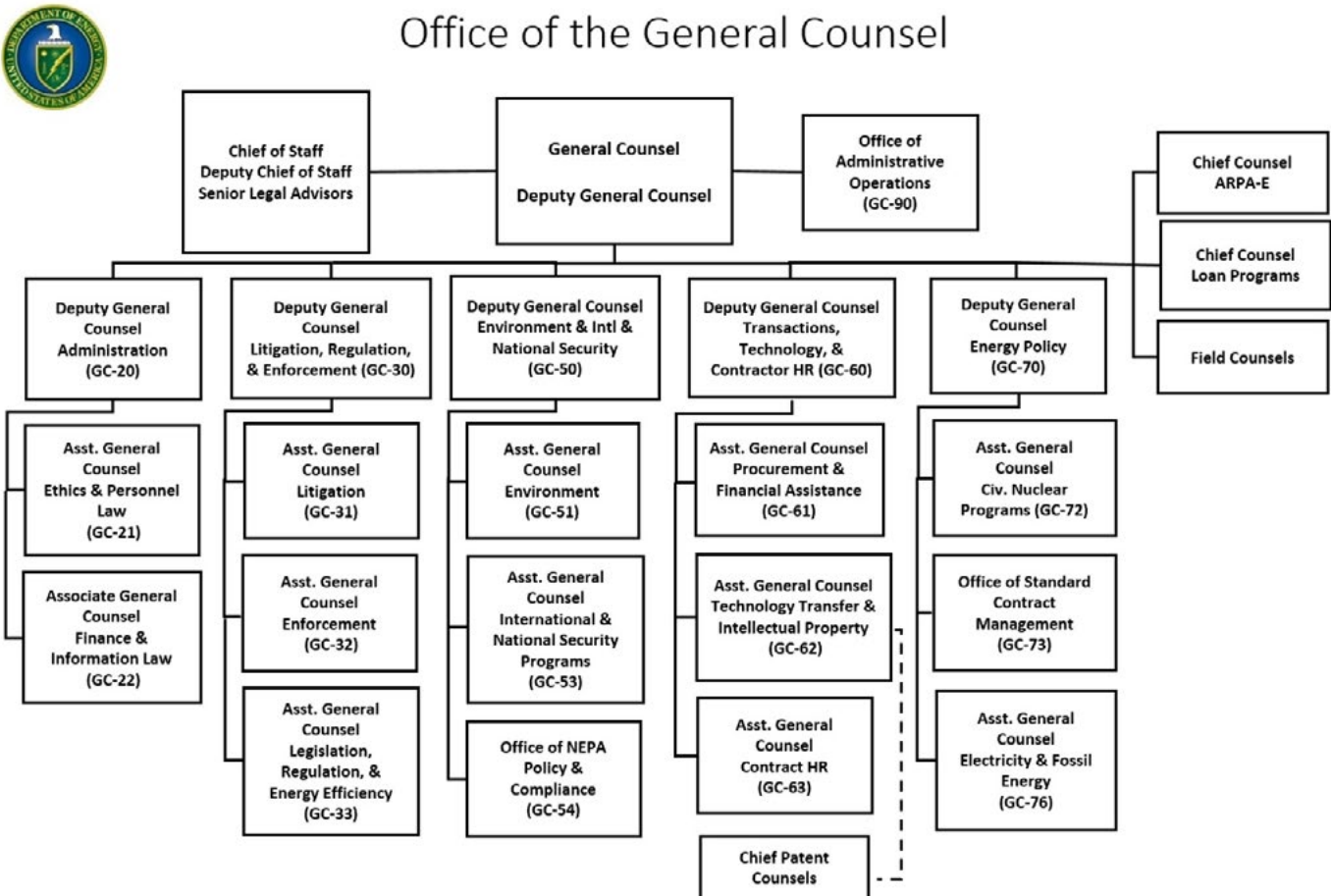
Leadership Challenges

The Office of the General Counsel believes in the importance of a transparent and accountable management and work environment. As a result of the Office's ability to successfully adhere to these principles, it currently does not face any leadership challenges.

Critical Events and Action Items

The Office of the General Counsel neither anticipates nor foresees any critical events or actions that will take place within the first 3 months of the next Presidential term.

Organizational Chart



Office of the Chief Financial Officer

Supporting the DOE Mission

The Office of the Chief Financial Officer (OCFO) is responsible for management and financial integrity of DOE programs, activities, and resources through development, implementation, and governance of Department and government-wide policies and systems for budget administration, including development and execution; finance and accounting; internal controls; financial policy; corporate business systems; strategic planning; performance measurement; and, interface with the Office of Management and Budget (OMB), Government Accountability Office (GAO), DOE Inspector General (IG), Department of Treasury, and Congress.

Mission Statement

Stewardship of financial and business operations for the Department of Energy by an empowered workforce using technology and analytics. Mantra: Empowered People, Financial Stewardship, Performance Focus.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$48,912,000
FY 2020 enacted	\$52,000,000
FY 2021 request	\$53,591,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 220

History

The Chief Financial Officers (CFO) Act of 1990 established the CFO position at 24 agencies, including DOE. Under provisions of the CFO Act, the CFO reports directly to the Secretary and is responsible for overseeing financial management activities relating to programs and operations of the Department, and developing and maintaining an integrated agency accounting and financial management system.

Functions

Financial Management

CFO oversees DOE financial management operations and serves as the principal advisor to the Secretary and other Departmental officials on matters relating to DOE financial resources. CFO also develops DOE financial management policies, manages consolidated financial and accounting operations, manages the annual financial statement audit, prepares consolidated financial statements, oversees annual internal control reviews and DOE risk profiles consolidation, payment integrity program, and serves as the liaison to the payroll service provider.

Budget

CFO is responsible for and assures the financial integrity, formulation, execution, and analysis of the DOE budget. CFO serves as the liaison to the Office of Management and Budget (OMB) and to the Congressional Appropriations Committees for all matters related to the DOE budget. In addition, CFO budgets for and manages the DOE Working Capital Fund (WCF).

Financial Policy and Audit Resolution

CFO establishes and maintains financial, accounting, and budgetary policies that support the execution of the Department's mission. The Office also leads resolution of audit findings and coordination with audit organizations (DOE Inspector General and Government Accountability Office) to improve Departmental operations.

Corporate Business Systems

CFO develops and maintains corporate business systems, including the integrated agency-wide financial accounting, contracts administration, human resources, and various related data management systems.

Strategic Planning

CFO leads development of the DOE strategic plan, priority goals, and performance measures and monitors progress.

Risk

Through the Chief Risk Officer (CRO), CFO provides Departmental support to assess risk and propose mitigation strategies through integration of risk concepts into strategic planning, and risk identification and mitigation activities in collaboration with DOE's Program and Functional Offices, Field Offices and National Laboratories.

Performance and Data

Under supervision of the CFO, the Chief Performance Officer (CPO) collates and assesses data to assist in recommending improvements for Department-wide programs, issues, and initiatives, and proposes systems and tools to track progress towards agency and Administration goals. The CFO also serves as the DOE Chief Data Officer and chairs DOE's Data Governance Board, which is responsible for coordinating policy and governance of the Department's key data assets and execution of the Federal Data Strategy.

Recent Organization Accomplishments

Analyzed and consolidated Headquarters and Under Secretary Risk Profiles for consolidated DOE FY 2020 Risk Profile.

Maintained a clean audit opinion for 14 straight years.

Tracked Program and Functional office activity and obligations for CARES Act funding of \$100M for the Office of Science and NNSA for resources to fight the coronavirus outbreak as well as \$28M for IT-related activities.

Led preparation of the Department's FY 2022 budget request to OMB.

Began joint pilot to implement Robotic Process Automation solutions for automating corporate business processes.

Revised Audit Coordination, Resolution and Follow-up Order to streamline audit follow-up processes.

Implemented three-year review plan for Financial Management Handbook and completed major updates.

Conducted mid-year update of DOE Management Priorities for year-end reporting.

Recent awards and acknowledgements:

- A-123 Management of Entity Risks and Internal Controls Application (AMERICA) received a Secretary's Honor and Gears of Government Awards
- DOE FY 2019 AFR recognized with best-in-class award from the Association of Government Accountants

Leadership Challenges

Implementing Recent Legislation

Implementing or carrying out the increasing number of unfunded, external administrative mandates, including extensive reporting requirements.

- Digital Accountability and Transparency (DATA) Act requires expanded federal financial reporting beginning May 2017 and reporting was again expanded with the COVID reporting beginning with June 2020 data;
- Program Management Improvement Accountability Act (PMIAA) requires establishment of program portfolios and improved recruiting of program managers to improve program management government-wide;
- Payment Integrity Information Act (PIIA) of 2019 reorganizes and revises several existing improper payments statutes, which establish requirements for federal agencies to cut down on improper payments made by the federal government;
- Federal Information Technology Acquisition Reform Act (FITARA) that requires expanded information technology reporting; and,
- Foundations of Evidence-Based Policymaking Act which requires development and execution of an annual learning agenda, a Department-wide evaluation plan, capacity assessments for conducting evaluations, an open data plan, and data maturity assessments.

Updating Business Systems

Ongoing replacement of legacy systems and implementation of new systems to increase DOE integrated financial management.

Hiring Qualified Candidates

Ability to attract and hire qualified candidates to fill vacancies to reach full FTE allotment.

Critical Events and Action Items

Critical events or actions that will take place within the first 3 months of the next Presidential term.

3-month events

DOE started FY 2021 operating under a continuing resolution (CR) through December 11, 2020; there is a possibility for an extension to that CR for six months or full-year or for consideration of an amended FY 2021 Request based on revised priorities.

Potential consideration of additional COVID-19 relief and/or economic stimulus proposals.

Deliver the FY 2022 President's Budget Request (PBR) – February 2021.

6-month events

Update the DOE financial statement audit Management Representation Letter if changes have occurred.

Provide to Department of Treasury any subsequent changes to what was provided on the Government-wide Management Representation Letter that have occurred from the date of DOE's financial statement audit opinion was issued.

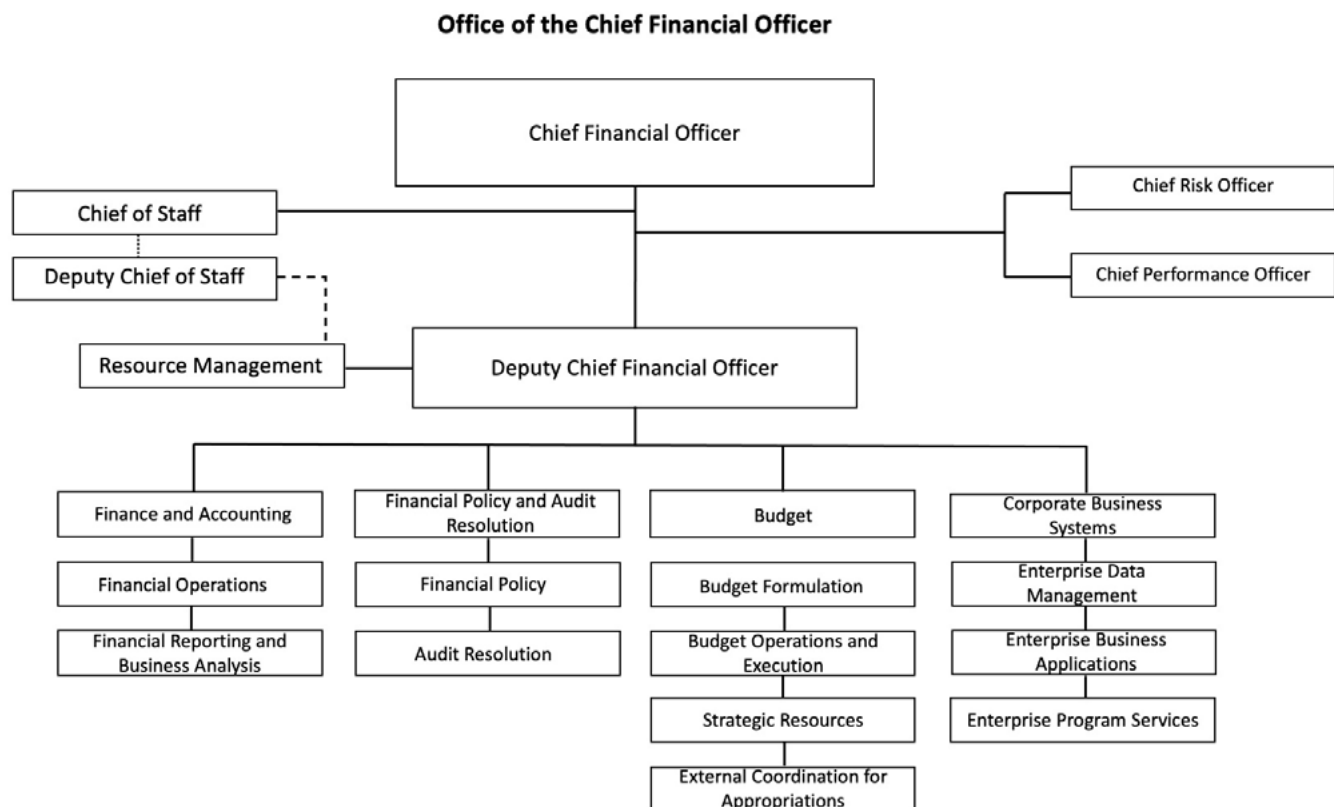
Begin preparation of FY 2022-26 Strategic Plan and Agency Priority Goals.

12-month events

Develop and send to OMB FY 2023 budget request – expected September 2021.

Close out FY 2021 financial reporting and complete FY 2021 financial statements to support an independent audit.

Organizational Chart



Office of the Chief Human Capital Officer

Supporting the DOE Mission

The Office of the Chief Human Capital Officer (HC) supports DOE's strategic objective of attracting, managing, developing, and retaining the best federal workforce to meet future mission needs. HC supports DOE's mission accomplishment by providing human resources services, management, strategy, and solutions, including analytics; workforce and succession planning; recruitment and hiring; engagement and retention; competency development; and training and development.

Mission Statement

Supporting DOE's mission through workforce services, solutions, and innovations.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$26,125,000
FY 2020 enacted	\$24,316,000
FY 2021 request	\$26,191,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): HC has an FTE authorization of 134, but its overall workforce totals 319 FTEs due to the funding mechanism used to support the Human Resources (HR) Service Centers (SCs). The breakdown of FTEs across HC offices is as follows:

- 134 authorized FTEs, which includes HC's corporate body and a portion of the Oak Ridge (OR) HR Shared Service Center (SSC) workforce.
- 65 FTEs at the Bonneville Power Administration (BPA) HR SC.
- 32 FTEs at the Power Marketing Administration (PMA) HR SSC.
- 88 FTEs from the Oak Ridge HR SSC, funded by various DOE program offices.

History

The Chief Human Capital Officers Act of 2002 required the establishment of Chief Human Capital Officers (CHCOs) in the 24 Executive departments and agencies. The DOE CHCO is responsible for the strategic alignment of the DOE workforce to the mission of the Department, and for maintaining and directing its human resource management programs and policies. The CHCO advises and assists agency officials in carrying out Departmental responsibilities of selecting, developing, training, and managing a high-quality Federal workforce in accordance with merit-system principles. The CHCO also serves as the chief policy advisor on all human capital management activities and issues. The CHCO reports to the Deputy Secretary of Energy.

HC executes its mission through a service delivery model that aligns accountability for human resources (HR) under the CHCO within HR service centers responsible for operations and advisory services and a corporate body responsible for human capital management programs and strategic support. HC has consolidated HR operations to improve efficiency and effectiveness of HR services across the Department, reducing the number of HR service centers from 18 separate offices in FY 2013 to just 3 beginning in FY 2019.

The BPA HR SC provides HR services to the employees of BPA. The PMA HR SSC provides HR services to the employees of the Southwestern Power Administration (SWPA), Western Area Power Administration (WAPA), and Southeastern Power Administration (SEPA). The Oak Ridge HR SSC provides HR services to employees within the portfolios of the Deputy Secretary of Energy, the Under Secretary of Energy (except for BPA and PMA employees), and the Under Secretary for Science. Within the Under Secretary for Nuclear Security Portfolio, HR operational and strategic support is aligned under a separate HR office.

Functions

HC functional areas include:

Human Capital Policies and Strategies

Develop, implement, and administer human capital policies and strategies throughout the Department, including (but not limited to) recruitment; staffing; position management; benefits; employee and

labor relations; performance management; telework; substance abuse testing; and personnel actions processing.

Strategic and Operational Services

Provide centralized HR services, including (but not limited to) staffing; recruitment; employee and labor relations; compensation; benefits; position classification and allocation; and performance management.

Legislative and Regulatory Support

Seek out and translate legislative and regulatory direction into Departmental strategies, policies, and programs to address DOE human capital needs.

Accountability Audits

Conduct human capital accountability audits across DOE to assess HR programs' adherence to legal and regulatory requirements.

Workforce Development Programs

Manage workforce development programs and evaluate their effectiveness to ensure they are developing employees who possess the skills to get the job done.

Critical Workforce Competency Analysis

Provide resources to define, assess, and close critical workforce competency skill gaps across the Department.

HR Service Center Oversight

Provide oversight of the HR Service Centers and subordinate offices, ensuring effective HR advice and solutions are offered to management officials and employees in all operational aspects of human capital management.

Labor-Management Relations

Provide direction and oversight of the Department's labor-management relations policies and programs. Provide advice to management officials on labor-management regulations and collective bargaining agreements.

Recent Organization Accomplishments

HC employs strategic human capital initiatives to meet the workforce needs of today and plan for those of the future. HC's recent accomplishments include:

Strategic Human Capital Planning

HC is focused on positioning itself as a strategic partner to DOE program offices, promoting long-term, data-supported workforce planning to optimize resources in support of mission achievement. Some of these activities include:

- **Senior Executive Service Recruitment Priority Assessment**

Completed the Department-wide assessment of career and limited (LT) Senior Executive Service (SES) allocations, designating them into SES Priority categories based on complexity of work, breadth of responsibility, and impact to mission accomplishment.

- **SES Performance Management**

Provided rigorous executive performance management guidance, successfully redirecting SES ratings distributions from the previous four years—level 5 ratings decreased from 52% to 30% with a more normalized distribution of Level 4—and revising the compensation structure to increase the average award by almost \$2,000 for each rating level.

- **Workforce/Staffing Plans**

Partnered with the U.S. Office of Personnel Management (OPM) to initiate organizational assessments of DOE program offices. Results from the assessments will provide offices with additional data to inform strategic approaches to resourcing, functional alignment, and organizational structure.

Talent Management

In support of its mission, HC has advanced several talent management initiatives to better attract, hire, develop, and retain a high-quality workforce. Some of these initiatives include:

- **Innovating Hiring Solutions**

Promoted the use of specialized hiring authorities, such as direct-hire that allows

DOE to reach applicants outside of the Federal government for mission critical occupations, and implemented new recruitment strategies to speed access to this talent. Developed over 170 standardized position descriptions to improve time-to-hire and implemented open continuous job announcements to improve the ability to reach candidates outside of the Federal government through the direct-hire authorities.

- **Departmental Learning Management System**

Launched a new Departmental Learning Management System (LMS) to support the development needs of DOE employees. The new LMS provides tools to assess training needs. It also offers an expansive catalog of courses to strengthen job related skills and support upskilling and reskilling our workforce.

- **Employee Engagement**

Led efforts to strengthen employee engagement across the Department by improving access to engagement data through custom analysis. Supported Departmental crowdsourcing efforts to provide opportunities for employees to collaborate and provide input on their work environment. Results from the 2019 Federal Employee Viewpoint Survey show an employee engagement index score of 72%.

Leadership Challenges

HC's leadership challenges include:

Competition for Highly Skilled Talent.

The Department faces increasing competition for highly-qualified talent in science, technology, engineering, and mathematics (STEM) occupations. This places increasing pressure on HC to develop and implement innovative strategies and leverage available hiring flexibilities to make DOE positions more competitive.

Workforce Succession

The Department employs approximately 13,000 Federal employees spread across 85 sites in 28 states. Thirty percent of DOE's current Federal workforce will be eligible to retire by FY 2024, including many of its most experienced and highly skilled employees. In order to maintain a workforce with the skills and experience required to meet DOE's highly complex and technical mission,

HC must lead the Department in development strategies designed to grow the emerging workforce and effectively transfer knowledge from its senior members.

Critical Events and Action Items

3-Month Events

- **SES Allocations**

Fill existing SES positions with onboard talent, and manage SES allocations to operate in a leaner, more efficient, and more accountable manner.

- **Human Capital Management Accountability Program (HCMAP)**

Align the HCMAP Policy with new OPM requirements and continue to execute the HCMAP Audit schedule.

6-Month Events

- **Expand Access to the LMS**

Expand access to the Departmental LMS to all DOE contractor employees and decommission legacy learning management systems maintained within DOE program offices.

- **Increase availability of Standardized Recruitment Tools**

Increase the efficiency of the hiring process by developing standardized job analysis tools.

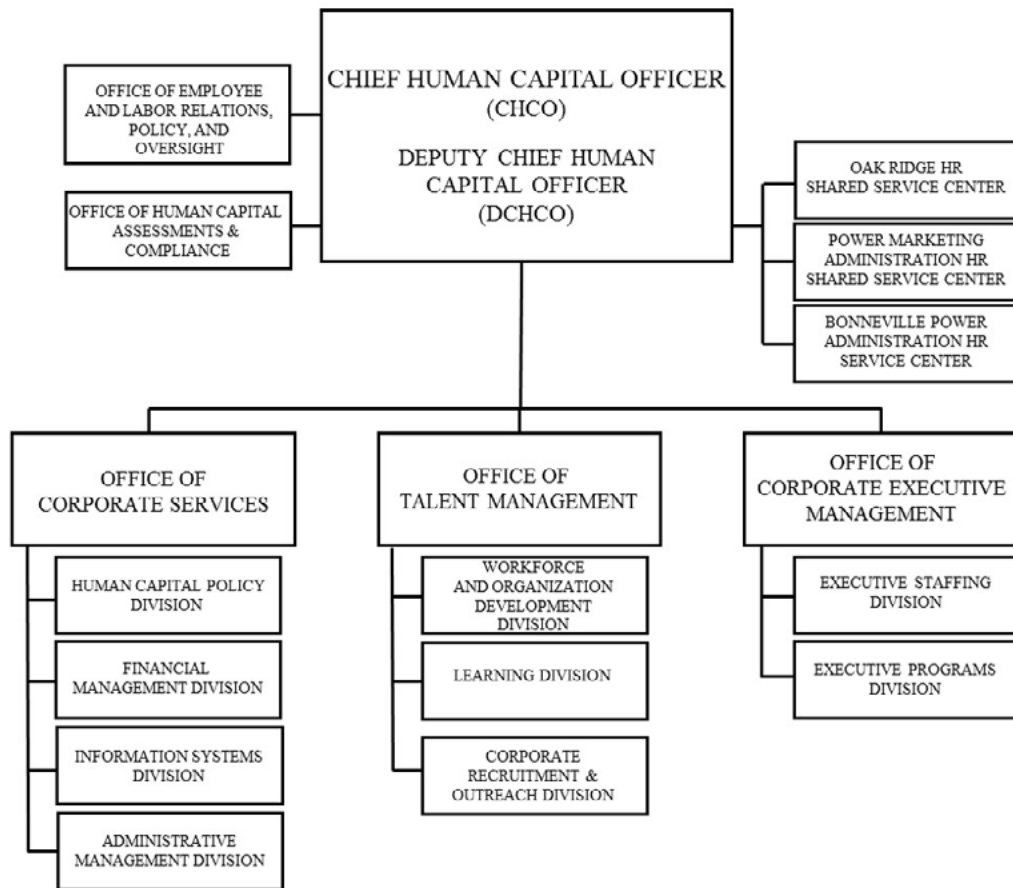
12-Month Events

- **Human Resources Information Technology (HRIT) Upgrade**

Upgrade the HRIT system to take advantage of new technologies and improved reporting capability. Transition HC's hiring system from Monster to OPM's USA Staffing system.

Organizational Chart

OFFICE OF THE CHIEF HUMAN CAPITAL OFFICER



Office of the Chief Information Officer

Supporting the DOE Mission

The Office of the Chief Information Officer (OCIO) delivers value and innovation to enable and secure the mission.

The CIO provides Information Technology (IT) services to most federal employees and support contractors at DOE. The office is responsible for securing and responding to cyber security threats to DOE's IT and Control Systems (CS). The office provides oversight of the Department's \$3.1 Billion IT portfolio, and develops IT and cyber security policy for the Department.

Mission Statement

The mission of the OCIO is to help the Department securely carry out its mission.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$131,624,000
FY 2020 enacted	\$140,200,000
FY 2021 request	\$134,800,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 124

History

OCIO, formerly known as the Office of Information Management (IM), has been led by a CIO since 2002. In 2017, the CIO was designated as a direct report to the Secretary and Deputy Secretary, satisfying a key requirement of the Federal Information Technology Acquisition Reform Act (FITARA) of 2014. Current CIO Rocky Campione assumed his role in July 2019.

Functions

Implements and provides policy direction consistent with the Federal Information Security Modernization Act (FISMA) of 2014. The head of each agency is responsible for the operation and security of operating information technology (IT)

systems, which is delegated through the CIO for implementation.

Sets the strategic direction to protect and modernize DOE's information technology, information resources, data, and cybersecurity systems across the Department for engagements with internal and external cyber stakeholders for senior departmental DOE officials, White House officials, interagency partners, international colleagues, congressional members, and private sector associates.

Manages IT budget-related oversight of DOE's strategic \$3.1B IT investment portfolio, as directed in the FITARA. Coordinates IT budget formulation and IT budget crosscut development of DOE-wide IT and cyber budgets in collaboration with the Office of the Chief Financial Officer.

Coordinates IT governance across the federated environment through the Cyber Council (Chaired by the Deputy Secretary), the Information Management Governance Board (IMGB) (Chaired by the CIO), and Enterprise Architecture Governance Board (EAGB) (Chaired by the Principal Deputy CIO).

Operates the integrated Joint Cybersecurity Coordination Center (iJC3) to provide 24/7 full spectrum cyber incident coordination and response to enable DOE mission essential functions. Ensures operational visibility to cybersecurity sensors across the Department and 53 operational sites.

Leads cybersecurity operations, strategy, policy, authorization, and assessment efforts required to develop and maintain an agency-wide cyber and information security program consistent with FISMA, Office of Management and Budget (OMB) Memoranda, National Institute of Standards and Technology (NIST) Guidance, and Department of Homeland Security (DHS) Cybersecurity Information Security Agency (CISA) requirements.

Coordinates the development and dissemination of cybersecurity threat information with the Office of Intelligence and Counterintelligence (IN).

The CIO serves as the Senior Agency Official for Privacy(SAOP) to implement: a federal privacy program to conduct and publish DOE Privacy Impact Assessments (PIAs) ensuring public transparency of internet facing websites; the management and approval of Privacy Act System of Records Notices

(SORNs), which provide the required public notice when DOE collects, uses, maintains, or disseminates information about U.S. persons in an identifiable form; and the Social Security Number (SSN) reduction program. The OCIO also coordinates responses to privacy breaches.

The CIO serves as the DOE Senior Agency Official for Records Management (SAORM), the official recognized by the National Archives and Records Administration as having primary responsibility for the Agency's compliance with all records management laws, guidelines, and standards. Manages the Department's records management program, and reduces risk through modernized paperless business processes, the application of technology, and site assistance.

Provides enterprise IT services such as commodity IT, telecommunications, networking services including the DOE corporate network, and secure Internet Service Provider service in compliance with the DHS Trusted Internet Connection (TIC) policy; data center infrastructure and cloud migration services for application hosting in virtual cloud data center environments; and service desk services through the Energy IT Services (EITS) team to multiple program offices. Manages the Section 508 Accessibility program. Provide guidance in support of making websites and other IT interfaces across the Department accessible for people with disabilities.

Recent Organization Accomplishments

Maximum Telework Enablement (MTE)

Coordinated the Department's move to maximum telework, and directly supported MTE for approximately 10,000 customers. This has allowed DOE to continue to function during maximum telework.

Big Data Platform (BDP)

Launched the BDP in FY 2019. This integrates cybersecurity sensor data across the Department to provide timely access to data for identifying and responding to cyber threats.

Capstone Implementation

Implemented the National Archives and Records Administration's (NARA) "Capstone" approach for the electronic management of email records. All

senior officials, also known as High Level Officials (HLO), now have their email held as a permanent record. We are implementing a 7-year temporary records retention for remaining email accounts within the Department.

Enterprise Anti-Phishing Efforts

Upgraded enterprise-wide anti-phishing security awareness training and simulated phishing platform tool, providing enhanced capabilities for sites to conduct simulated phishing exercises. These anti-phishing efforts have helped make DOE's phish-prone percentage (10%) significantly lower than other, similarly-sized government and industry organizations (26%).

Enterprise Cybersecurity Risk Management

Implemented several new initiatives, including the establishment of an *enterprise Supply Chain Risk Management (eSCRM)* program to identify and understand potential risks associated with utilization of third party vendors; *Crowdsourced Penetration Testing* program to provide on-demand, scalable testing capabilities to improve detection and remediation of operational cyber vulnerabilities across the enterprise; and risk assessments using *quantified risk estimation* methods to help cyber professionals across the enterprise build defensible investment strategies.

DOE Order 205.1C (Cybersecurity) Implementation

Implemented DOE Order 205.1C, *DOE Cyber Security Program*. Released amplification guidance focused on improving the Department's maturity around Enterprise Cybersecurity Program Planning, Risk Management Methodology, and FISMA Inventory Methodology to assist programs with policy implementation tailored to their mission needs. This is scheduled to be updated in FY21.

Vulnerability Disclosure Program (VDP)

In response to the draft DHS Cybersecurity & Infrastructure Security Agency (CISA) Binding Operational Directive (BOD) 20-01, *Develop and Publish a Vulnerability Disclosure Policy*, the OCIO began development of a VDP policy to be implemented across DOE. The VDP establishes a formal mechanism for the DOE to receive, triage, and mitigate vulnerabilities on internet facing systems reported by third parties.

Leadership Challenges

Ensuring federal oversight in a highly federated environment with a mix of Management and Operating (M&O) and federal resources. Ensure mission, operations, and research are speaking with one voice and move collectively, particularly in cybersecurity funding requests and priorities. Existing M&O/contractor resources have inconsistent contract language and program oversight.

Developing and implementing a Control System (CS) strategy for the protection of critical infrastructure due to increased threats to critical infrastructure. The Department maintains a large collection of control system devices (e.g. SCADA, ICS, OT) which until recently was overlooked under existing FISMA, OMB, DHS, and NIST guidance.

Having visibility into the multiple Federal IT systems, not M&O contractor systems, running outside of the OCIO office.

Transition the Department into a 100% electronic records management environment, including fully enabling digital signatures.

Clarifying operational policy and oversight for classified network operations between DOE and federal partners.

Critical Events and Action Items

5G Catalogue

OCIO is developing a first-ever departmental-wide catalogue of 5G capabilities that will be provided to the White House and interagency in response to the Implementation Plan Framework for the National Strategy to Secure 5G. The catalogue highlights DOE leadership on 5G, presents a unified snapshot of current 5G capabilities, and invites the interagency to fund and collaborate with the National Labs' 5G efforts.

Budget, FY22/23

OCIO will continue developing and determining budget needs, requirements, and challenges to be reflected in the FY 2022 and FY 2023 budget requests/submissions. OCIO will also collaborate with the Office of the Chief Financial Officer and Departmental Elements to ensure funding for IT

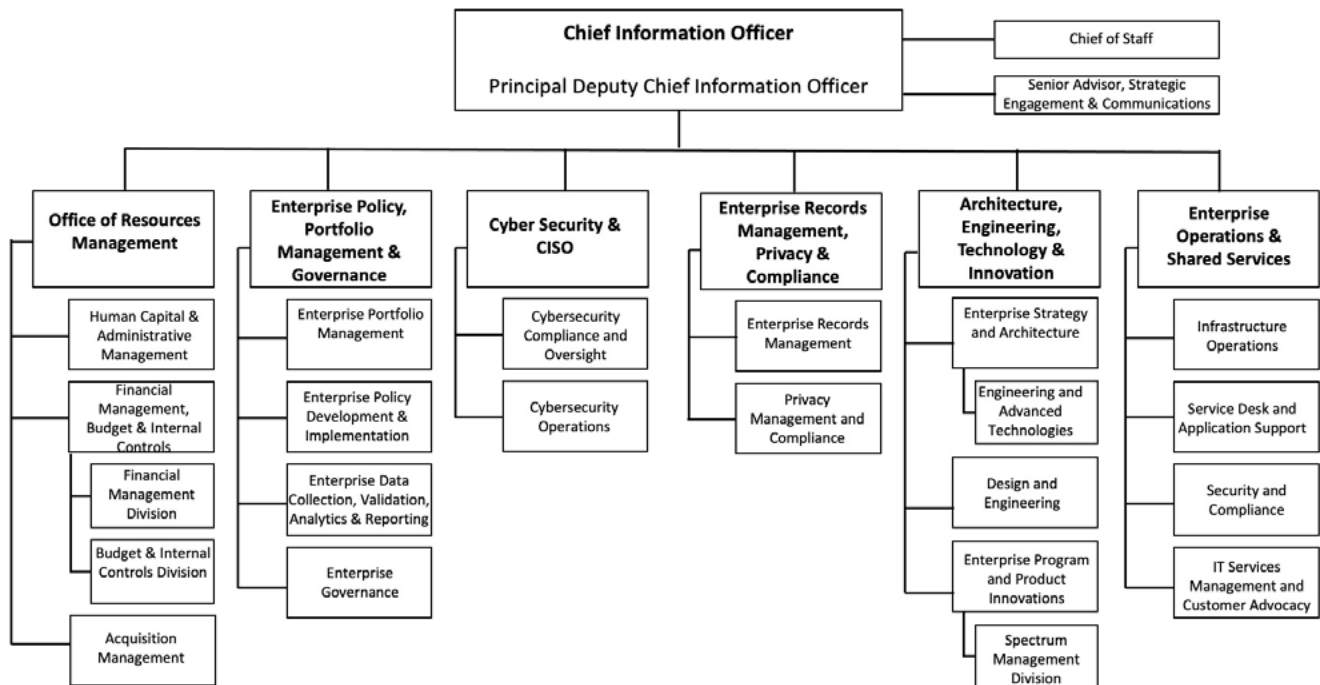
priorities such as modernization, cybersecurity, and privacy are reflected in DOE's budget request.

ICS Hackathon

OCIO will host a new International ICS Hackathon (team-based penetration testing) in partnership with the National Security Council (NSC), bringing together DOE National Laboratory/Power Marketing Administration (PMA) experts, ICS vendors, industry experts, and international partners.

Organizational Chart

Office of the Chief Information Officer



Office of Management

Supporting the DOE Mission

The Office of Management (MA) supports the DOE mission by establishing policy and providing oversight for approximately \$25 billion in annual procurement obligations, \$85 billion in real property inventory, and \$74 million for DOE's aviation fleet. MA also provides procurement services to DOE Headquarters organizations and serves as the Department's corporate lead for sustainability. Administrative functions include the management of headquarters facilities, executive correspondence control, Secretarial scheduling and advance, management of Departmental directives, and the delivery of other administrative services critical to the Department. MA also fulfills the statutory responsibilities of the Chief Freedom of Information Officer and the Department's Senior Procurement Executive.

Mission Statement

Assure the effective management and integrity of Department of Energy programs, activities, and resources by developing and implementing Department-wide policies and systems in the areas of aviation management, acquisition management, asset management, sustainability, Freedom of Information, conference management, and administrative services. Provide a safe and environmentally secure environment for all HQ employees through the deployment of a disciplined Occupant Emergency Plan.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$55,385,000
FY 2020 enacted	\$54,358,000
FY 2021 requested	\$57,258,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 244

Functions

Policy, Procedure and Standards Management

Develops, coordinates, and facilitates implementation of Department-wide policies, procedures, standards, and systems for all procurement; financial assistance; property; facilities and asset management; contractor human resource management; and sponsored strategic programs.

Acquisition and Financial Assistance Services

Provides acquisition and financial assistance services to Headquarters program and staff offices.

Emergency Response

Designated Official. Serves as the Secretary's Designated Official for Headquarters Emergency Response.

Emergency Planning

Prepares and maintains Occupant Emergency Plans for all Headquarters facilities.

Real Property Officer

Serves as the Department's Real Property Officer.

Senior Procurement Executive

Serves as the Department's Senior Procurement Executive.

Aircraft Management

Provides recommendations to the Secretary of Energy for the safe, efficient, and reliable management of aircraft use by DOE. Approves the acquisition and disposal of DOE aviation assets.

Sustainability Leadership

Provides overall leadership for sustainability in Departmental operations.

Budget and Administrative Support Services

Provides budget and administrative support services for the Office of the Secretary and other Departmental Elements.

Document Management

Provides the central repository for all official

documents of the Office of the Secretary; provides institutional memory for key Departmental actions and decisions; provides advisory committee management support; manages Freedom of Information Act activities; and manages correspondence addressed to or sent from the Office of the Secretary.

Directives System

Manages the Departmental directives system, which is DOE's mechanism for issuing policy requirements to DOE organizations and, in some cases, DOE contractors.

Delegations of Authority

Manages the delegations of authority system.

Conference Management

Manages the Departmental conference management activities.

Travel Management

Manages official travel and establishes policies and procedures with respect to employees travel and relocation allowances under 5 U.S.C., Chapter 57, and the Federal Travel Regulation.

Exchange Visitor Program Management

Manages DOE participation in the Department of State's Exchange Visitor (J-1) Program.

Recent Organization Accomplishments

Research and Technology Investment Committee (RTIC) Working Group

Provided proactive, hands-on leadership to support the RTIC, which is chaired by S2, and manage the RTIC Working Group. Recent accomplishments include launching a multi-program subcommittee to analyze DOE's approach to Artificial Intelligence resulting in the development of DOE's AI strategy; establishing a multi-program subcommittee on Critical Materials resulting in a proposed strategy for research, development and deployment of critical materials; conducting a STEM workshop and establishing a multi-program STEM working group to promote collaboration; launching cross-program subcommittees on Integrated Energy Systems, Biotechnology and the Plastics Innovation Challenge to develop strategies for promoting U.S. leadership for these technologies; and initiating

the development of definitions for crosscutting technologies to facilitate decision-making on the appropriate level of investment.

Financial Assistance

Strengthened the process for approving financial assistance by developing and deploying the new INVESTOR (INvesting in Vital and Emerging Technologies and Objective Research) system to collect and share proposed financial assistance and laboratory calls, including 204 proposals covering 14 crosscutting technologies from 13 programs totaling about \$4 billion. The information is reported to DOE senior leaders to encourage transparency and opportunities for collaboration. The information is also being used to promote public awareness of financial assistance opportunities.

COVID Response

Played a central leadership role in developing and implementing DOE's framework and HQ plan for returning employees to the workplace. Provided leadership in developing and implementing strategies regarding contractors, including policies on weather and safety leave, resulting in the retention of thousands of highly skilled contractor employees. Established a Response Center to monitor the number of COVID infections and to serve as the central point of contact for managers and employees to seek information on any COVID-related matter. Established travel policies and monitored travel for the entire complex, including laboratories, to ensure adherence to those policies. Developed and implemented strategies for ensuring the safe operation of HQ facilities, including development and implementation of safety protocols, provision of hygiene products, and reconfiguration of space to promote social distancing. Launched initiative to determine how lessons learned regarding telework could be applied post-COVID.

Laboratory Operational Improvements

Provided leadership on Laboratory Operations Board initiatives to create efficiencies and promote lab productivity. Highlights include: launching a pilot program to use third-party independent auditors to evaluate compensation and benefits at NREL, the results of which will be used to potentially expand the program to all laboratories; developing a policy to enable laboratories to expand dependent care benefits to strengthen employee recruitment and retention; collaborating with CF to issue S1

direction on prioritizing infrastructure projects; and coordinating with programs to improve consistent implementation of corporate work authorizations procedures.

Managing the Departmental Directives

Provided strong leadership in managing the Directives Review Board to ensure proposed requirements are fully vetted. Actions include increasing senior leadership involvement in providing strategic direction; prioritizing directives to focus on necessary requirements changes; improving collaboration in developing complex directives; and consistently applying established directives principles to promote line authority and reduce transactional oversight. In the past year, led the revision of 33 directives and 2 cancellations, including 6 directives implementing S1 reforms to prevent the unauthorized transfer of sensitive science and technologies to hostile nations.

Improving Contract Management

Provided executive leadership to manage DOE-wide contracts with a total award value exceeding \$530B, including HQ procurements valued at \$23.6B. Provided leadership to strengthen contract management by establishing a new S2-led Energy Acquisition Review Board to assess acquisitions exceeding \$750M and an SPE-led review process for acquisitions valued between \$500M and \$750M with a focus on improving acquisition planning and incentive structures. Other actions include reviewing 300 major contract actions to promote the use of IDIQ and fixed price contracts, which are now being especially championed by EM; completion of five procurement peer reviews to strengthen operations, contract administration, and staffing, including 2 virtual reviews during maximum telework. Provided executive leadership on a comprehensive revision of DOE's Acquisition Regulation.

Improved Efficiency and Effectiveness through Acquisition Strategies

Championed the use of category management by awarding innovative flexible enterprise-wide contracts to save money and streamline operations, resulting with DOE being on track to exceed its \$433M (4% increase) strategic savings goal. Led the Department's efforts to increase spend-under-management (SUM) and the use of GSA best-in-class (BIC) contracts, resulting in DOE achieving 123.2% of OMB's SUM goal and close to 60% of

OMB's BIC goal. In addition, far exceeded HQ's small business goal (57% vs. 40%) for FY 2020.

Freedom of Information Act (FOIA)

In FY 2020, processed 1,170 FOIA requests, most of which were highly complex and involved multiple reviews. Closed the two oldest FOIA cases at the Department. Responded to an unprecedented 17 FOIA cases in litigation, all of which consisted of multiple submissions of thousands of responsive documents and completed 6 in full.

Facilities Improvements

Led the continued improvement of the Forrestal building, including the on-cost completion of more than 600 renovation projects valued at \$15.9M (e.g., new state-of-the-art SCIF, new suites for AITO and Boards and Councils). Collaborated with NNSA, IN and IA to develop a comprehensive HQ SCIF construction plan. Completed projects to provide improved services to HQ employees, including kitchenettes and an on-site dry cleaner (Forrestal). Collaborated with S3's office to lease the real estate needed to open the Arctic Energy Office in Fairbanks, AK.

Technology Improvements

Collaborated with CF to deploy a major upgrade of the STRIPES procurement system, enabling DOE to use bots to streamline processes. Deployed the first acquisition bot that scans databases for information on potential contractors, saving contracting officers at least 2 hours on each award. Automated the Forrestal parking payment system and conference room scheduling system.

Leadership Challenges

Achieving Sustainability Goals

Achievement of sustainability goals competes with funding for mission and other requirements including deferred maintenance.

Aging Infrastructure

Given that much of DOE's property portfolio reflects an aging infrastructure originating in the 1940s as part of the Manhattan Project, the challenge is to sustain, modernize, and effectively align real property assets with current and future mission requirements. Approximately 25% of the Department's facilities are either excess or under/unutilized with over 1,100 of those assets being

contaminated. This puts a drain on operations and maintenance funding and has resulted in deferred maintenance increasing to over \$8 billion.

Oversight of Contractor Pension and Medical Benefit Plans.

Departmental oversight of facility management contractor pension and medical benefit plans' increasing costs and liabilities; volatility and unpredictability of defined benefit pension plan assets; and associated complex legal and tax issues create programmatic, acquisition, and financial management challenges for the Department.

FOIA

Revalidate the process to review and approve FOIA releases.

COVID-19 protocols for Headquarters Facilities

Aligning policies with best practice recommendations to prevent the spread of COVID-19 in the workplace, including PPE, social distancing, telework, shiftwork and facility adjustments.

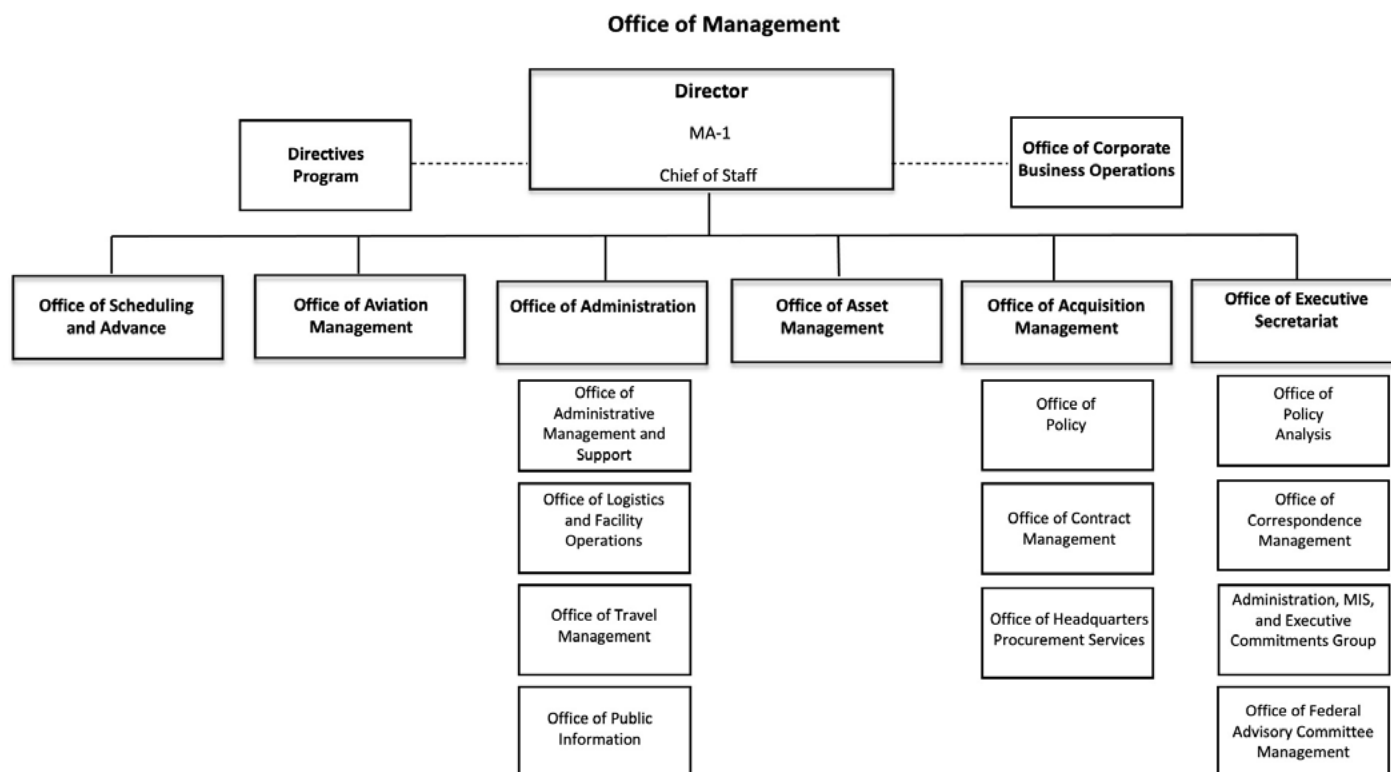
Critical Events and Action Items

Develop and publish the statutorily-required annual Conference Activities Report (January 2021).

Complete end of year sustainability reporting to Office of Management and Budget/Council on Environmental Quality.

OMB Memo M-20-03, "Implementation of Agency-wide Real Property Capital Planning," which was issued last November, implements the Federal Property Management Reform Act through the Capital Planning process by connecting capital planning to budget, execution & metrics. The M-20-03 specifies agency-wide reporting to the Federal Real Property Council that addresses each agency's: mission requirements for real property; CFO and SRPO responsibilities; the annual budget process; major lines of business; needs assessment; alternatives analysis; prioritization process; life cycle cost estimate; performance goals and metrics; and, a list of prioritized capital projects. The purpose of the report is to inform agencies' decision making and assist in prioritizing agency actions, relative to real property. The report is due to OMB by January 8, 2021.

Organizational Chart



Office of Small and Disadvantaged Business Utilization

Supporting the DOE Mission

Strategic Plan Goal 3: Management and Performance

Position the Department of Energy to meet the challenges of the 21st century and the nation's Manhattan Project and Cold War legacy responsibilities by employing effective management and refining operational and support capabilities to pursue departmental missions.

Strategic Objective 10

Effectively manage projects, financial assistance agreements, contracts, and contractor performance.

Mission Statement

The Office of Small and Disadvantaged Business Utilization (OSDBU) maximizes contract opportunities for small businesses while advancing the Agency's mission. This is accomplished through the three guiding objectives of the DOE Small Business Strategic Vision:

- Make it easier for small businesses to do business with the DOE.
- Maximize small business opportunities by cultivating more productive and collaborative relationships with internal DOE stakeholders.
- Maximize small business awards and improve the Agency's performance in the four Small Business Administration (SBA) socio-economic categories.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$3,170,000
FY 2020 enacted	\$3,337,000
FY 2021 request	\$3,401,000

Human Resources

FY 2020 Authorized Full-Time Equivalents (FTEs): 17

History

The Small Business Act Section 15(k) (15 U.S.C. § 644 (k)) mandates every federal agency create an Office of Small and Disadvantaged Business Utilization, whose purpose is to foster the use of small and disadvantaged businesses as federal contractors in supporting their respective agency missions.

Other historically significant events:

1996 Small Business Regulatory Enforcement Fairness Act (SBREFA)

This act established annual reporting on new Agency regulations that may be potentially onerous for small businesses.

2014 Consolidated Appropriations Act, Title III, Section 318

Congress authorized DOE to count first-tier subcontracts as prime contracting credit. These subcontracts are reported to the SBA through the Management and Operating Subcontract Reporting Capability (MOSRC).

2018 Small Business First Policy

In March 2018, the DOE revised this policy on the Agency's principles and commitment to engaging the small business community.

Functions

To achieve its three Strategic Objectives, the OSDBU focuses on inreach to Departmental Elements to coordinate small business activities, outreach to small businesses to provide education and counseling, and operations to manage human capital and budgetary functions.

Important activities include:

- Ensure compliance with the 21 requirements of the Small Business Act Section 15(k)
- Report annually to Congress in accordance with the Small Business Regulatory Enforcement Fairness Act.
- Review acquisitions that are not set aside for small businesses.

- Review subcontracting plans.
- Assist acquisition staff with pre- and post-award contracting activities.
- Provide training to Small Business Program Managers at DOE Headquarters, Sites, and National Labs.
- Establish small business goals for Program Elements.
- Respond to small business contracting concerns and provide best practices for small businesses to work with the Agency through outreach events, such as the Annual DOE Small Business Forum & Expo and socio-economic themed events.
- Provide Senior Procurement Executives advice and comments on acquisition strategies and market research.

The OSDBU has representation on the Small Business Procurement Advisory Council and OSDBU Directors Interagency Council to build collaborative relationships and share small business best practices across the federal government.

Recent Organization Accomplishments

Recent accomplishments include increased small business prime and subcontracting dollars awarded to small businesses, expanded education and counseling for small businesses to help make it easier to do business with the DOE, and improved socio-economic small business performance:

Small Business Achievement

The DOE earned a fifth straight “A” grade from the SBA for small business and socio-economic contracting achievement in FY 2019. (The most recent accomplishments refer to FY 2019 data, as FY 2020 data will not be finalized until March 2021.) The Agency achieved \$560 million more in total awards to small businesses over the prior Fiscal Year for a total of more than \$7.68 billion.

Socio-economic Achievement

For the third straight year, the Agency increased spend and improved its performance in all four SBA-graded socio-economic categories: Small Disadvantaged Businesses (\$290 million, 21.97% increase), Women-Owned Small Businesses (\$230 million, 28.75% increase), Service-Disabled Veteran-Owned Small Businesses (\$198 million, 76.45%

increase), and Historically Underutilized Business Zone Small Businesses (\$125 million, 73.53% increase).

Most Improved Acquisition Forecast

The Professional Services Council awarded DOE the 2020 Federal “Most Improved” business forecast out of 60 federal agencies.

Expanded Small Business Education, Counseling, and Outreach

The OSDBU hosted the 18th Annual Small Business Forum & Expo (over 1000 attendees), Summer ’19 New Mexico Small Business Expo (over 500 attendees), and several socio-economic themed events to provide matchmaking consultations between small businesses and Agency stakeholders, and to help small businesses navigate the Department’s complex procurement environment. The OSDBU also expanded its small business counseling efforts to provide faster and more individually tailored business development customer care.

Increased Participation in Mentor Protégé Program

The Department has increased partnerships between DOE prime contractors and small businesses for a total of 40 Mentor Protégé Program Agreements.

Leadership Challenges

DOE’s large procurement base and complex procurement environment create challenges at current staffing levels to comply with the requirements of the Small Business Act, the Small Business Regulatory Enforcement Fairness Act, and to grow small business utilization.

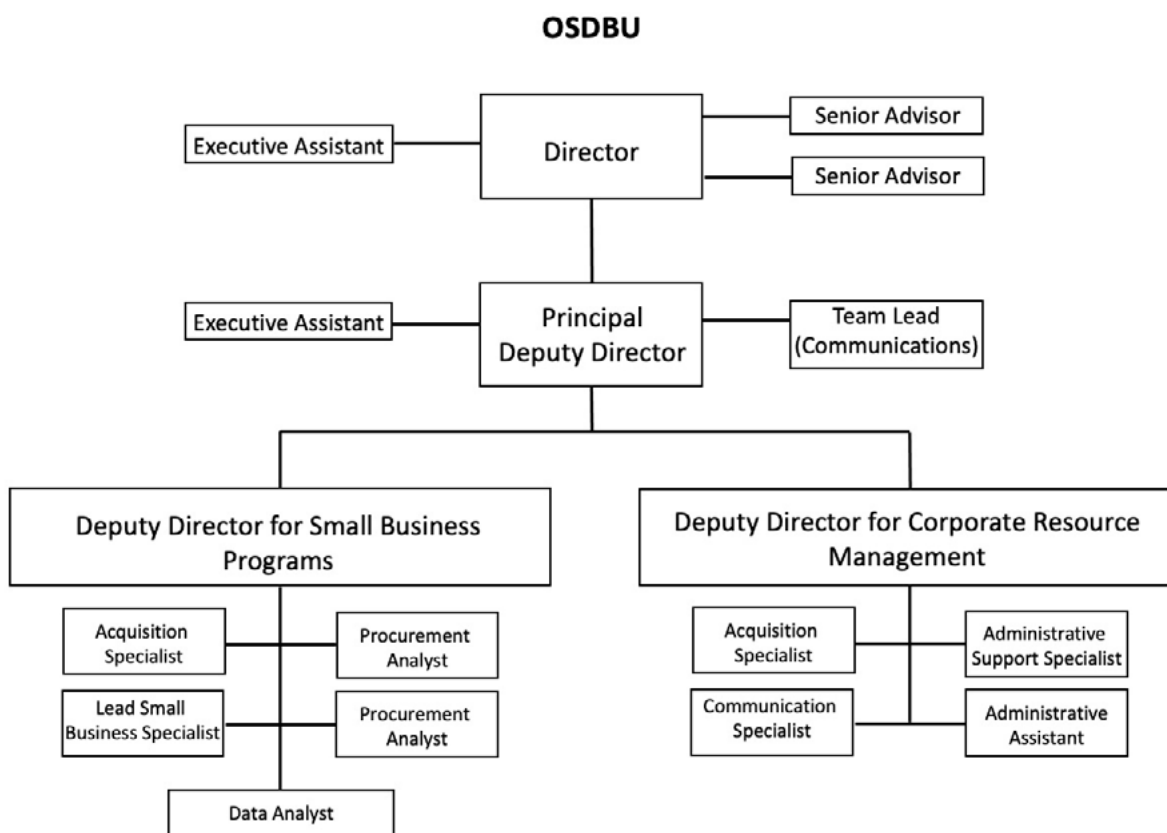
Critical Events and Action Items

The OSDBU is required to report each year to the SBA on compliance with Small Business Act Section 15(k) and other requirements. On the OSDBU’s behalf, the SBA submits these reports to Congress. The OSDBU is also required to report annually to Congress through the Small Business Regulatory Enforcement Fairness Act.

- Small Business Act Section 15(k) Compliance Review Report

- Contract Bundling Report (15 U.S.C. § 644(p)(4))
- Mentor Protégé Report (15 U.S.C. § 657r(c))
- Training and Travel Report (15 U.S.C. § 644(k))
- Corrective Actions Report (15 U.S.C. § 644 (h))
- Small Business Credit for Puerto Rico Businesses Report (15 U.S.C. § 632(ee))
- Small Business Regulatory Enforcement Fairness Act

Organizational Chart



Office of Intelligence and Counterintelligence

Supporting the DOE Mission

The Office of Intelligence and Counterintelligence (IN) contributes to multiple DOE missions and is a critical contributor to policy and national security decisions, despite its relatively small size (i.e., relative to other Intelligence Community (IC) agencies). Not only does IN provide unique insights on foreign nuclear capabilities and activities, but it has a role in the Department's efforts to promote energy security, protect critical infrastructure, and support interactions with DOE's National Laboratories. In addition, the Office provides counterintelligence and cyber intelligence to protect the people, facilities and intellectual property throughout the DOE complex, as well as assist the Department in its mission to protect the energy sector, which is largely in private hands.

With roots in the Manhattan Project's intelligence effort to understand the progress of the German nuclear program, the Office is DOE's embedded intelligence element. IN is DOE's primary interlocutor with the IC, and it maintains strong connections to the Office of the Director of National Intelligence (ODNI), as well as the other 17 partner IC agencies.

On a day-to-day basis, IN draws on the resources of the entire IC to provide the Department's senior executives with intelligence support and analysis on the key foreign issues about which they must make decisions. The Office frequently addresses such issues as foreign nuclear programs and a diversity of energy security and science/technology (S&T) topics, as well as foreign intelligence targeting of DOE personnel, facilities and systems. Without these important contributions, decisions by DOE leaders would lack essential inputs regularly available to senior officials at other agencies. DOE brings to the national security policy making community several unparalleled capabilities other agencies and Departments cannot replicate. The Department also presents some unique cyber and counterintelligence vulnerabilities; IN plays an

important role in emphasizing the Department's strengths and mitigating its cyber vulnerabilities.

Scientifically Informed Analysis

Analysts at the National Laboratories and DOE Headquarters specialize in employing scientific and technical expertise, including experimentally-verified analysis, to tackle the most difficult challenges facing our country's national security leaders. IN's scientific and technical intelligence expertise concentrates on a focused—but vitally important—range of issues to support customers within the Department and throughout the U.S. Government. Whether in support of the Department's senior leaders, other senior U.S. Government policymakers, or other agencies, IN analyses shape the Nation's understanding on key issues listed below. IN analysis is deeply rooted in National Laboratory expertise, draws from diverse fields of technical expertise, and provides important context and details on enduring and emerging threats in the following areas:

- Foreign nuclear weapons and fuel cycle programs
- Nuclear material security and nuclear terrorism
- Counterintelligence issues
- Energy security
- Cyber intelligence
- Strategic scientific and technological developments and trends

The Counterintelligence Challenge

Because of new laws and policies designed to protect sensitive technologies in the DOE National Laboratory complex, IN is meeting new challenges to identify foreign threats to some of the nation's most important defense resources and technologies. Operating from 15 field offices at DOE facilities nationwide, counterintelligence professionals work closely with experts and managers from across the Department to protect vital national security information and technologies, representing intellectual property of incalculable value. Our partnerships with the IC and law enforcement assist in fortifying the defense of the Department's laboratories, plants, sites, intellectual property, and technologies.

Cyber's Evolving Role

Cyber security and defense is a rapidly evolving and broad set of research, operations, and implementation activities. The Department and its laboratories are leaders in the cyber field. IN's cyber work benefits from a staff with expertise that ranges from basic research and cyber intelligence threat analysis to information technology support and tools development, including incomparable expertise in simulation and modeling and advanced supercomputing. These cyber experts cooperate with other agencies and programs to support the full spectrum of national security missions including: nuclear weapons stewardship, critical infrastructure and cyber threats.

The National Laboratories and the Intelligence Community

Central to this work is the enduring excellence in innovation present in the 12 Field Intelligence Elements (FIEs), located at the National Laboratories. The National Laboratories have been essential to accomplishing our decades-old missions and are crucial to anticipating and understanding new trends. They remain at the heart of our distinctive mission capabilities. IN oversees all aspects of the Strategic Intelligence Partnership Program's reimbursable activities which provides IC partners with access to the scientific expertise of the National Laboratories. The Intelligence Reform and Terrorism Prevention Act of 2004 directed the Secretary of Energy to make these resources available to the Intelligence Community (IC); and these experts will continue to excel in providing unparalleled capabilities unavailable to the IC anywhere else.

Mission Statement

Identify and mitigate threats to U.S. national security and the DOE Enterprise and inform national security decision-making through scientific and technical expertise.

Budget

IN's budget is classified and can be provided at a classified briefing with individuals with appropriate security clearances.

Human Resources

IN's human resource allocation is classified and can

be provided at a classified briefing with individuals with appropriate security clearances.

History

Intelligence and counterintelligence have been foundational activities of DOE and its predecessors dating back to its earliest days. The Office is older than the Central Intelligence Agency. Just as the Department traces its roots to the Manhattan Project, IN has its origins in a WWII program code-named ALSOS, established to deploy scientists and intelligence officers to Europe in order to discover the extent and nature of German progress on nuclear weapons. In addition, counterintelligence officers at Los Alamos and Oak Ridge uncovered some of the earliest incidents of nuclear espionage against the U.S. nuclear weapons program.

Throughout the various organizational transitions in the interceding years—from the Atomic Energy Commission (AEC) to the Energy Research and Development Administration (ERDA) to DOE—the Department has maintained intelligence and counterintelligence functions. These elements have combined, split and recombined several times over the years but have coalesced around an indivisible, overarching counterintelligence and intelligence mission to inform DOE policymakers and protect DOE personnel, facilities and systems. Since a final combination of functions in 2006, IN has served as the exclusive DOE representative to the IC and is an active contributor to both the mission of the Department and the IC through the provision of experimentally-validated and technically-informed analysis and investigations. Today, the Director of IN serves as DOE's Senior Intelligence Officer and represents DOE at senior levels in the IC across all key intelligence disciplines, in addition to authorizing the intelligence activities at the DOE national laboratories and sites.

Functions

IN performs a number of unique activities for the Department. In general, these actions fall into the below categories:

- Deconfliction, coordination, and integration of all intelligence activities involving the Department. No intelligence activities should take place in the Department outside of these authorized channels.

- Foreign intelligence analysis and collections support on issues affecting DOE equities.
- Counterintelligence analytic and investigatory activities, to include cooperation and coordination with relevant law enforcement and IC partners.
- Cyber intelligence analysis in support of cyber defense work and support to the private energy sector.
- Facilitation of IC access to the DOE Laboratories through the Strategic Intelligence Partnership Program, a complementary part of the Department's Strategic Partnership Program (non-intelligence).

In addition, IN performs several additional, specific functions:

- Routine/daily intelligence support to the Secretary (S1), the Deputy Secretary (S2), their staffs and several other senior leaders throughout the Department.
- Ad hoc intelligence analysis/expertise on specific subjects for travel and meeting support.
- Management and issuance of Sensitive Compartmented Information (SCI) access for DOE employees and contractors.
- Management of the DOE Intelligence Operations Center, which provides 24/7 TS/SCI-level communications across the U.S. Government, specifically with the White House.

- Accreditation of all Sensitive Compartmented Information Facilities (SCIFs) located across the DOE Complex.
- Intelligence inputs to the Committee on Foreign Investment in the United States (CFIUS) process.
- Support to specific aspects of the Foreign Visits and Assignments program.
- Reviews of all Memoranda of Understanding (MOUs) and Cooperative Research and Development Agreements (CRADAs) involving foreign entities prior to signature.
- Exclusive DOE representation on IC councils, groups, organizations, and other fora.

Recent Organization Accomplishments

Highlights regarding recent accomplishments will be provided separately due to classification considerations.

Leadership Challenges

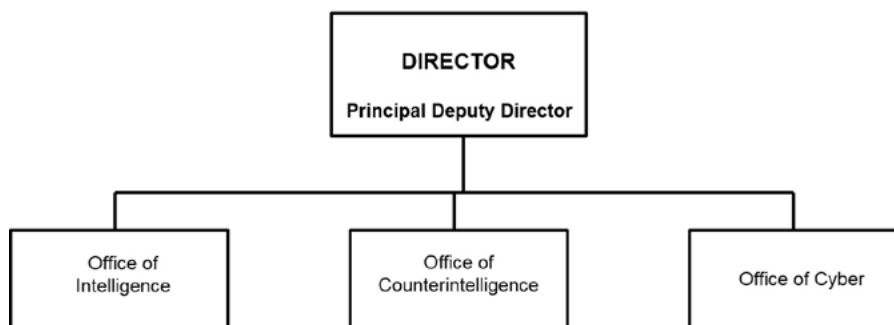
Descriptions of leadership challenges will be provided separately due to classification considerations.

Critical Events and Action Items

Critical events and actions will be discussed separately due to classification considerations.

Organizational Chart

OFFICE OF INTELLIGENCE AND COUNTERINTELLIGENCE



10/24/12

Office of Economic Impact and Diversity

Supporting the DOE Mission

The Office of Economic Impact and Diversity (ED) touches on all aspects of the DOE Mission through (1) its advocacy for its minority and underrepresented stakeholders; (2) its Equity in Energy Initiative which focuses on STEM enhancement, Workforce Development, Technical Assistance, Energy Affordability, and Supplier Diversity; (3) its enforcement of all anti-discrimination statutes; and (4) thought leadership on diversity and inclusion.

Mission Statement

ED advises the Secretary on (1) the effect of energy policies, regulations, and other actions of the Department of Energy and its components on minorities and minority business enterprises and on ways to ensure that minorities are afforded an opportunity to participate fully in the energy programs of the Department; and (2) Departmental compliance with civil rights and equal employment opportunity laws, regulations, and related directives and Executive Orders that prohibit workplace discrimination and discrimination in programs receiving federal financial assistance from DOE. ED ensures integration of Equal Employment Opportunity into DOE policies and decision; overseeing intake and processing of complaints of discrimination; and promoting a diverse DOE workforce and inclusive work environment.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$10,169,000
FY 2020 enacted	\$10,169,000
FY 2021 requested	\$9,931,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 37

History

The Office of Minority Economic Impact (OMEI) was established in Fiscal Year 1979 pursuant to

Section 641, Title VI, Part 3 of the National Energy Conservation Policy Act (Public Law 95-619), dated November 9, 1978. The mandate requires that the OMEI Director be appointed by the President with the advice and consent of the U.S. Senate. OMEI was created to ensure that minorities are afforded an equal opportunity to participate fully in the energy programs of the Department.

In 1993, the Office of Economic Impact and Diversity was established by bringing together the Office of Small & Disadvantaged Business Utilization (OSDBU), the Office of Civil Rights, and the Office of Minority Economic Impact. In the mid-1990s, two new offices –the Office of Employee Concerns and the Office of the National Ombudsman were added to ED, based on specific events that occurred impacting DOE employees. In 2004, DOE eliminated the Office of the National Ombudsman. That same year, ED consolidated the Office of Employee Concerns into OCR. In 2009, DOE transferred the civil rights function to the Office of Hearings and Appeals, and the diversity function to the Office of Human Capital Management. That action was reversed in 2010, resulting in the return of both of those functional lines to ED. In 2011, DOE created a separate Office of Diversity Programs in ED. In 2012, ED changed the name of Office of Diversity Programs to Office of Diversity and Inclusion. In 2012, a new Office of Ombudsman was established in ED. Due to the amendment of the Small Business Act by the National Defense Authorization Act of 2013, OSDBU transitioned from ED and now exists as a separate organization. In 2014, ED split the Office of Minority Economic Impact into two organizations, the Office of Minority Education and Community Development and the Office of Minority Business and Economic Development. In 2015, the Ombudsman function was moved to the Office of Management. In January 2016, the Office of Employee Concerns was moved from ED to the Office of Environment, Health, Safety and Security. In 2016, ED created a separate Office of Equal Employment Opportunity (EEO) to complement OCR. The EEO Office and OCR reported to the Deputy Director, Office of Civil Rights and Equal Opportunity.

In 2018, ED merged the Office of Minority Education and Community Development with the Office of Minority Business and Economic Development. The combined organization was re-named the Office of Minority Economic Impact. ED also merged the

Office of Diversity and Inclusion with the Office of Equal Employment Opportunity into a single organization named, the Office of Equity and Diversity. The umbrella organization that previously oversaw the Office of Civil Rights and Office of Equal Employment Opportunity, was renamed as the Office of Civil Rights and Diversity, and currently oversees the Office of Civil Rights and the Office of Equity and Diversity.

In early 2019, ED established the Office of Minority Programs and Business Operations to oversee two portfolios, the Office of Resource Management and the Office of Minority Economic Impact.

In February 2020, ED underwent another reorganization, re-naming the Office of Minority Programs and Business Operations and as the Office of Minority Programs. It abolished the Office of Resource Management, realigned the few positions in that portfolio to report individually to the Deputy Director, Office of Minority Program, and re-established that portfolio as the Energy Workforce Division. In addition, it re-named subcomponent "Offices" as subcomponent "Divisions" to mirror the structure of other Department organizations.

Functions

Office of Minority Programs Key Functions

Develop and oversee all activities, internal and external, relating to the Equity in Energy Initiative™ which is designed to expand the inclusion and participation of minorities, women, veterans, and formerly incarcerated persons across all department programs and in the private energy sector; provide strategic leadership and guidance to the Energy Workforce Division and Minority Education Institution Program Division; and oversee all budget, procurement, and personnel operations of ED.

Energy Workforce Division Key Functions

Develop policy recommendations to expand diverse business participation in DOE entrepreneurship/ research opportunities, and in the energy sector. Build relationships across the energy industry, diverse minority business, academia, and government.

Expand access and opportunity to diverse entrepreneurs and business opportunity seekers.

Research and analyze information on the current state of the minority business workforce needs of energy related industries and to encourage energy related industries to improve opportunities for displaced and unemployed energy workers.

Oversee research programs in collaboration with the Energy Information Administration to determine the effects of national energy programs, policies, and DOE regulations on minorities.

Minority Educational Institution Program Division Key Functions

Partner with minority serving institutions to provide research and development opportunities and financial assistance (grants and cooperative agreements) to continue to produce a diverse pipeline of scientists and engineers.

Engage in education and community-based research activities.

Provide technical assistance to underserved communities.

Manage the Minority Educational Institution Student Partnership Program (MEISPP).

Support research in areas of national interest related to the DOE's mission, and strengthen the educational science, technology, engineering, and mathematics (STEM) capabilities of minority institutions for full and creative participation in the mainstream of DOE research.

Prepare Annual White House Report on Historically Black Colleges and Universities.

Office of Civil Rights and Diversity Key Functions

Provide strategic leadership and guidance to the Civil Rights Division and the Equity in Energy Division; and guidance to all EEO Field Site Offices, including the EEO Office in the National Nuclear Security Administration (NNSA).

Civil Rights Division Key Functions

Advise the Secretary of Energy on all matters related to internal and external civil rights and equal employment opportunity matters.

Formulate and executes EEO Policies.

Oversee all phases of the EEO Complaint Process including intake, processing, and resolution of internal discrimination complaints under Title VII of the Civil Rights Act of 1964, the Age Discrimination Act of 1967, the Rehabilitation Act of 1973, the Equal Pay Act of 1963, and the Genetic Information Nondiscrimination Act of 2008, in accordance with related statutes, directives, and Executive Orders.

Conduct intake, processing, and resolution of applicable external complaints.

Enforce Title VI and Title IX requirements related to recipients of federal funding from the Department of Energy.

Prepare responses to Congressional inquiries related to Title VI, Title VII, Title IX, the Rehabilitation Act of 1973, the Age Discrimination Act of 1967, the Equal Pay Act of 1963, and the Genetic Information Nondiscrimination Act of 2008.

Conduct pre-award clearance reviews for Headquarters financial assistance awards or grants.

Conduct post-award compliance reviews of financial award recipients for all of DOE.

Monitor DOE field sites to ensure their compliance with Titles VI, IX, Section 504 of the Rehabilitation Act, the Age Discrimination Act, the Equal Pay Act, and the Genetic Information Nondiscrimination Act of 2008.

Prepare statutory and regulatory-required reports, including the Notification and Federal Employee Antidiscrimination and Retaliation Act of 2002 Report (NO FEAR Act Report); the Annual Federal Equal Employment Statistical Report of Discrimination Complaints (EEOC Form 462); and Annual Reports on Executive Order 12250 (all civil rights activities for the agency).

Conduct Title VI, Title VII, and Title IX training for DOE Headquarters and field sites.

Draft policy statements for the Secretary's consideration.

Develop training modules and administer harassment and NO FEAR Act training.

Conduct functional reviews of field site EEO Operations.

Coordinate with DOE stakeholder organizations, including the Offices of Human Capital, Hearings and Appeals, General Counsel, Ombudsman, Employee Concerns, and field sites and program offices.

Collaborate with federal agencies, including the Department of Justice, the National Science Foundation, and others.

Equity and Diversity Division Key Functions

Maintain a model EEO program, including the integration of EEO into the agency strategic mission, prevention of unlawful discrimination, leader engagement, assessment of the work environment, and completion of barrier analyses.

Manage the special emphasis programs for various demographic groups including women, Hispanics, Individuals with Disabilities, veterans, Blacks/African Americans, Asian American Pacific Islanders, LGBTQ, and others in accordance with Executive Orders and legislative requirements.

Conduct extensive analyses of the DOE workforce in collaboration with the Office of Human Capital to identify areas of concern in hiring, development, and promotions.

Develop and implement agency-wide EEO training.

Conduct special observances to enhance cross-cultural and cross-gender awareness, and to promote harmony, pride, teamwork, and esprit de corps in the workforce.

Prepare EEO reports including the White House Initiatives on Asian American and Pacific Islanders, EEOC Management Directive 715, and the Federal Equal Opportunity Recruitment Program Report.

Enhance employee productivity and organizational performance by building an inclusive, collaborative, and open environment that enhances the employee experience.

Develop and implement agency-wide Diversity training.

Collect and analyze data as it relates to diversity in the agency.

Recent Organization Accomplishments

Launched Equity in Energy Initiative. This initiative, launched in August 2020, is designed to include and expand the participation of individuals in underserved communities, including minorities as defined in the legislation establishing ED, as well as women, veterans, and formerly incarcerated persons, in all the programs of the Department of Energy. It has five cornerstones: STEM enhancement, technical assistance, supplier diversity, energy affordability, and workforce development.

Realigned EEO Functions

On July 6, 2020, the Secretary approved ED's request to consolidate all EEO functions from field sites (except NNSA) under the leadership of ED-1 (hybrid model approved for the Power Marketing Administrations).

Awarded \$4 Million under ED's First Competitive Funding Opportunity Announcement in its 40 Year History

In April 2020, ED made 10 awards totaling four million dollars to advance ED's Minority Education, Workforce, and Training Program. Among other things, these awards will support hundreds of minority students and faculty members; engage seven Historically Black Colleges and Universities; serve 60 Qualified Opportunity Zones; and increase public-private partnerships that support underrepresented populations.

Established the Energy Workforce Division

In February 2020, the Energy Workforce Division was established to enhance support of minority business enterprises (MBEs) and underrepresented groups seeking participation in the energy sector. The staffing of this division is on-going.

Leadership Challenges

ED began effectuating the functional realignment of the DOE field EEO Offices into ED beginning on October 1, 2020, via Memoranda of Agreement between the site managers and the Director of ED.

Sixteen employees at eight sites are impacted. The budget for those 16 FTEs, along with associated travel and overhead costs, will be transferred to ED in the FY22 Budget. The goal of the realignment is to increase efficiency and establish a community of practice for the EEO and Diversity and Inclusion professionals across the enterprise.

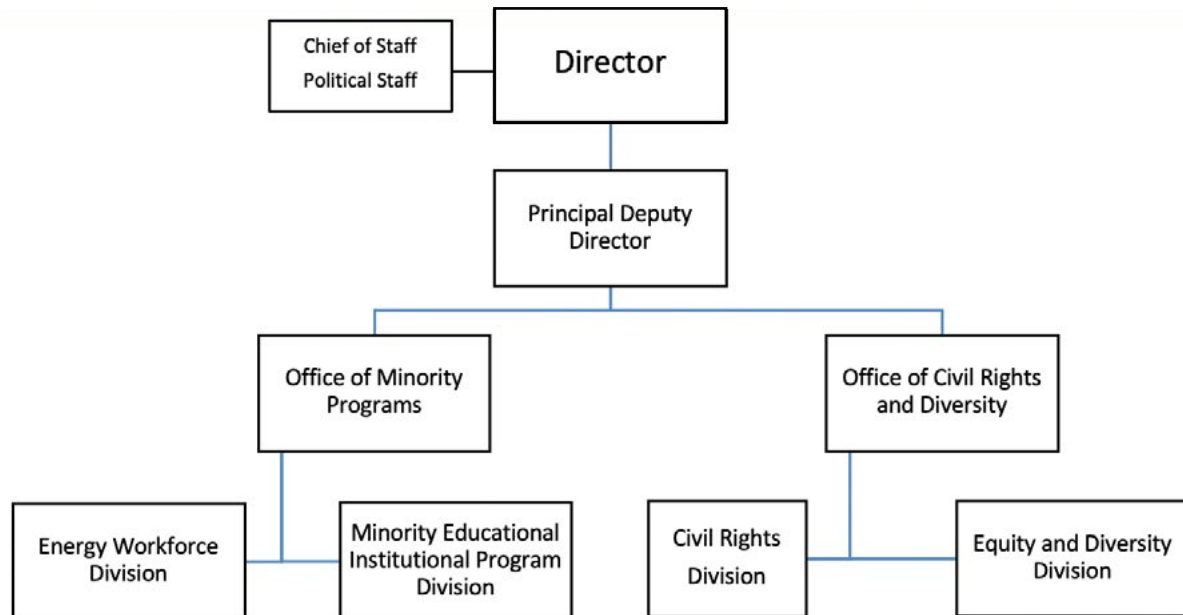
On September 22, 2020, President Trump issued an Executive Order related to diversity and inclusion training, which requires actions from Federal agencies, including DOE. The ED Director has been identified as the senior political appointee who will ensure the Department's compliance with the Executive Order and related OPM guidance. Utmost care needs to be exercised to effectively execute the Executive Order.

Critical Events and Action Items

Both items described under Leadership Challenges are critical events.

Organizational Chart

Office of Economic Impact and Diversity



Office of Hearings and Appeals

Supporting the DOE Mission

The Office of Hearings and Appeals (HG) promotes nuclear security through its role in conducting hearings and issuing decisions under 10 CFR Parts 710 and 712. Part 710 proceedings involve the eligibility of DOE employees (contractor and federal) to hold a DOE access authorization (a security clearance). In these proceedings, HG Administrative Judges conduct a hearing on the record, receive evidence, and issue a decision either granting or denying (in the case of an initial applicant), or restoring or revoking (in the case of an incumbent) the individual's security clearance. HG performs a similar function under Part 712, the Human Reliability Program, which establishes standards to ensure that individuals with unescorted access to nuclear materials meet the highest standards of reliability and physical and mental suitability.

HG supports Management and Performance in discharging its responsibilities under 10 CFR Part 708, pursuant to which HG investigates complaints, conducts hearings, and considers appeals filed by contractor employees who have allegedly suffered reprisal as a result of making a protected disclosure, such as reporting a matter related to public health and safety (i.e., "whistleblowers"). HG also issues orders, on behalf of the Secretary, on contractor whistleblower investigative findings by the Office of the Inspector General (IG), pursuant to 41 U.S.C. §4712.

In addition, HG's Alternative Dispute Resolution Office (ADRO) serves as a resource to all DOE components and contractors to explore efficient and cost-effective ways of preventing and resolving disputes, without the formalities and costs of litigation. HG provides mediation services and training, and promotes the use of dispute prevention and alternative dispute resolution techniques at all levels of conflict, and throughout the DOE complex.

HG supports a more economically competitive, environmentally responsible, and resilient U.S. energy infrastructure through its role supporting the

DOE's Energy Conservation Program for Consumer Products, codified at 10 CFR Parts 430 and 431. Under this program, DOE has established and continues to establish minimum energy efficiency standards for numerous residential and commercial products. These energy efficiency standards not only save money and provide consumers with the benefits of improved, more efficient technology, but also result in substantial environmental benefits by reducing carbon emissions. HG has been delegated authority to rule upon Applications for Exception (i.e., grant relief) from the product efficiency standards to ensure that manufacturers will not suffer a serious hardship, gross inequity, or unfair distribution of burdens as a result of compliance.

To ensure transparency, HG publishes virtually all of its decisions (other than decisions in classified cases) on the HG website.

Mission Statement

HG's mission is to conduct fair and efficient hearings; to issue decisions of the Department of Energy with respect to any adjudicative proceedings which the Secretary may delegate; and to support the use of alternative dispute resolution methodologies throughout DOE.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$3,739,000
FY 2020 enacted	\$4,852,000
FY 2021 requested	\$4,262,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 22

Functions

HG is the quasi-judicial arm of DOE for conducting hearings and issuing initial Departmental decisions with respect to adjudicative proceedings which the Secretary has delegated. The procedures HG uses vary depending upon the type of case. HG's procedures are flexible and easily adaptable, minimizing "start-up" times and resulting in high-quality work product. HG's procedural regulations are codified at 10 CFR Part 1003. HG's areas of jurisdiction include:

Personnel Security, 10 CFR Part 710

Under DOE's personnel security program, HG conducts administrative hearings and issues decisions concerning individuals' eligibility to hold a DOE security clearance and to access classified information or special nuclear material.

Human Reliability Program, 10 CFR Part 712

HG conducts hearings and issues recommendations with regard to individuals seeking certification to occupy positions affording unescorted access to certain nuclear materials, nuclear explosive devices, and facilities and programs. The program ensures that these people meet the highest standards of reliability and physical and mental suitability.

DOE Contractor Employee Protection ("Whistleblower") Program, 10 CFR Part 708

Under this program, HG conducts investigations and hearings, and considers appeals concerning whistleblower claims filed by DOE contractor employees.

Enhancement of Contractor Protection from Reprisal for Disclosure of Certain Information, 41 U.S.C. §4712

HG issues orders, on behalf of the Secretary, on contractor whistleblower investigative findings by the Office of the Inspector General.

Alternative Dispute Resolution Office (ADRO)

HG's ADRO serves as a resource to all DOE components and contractors to explore efficient and cost-effective means of preventing conflicts and resolving disputes, without the formalities and costs of litigation. ADRO directs the DOE Headquarters Mediation Program.

Freedom of Information Act (FOIA) and Privacy Act Appeals, 10 CFR Parts 1004 and 1008. HG considers appeals of agency denials of requests for information under the FOIA and Privacy Act, and issues final agency decisions.

Exceptions and Special Redress, 10 CFR Part 430 and 431

HG rules on Applications for Exception filed by firms seeking relief from DOE's energy efficiency standards for consumer products, and considers

petitions for special redress filed by parties requesting relief from DOE regulatory requirements in other miscellaneous proceedings.

Hydroelectric Production Incentives Program, §242 of the Energy Policy Act of 2005

To support the expansion of hydropower energy development, DOE's Office of Energy Efficiency and Renewable Energy administers the Hydroelectric Production Incentives Program that provides incentive payments to qualified hydroelectric facilities based upon electric energy generated and sold. Under this program, the full or partial denial of an incentive payment may be appealed to HG.

Alternative Fuel Transportation Program, 10 CFR Part 490

Section 133 of the Energy Independence and Security Act of 2007 (EISA) mandates that DOE establish a regulatory program to promote the acquisition of alternative fuel vehicles (AFVs) by State governments and certain alternative fuel providers. Under DOE's Alternative Fuel Transportation Program, codified at 10 CFR Part 490, a party seeking an exemption from the AFV purchase requirements may file for an exemption with HG.

Medical and Physical Fitness Qualification Standards, 10 CFR Part 1046

In September 2013, DOE established standards for medical, physical performance, training, and access authorizations for protective force (PF) personnel employed by contractors providing security services to the Department. Under these standards, a PF employee who receives a certification disqualification may request a final review by HG.

Worker Safety and Health Program, 10 CFR Part 851

DOE contractors are subject to penalties for failing to operate a safe workplace. A contractor that receives a DOE final notice of violation imposing a civil penalty may petition HG for review of the final notice.

Fact-Finding Reviews and Management Inquiries

HG periodically conducts fact-finding reviews and management inquiries on behalf of various

Departmental elements, and issues reports of its findings. These reviews concern sensitive DOE personnel matters, sometimes at a high level, that may require disciplinary or other remedial action by DOE management.

The majority of HG's work involves personnel security clearance cases, whistleblower cases, Freedom of Information Act appeals, and alternative dispute resolution initiatives.

Recent Organization Accomplishments

HG's recent significant organization accomplishments include:

Continuity of Operations During COVID-19

Prior to the outset of the COVID-19 pandemic, HG took numerous operational readiness measures to ensure continuity of operations in the event of such an incident. As a result, HG was fully telework-ready and well positioned to discharge its various adjudicatory responsibilities, despite the disruption in normal operations.

Personnel Security Decisions

HG's average processing time for issuing personnel security decisions is currently 4 days from date of receipt of a trial transcript, a record low, and a 50% improvement over FY19. Despite these rapid processing times, the quality of work remains high; 94% of HG's personnel security decisions were affirmed on appeal.

Freedom of Information Act (FOIA) and Privacy Act Appeals Decisions

HG's average processing time for FOIA and Privacy Act appeals is currently at 9 days, 55% better than required by Federal law. For FY 2019 (the latest year for available statistics), HG's processing times were the lowest of any Cabinet agency. Despite this, the quality of HG's work remains consistently high; the Office of Government Information Services has previously cited HG's FOIA decisions as a model for the Federal government.

Alternative Dispute Resolution

HG opened 102 new ADR cases in FY20, versus 87 in FY19, evidencing the success of HG's outreach efforts. Mediations were completed, on average, within 48 days; the majority were conducted by

HG Administrative Judges and ADRO staff. HG also transitioned ADR training to WebEx and related technology, resulting in enhanced participation; one such recent training had more than 800 participants.

Technology

HG is currently conducting 98% of its security clearance hearings by VTC/WebEx/telephone, thus increasing AJ efficiency and saving travel dollars. Electronic files and web content were transitioned from the DOE hosting environment to the new, less expensive Amazon Web Services (AWS) enclave. HG maintains all case records through a Legal Files electronic case management system, enabling HG to operate remotely throughout the pandemic without interruption. HG also successfully incorporated WebEx technology for the first time to conduct mediations and facilitations.

Federal Employee Viewpoint Survey (FEVS)

For FY 2019 (the latest year for available statistics), HG received among the highest FEVS scores at DOE. HG management anticipates that this trend will continue for FY 2020.

Leadership Challenges

HG's leadership challenges include:

Maintaining Employee Synergy During COVID-19

To keep employees engaged, and to maintain camaraderie—key aspects of employee morale—HG utilizes a weekly video conference call for all staff, solicits input for addressing workplace challenges, and maintains open lines of communication. As the pandemic continues, maintaining staff engagement will become an increasing challenge.

Succession Planning

A number of HG Administrative Judges and senior management are (or will soon be) eligible for retirement, creating a potential challenge in succession planning. HG recently hired several new attorneys and has increased leadership training to help address this challenge.

Security Clearance Adjudication

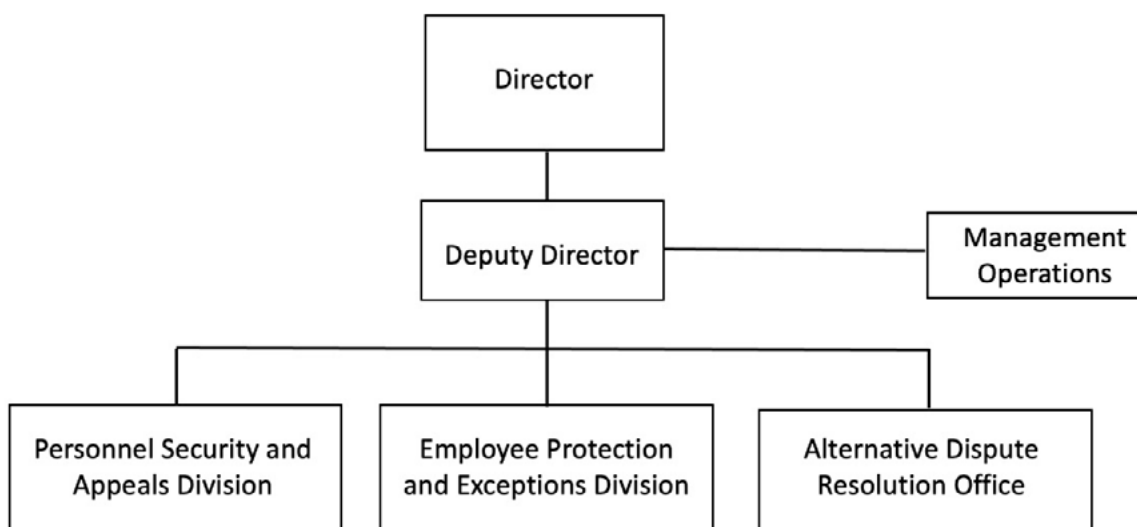
The National Background Investigation Bureau/OPM has an increased backlog of security clearance

investigations. As this backlog is reduced, HG will receive an increased number of security clearance cases for adjudication.

Alternative Dispute Resolution. HG is currently focused on enhancing the Alternative Dispute Resolution Program Department-wide; encouraging greater use of mediation; enhancing efficiency and effectiveness of the program; and ensuring more consistency in settlements across the Department. Continued support from DOE leadership is essential to the success of this initiative.

Organizational Chart

Office of Hearings and Appeals



Office of the Inspector General

Supporting the DOE Mission

Congress originally established Inspectors General to consolidate existing audit and investigative resources to more effectively combat fraud, waste, and abuse in Federal agencies. The Department of Energy Office of Inspector General (OIG) fulfills that role at DOE by:

- Conducting independent and objective audits, inspections, investigations, and other reviews.
- Serving as the law enforcement arm of the Department by conducting criminal and civil investigations that detect, deter, and disrupt illegal activities.
- Promoting economy, efficiency, and effectiveness in the administration of Department programs.
- Preventing and detecting fraud, waste, abuse, and mismanagement related to Department programs and operations.
- Informing the Department of Energy Secretary and Congress about problems and deficiencies in Department programs and operations and the need for corrective action.

Last Fiscal Year, DOE OIG, on a budget of \$54.2 million, recognized monetary accomplishments of more than \$650 million, and therefore provided the taxpayer with a \$12.13 return on investment.

The Inspector General has authority to inquire into all Department programs and activities as well as the related activities of persons or parties associated with Department grants, contracts, or other agreements. As part of its independent status, the Inspector General provides the Secretary with an impartial evaluation of management practices. As a fact-finding organization for high profile, controversial matters, the Inspector General is able to apprehend those attempting to defraud the Government and protect the interest of the U.S. taxpayer.

Additionally, as an independent reviewer of the activities of the Department, the OIG operates under its own strategic plan, goals, and measures.

Our most recent strategic initiatives will position us to enhance our effectiveness in providing oversight to Departmental programs.

Mission Statement

To strengthen the integrity, economy, and efficiency of the Department's programs and operations including deterring and detecting fraud, waste, abuse, and mismanagement.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$51,330,000
FY 2020 enacted	\$54,215,000
FY 2021 requested	\$57,739,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 291

History

Based on the Inspector General Act of 1978, as amended (the IG Act), virtually every federal agency has an Inspector General (IG). Approximately half are appointed by the President subject to Senate confirmation, and approximately half are appointed by the agency head.

According to the IG Act, the role of an IG includes the prevention and detection of waste, fraud, and abuse relating to each agency's programs and operations. IGs also promote economy, efficiency, and effectiveness in the agency's operations and programs.

IGs are nonpartisan and are selected solely on the basis of integrity and demonstrated ability in accounting, auditing, financial analysis, law, management analysis, public administration, or investigations. They have a dual reporting requirement—to their agency heads and to Congress. IGs are required by the IG Act to keep both fully and currently informed about problems and deficiencies in their agencies' programs and operations, as well as the necessity for and progress of corrective action.

Offices of Inspector General (OIGs) are located within their agencies but have substantial independence. For example, agency heads may

not prevent the IGs from initiating, carrying out, or completing any audit, evaluation, or investigation, except in limited circumstances. IGs must maintain their independence, in both reality and in appearance, to provide credible oversight.

Under the IG Act, IGs are given broad statutory authorities, including access to all agency records and information. IGs also have the authority to subpoena relevant documents and information from non-federal organizations and individuals.

IGs should meet regularly with the heads of each agency to foster effective communications. According to the IG Act, IGs must have direct and prompt access to agency heads.

The Council of the Inspectors General on Integrity and Efficiency (CIGIE), an independent Federal entity to which all Federal Inspectors General belong, provides training for OIG employees and develops policies, professional standards, best practices, and common approaches for the work of the OIGs.

Functions

The Office of Inspector General (OIG) is headquartered in Washington, DC and has field offices located throughout the country. The organization is responsible for conducting audits, inspections, and investigations and for receiving and acting upon allegations reported through the OIG Hotline. The organization also has a corporate support function that addresses the administrative management of the organization.

The Office of Audits conducts audits of Department programs and operations. In-depth efforts are concentrated on providing reliable and credible financial and performance information and recommendations for improvements to senior Agency/Department management, Congress, and the U.S. taxpayer. A risk-based process is used to identify areas for audit coverage based on known or emerging risks and the greatest vulnerabilities to the Department's mission and operations. This process ensures comprehensive coverage over Department organizations, programs, and operations while meeting the Department's evolving needs. Special reviews of high profile, unplanned, or immediate matters can also be addressed by audits throughout the year.

The Office of Inspections, Intelligence Oversight, and Special Projects (OIIS) conducts independent and thorough reviews of Department programs and operations to evaluate operational efficiency, effectiveness, and vulnerability. Inspections are more discreet, shorter suspense projects that can be handed over to the Office of Audits or Investigations, as needed. Inspections can be self-initiated, or based upon allegations of waste, fraud, abuse or mismanagement, including referrals from the OIG Hotline. Additionally, OIIS is responsible for reviewing the Department's Intelligence and Counterintelligence programs and operations, including the Department's oversight responsibility in accordance with Executive Order 12333. Finally, OIIS conducts whistleblower investigations under 41 USC 4712.

The Office of Technology, Financial, and Analytics (OTFA) promotes the effective, efficient, and economical operation of the Department of Energy's programs and operations, including the National Nuclear Security Administration and the Federal Energy Regulatory Commission, through audits, inspections, and other reviews including the identification and analysis of Departmental data. The OTFA combines audit and data evidence to address management and security issues. OTFA conducts audits, inspections, and assessments of the Department's information technology systems and related initiatives, with focus on cyber security, information management, and the Federal Information Security Modernization Act. OTFA further provides timely, reliable expert data analysis in support of ongoing audits and investigations, develops risk models, and coordinated data mining efforts. OTFA uses the latest technology and techniques to discover current and emerging cyber and economic threats and coordinate data analysis. The combined efforts of OTFA help to ensure that information technology issues are properly addressed and not overlooked.

The Office of Investigations addresses alleged violations of law that impact Department programs, operations, facilities, and personnel. Priority is given to investigations of suspected violations of criminal and civil statutes, as well as serious administrative misconduct. Investigations are also used to identify opportunities for improving the economy and efficiency of Department programs and operations by identifying recommendations for positive change. Investigators work closely with Department of Justice prosecutors and other Federal, State, and local law enforcement organizations.

The Chief Counsel provides legal advice to senior leadership. Also within this office is the OIG Whistleblower Ombudsman, who educates Department employees about prohibitions on retaliation for whistleblowing, as well as employees' rights and remedies if anyone retaliates against them for making a whistleblower disclosure.

The Senior Counsel and Freedom of Information Act and Privacy Act Division provides executive leadership and direction to all Freedom of Information Act and Privacy Act operations and business management activities in the Office of Inspector General.

The Office of Management and Administration directs the development, coordination, and execution of overall OIG management and administrative policy and planning. This responsibility includes human resource activities and consultation; directing the OIG's strategic planning process; financial management activities; personnel management and security programs; administrative support services; and information technology programs.

Recent Organization Accomplishments

FY20 Results through September 17, 2020

Office of Audits

- \$556.4 million Identified as Questioned/Unsupported Costs
- 20 Audit Reports Issued to the Department
- 94 Recommendations Made to the Department

Office of Inspections, Intelligence Oversight, and Special Projects

- Over 3000 Hotline Contacts (35% increase since FY18)
- 26 Contractor Whistleblower Retaliation Allegations

Office of Investigations

- \$100.3 million in Recovered Funds/Fines
- 39 Criminal/Civil Actions/Indictments

Office of Technology, Financial, and Analytics

- 24 Ongoing Audits, Inspections, and Investigations were Supported

- Conducted Analysis of the Largest Fraud Investigation in the Department's History
- \$800,000 Misrepresented Salary Reported for One Employee
- Over 35,000 IT Weaknesses Identified
- 72 Recommendations Made to the Department

Leadership Challenges

Cooperative Audit Strategy

The OIG is currently finalizing audits for report issuance and will ultimately issue a capstone report on the Department's Cooperative Audit Strategy.

Timekeeping Initiative

Labor charges are the largest expense within the Department. The OIG has identified substantial increases in fraudulent behaviors by contractors related to overcharging labor hours. Most recently, in September 2020, a Department contractor agreed to pay \$57.8 million to resolve claims that the contractor had fraudulently overcharged the Department for labor hours dating back to 2009.

Administrative Remedies

The OIG is responsible for investigating the facts and circumstances underlying the referral of individuals and companies for suspension or debarment. The technical and legal quality of these referrals is at the heart of a robust suspension and debarment program. The OIG is in the process of ramping up our efforts in this area.

Department Directives: Reporting to OIG and Mandatory Disclosures

The OIG has identified two Department Directives that need to be substantially improved. These are DOE Order 221.1B, Reporting Fraud, Waste and Abuse to the Office of Inspector General; and DOE Order 221.2A, Cooperation with the Office of Inspector General. The OIG has identified ways in which these Directives could be significantly strengthened to improve the OIG's ability to carry out its statutorily mandated responsibilities. We are drafting the documents necessary to put such changes into effect.

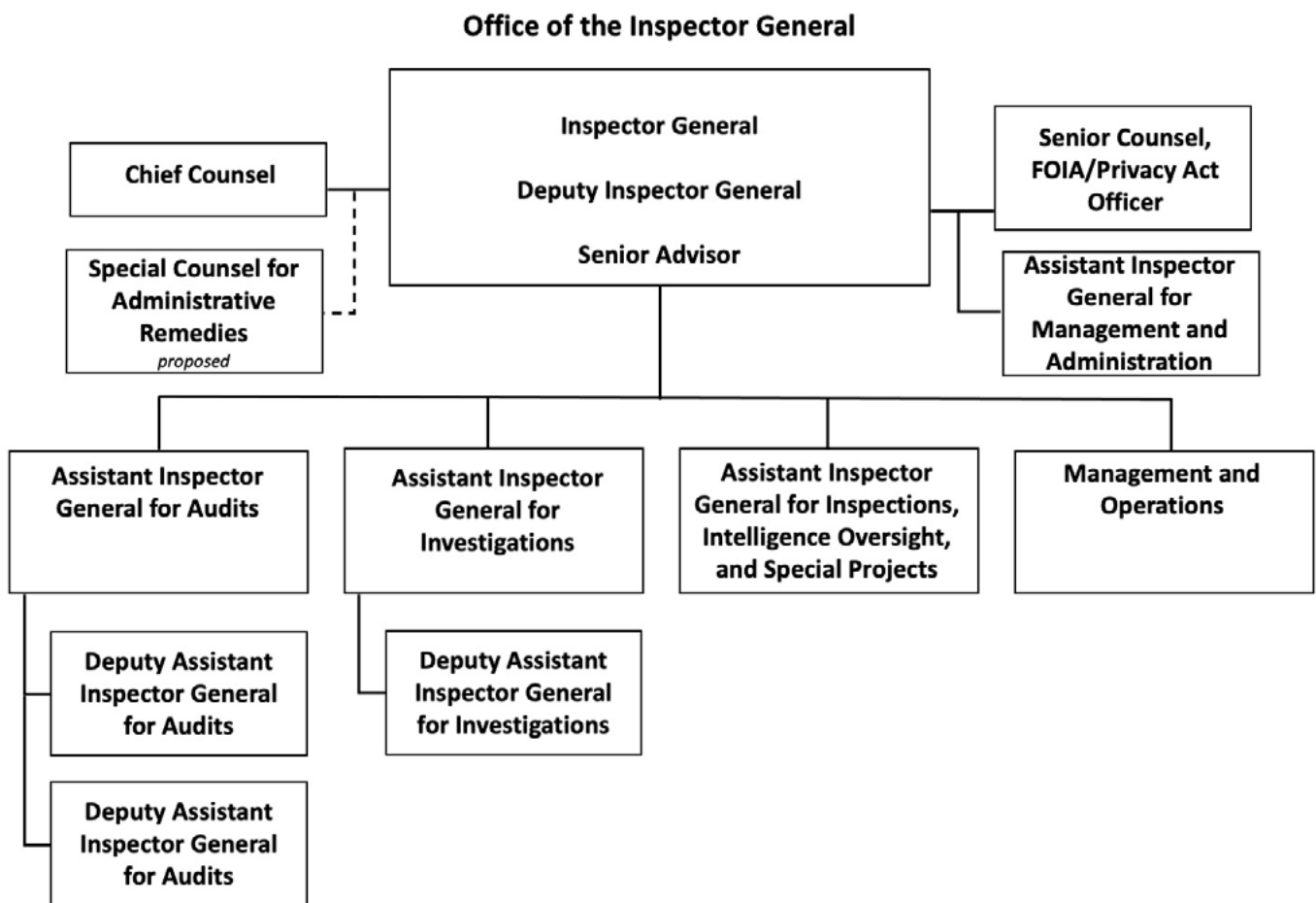
Office Space

The OIG primarily relies on space provided by Department contractors, as provided under the IG Act. Four of these spaces are currently in some stage of renovation or relocation. One of our locations is on a Government-owned, Government operated facility. This site is unable to provide additional space needed by the OIG since they rely on their own appropriation for space. We are in the process of identifying options to deal with this situation. Our Headquarters space, which we pay for out of our appropriation, is the subject of several pending construction requests due to organizational growth and re-structuring.

Critical Events and Action Items

- Issue Opinion on Financial Statement Audit – November 2020
- Issue Federal Information Security Modernization Act Report – November 2020
- Issue Semiannual Report to Congress – November 2020
- Issue FY 2021 Management Challenges Report – December 2020

Organizational Chart



Office of Strategic Planning and Policy

Supporting the DOE Mission

The Office of Strategic Planning and Policy (OSPP) fulfills the Department's strategic goals and supports its mission by coordinating policy across the Departmental Elements of the Department of Energy (DOE) and shapes long-term strategic planning and policy that is consistent with the Secretary's vision for DOE. OSPP also executes on the development of policy, road-mapping, and DOE planning of Secretarial priorities, while integrating the expertise of relevant Department Elements in all activities.

Mission Statement

The Immediate Office of the Executive Director for the Office of Strategic Planning and Policy (OSPP-1) serves as the principal advisor to the Secretary for strategic planning and policy. OSPP coordinates policy across the Departmental Elements of the Department of Energy (DOE) and shapes long-term strategic planning and policy that is consistent with the Secretary's vision for DOE. OSPP executes on the development of policy, road-mapping, and DOE planning of Secretarial priorities, while integrating the expertise of relevant Department Elements in all activities. OSPP acts as an internal coordinator and initial point of contact for White House and interagency meetings and policy development. OSPP supports the Secretary in accessing information and expertise within DOE and its National Laboratories. OSPP provides support for Departmental Elements' priorities and for the directions of the Undersecretaries and Assistant Secretaries.

OSPP coordinates strategic cross-cutting functions across the DOE enterprise. OSPP is staffed by an interdisciplinary team of senior policy advisors, constituted of technical and policy experts with broad skillsets and experience, who will formulate policy pathways to achieve the Secretary's strategic vision and act on secretarial direction, consistent with DOE's statutory mission. OSPP develops internal and external strategy documents, reports, white papers, opinion editorials and/or peer-reviewed publications of the Secretary, OSPP, and/or DOE, as appropriate.

Budget

During FY2020, the Secretary announced that the previous Office of Policy (OP) would be restructured to the new OSPP. During the course of calendar year 2020, the OP has been eliminated while the OSPP was established. The OP budget in FY 2020 was used to support both the OP and OSPP employees and functions during the transition. Therefore, while an FY 2022 budget request for OSPP is anticipated, the OP budget over the period is more informative and that budget can be found below.

Fiscal Year	Budget
FY 2019 enacted	\$10,010,000
FY 2020 enacted	\$7,000,000
FY 2021 requested	\$7,631,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 8

History

On January 28, 2020, the Secretary of Energy announced that the Office of Policy (OP) will be restructured to the Office of Strategic Planning and Policy (OSPP) as a direct report to the Office of the Secretary, rather than as a report to the Under Secretary of Energy. OSPP will provide a more efficient and effective approach to the analysis, formulation, development, and advancement of all policy within the Department.

Functions

- Serve as the principal advisor to the Secretary for the Department's overall strategic planning and policy.
- Coordinate, develop, and manage the Department's Strategic Plan.
- Coordinate and manage policy analysis and development activities that implement and support U.S. energy and national security, environmental, economic, science and technology policies.
- Develop, analyze, and recommend major Secretarial energy policy initiatives. Develop and analyze legislative proposals to assess their impact on national energy, economic, environmental, national security, science and technology policy.

- Conduct reviews of energy policy development plans and proposals of other Departments and agencies, of state and local governments, and of private and public interest groups as they pertain to domestic energy policy. Perform continual assessments of domestic energy conditions, especially as related to national security, economic competitiveness, environmental quality, and trade and market-opening activities.
- Manage departmental participation in regulatory processes of other Federal agencies that have an impact on energy policy.
- Maintain relationships with energy-related industries and trade groups and coordinates information to and from the energy industry.
- Serve as the principal advisor to the Secretary on domestic energy affairs and coordinate the implementation of domestic cooperative agreements.
- Maintain working relationships with state and local governments and domestic energy organizations.
- Work with the Office of International Affairs to coordinate programs to promote the export of U.S. energy goods, services, equipment, and technology, to open markets and develop and maintain a level playing field for U.S. investments abroad.
- Oversee the activities and responsibilities the National Laboratory Operations Board (LOB) to ensure appropriate, effective, efficient, and responsible coordination between DOE strategic planning and policy development and the National Laboratories.

Recent Organization Accomplishments

- Defined and presented innovation recommendations for the SEAB Innovation Report.
- Organized and led the DOE Space Coordination Group and completed a DOE Space Strategic Plan.
- Created a joint DOE-NASA MOU on executive-level space coordination.
- Rolled out the Nuclear Fuels Working Group (NFWG) strategy.
- Organized DOE and interagency NFWG strategy implementation plans.

- Stood up a DOE Critical Minerals Coordination Group.
- Coordinated the drafting of a Department Critical Minerals and Materials strategy.
- Supported PA in defining the narrative for S1 communications leading to a more robust communications strategy with over 30 OpEds placed under S1's name in under 6 months.
- Led, through the Laboratory Operations Board, the drafting of an update to the DOE "State of the Labs" report.

Leadership Challenges

One of the greatest challenges facing OSPP is the recruitment and maintenance of highly talented individuals. OSPP works because of the quality of its people. The culture of the organization is one that expects high performance and leadership from each of its political and career employees. There are only so many individuals within the Department who possess the leadership skills, technical acumen, understanding of the organization, and ability to bring people together. Typically, pulling top-flight talent from elsewhere with the organization can leave a gaping hole in other important Department offices. We have chosen to work with a hybrid structure to provide maximum flexibility, in which some employees are OSPP employees, while other are detailed to OSPP from elsewhere within DOE. The maintenance and curation of talent and leadership are required for the relatively small team to multiply its effectiveness by building efficient teams/coalitions. The current team is excellent. However, evolving the team to meet Secretarial needs and directions will always remain an important periodic challenge.

A second important factor in the effectiveness of the organization as a whole is the perception of OSPP within DOE. Since it is intended to fill gaps between the silos of the Department and work strategically on cross-cutting work, the leadership must expend great deal of time maintaining relationships with senior leadership throughout the Department. This is an ongoing challenge that must continuously be considered.

Critical Events and Action Items

There will be a handful of important releases in the coming months, which could flow into the beginning of calendar year 2021, including the release of a DOE critical minerals and materials strategy and the update to the “State of Labs” report. However, more important will be the use of the OSPP office in the definition of Secretarial priorities and strategic communications. The office will be useful in setting up the internal strategy and planning necessary to execute throughout the remainder of the next Presidential term, especially when tied to the term of service of the Secretary.

Organizational Chart

Office of Strategic Planning and Policy



Office of the Ombudsman

Supporting the DOE Mission

The Office of the Ombudsman (Ombuds) is aligned with and supports the Department of Energy's (DOE) mission and Strategic Objective 12, attract, manage, train, and retain the best federal workforce to meet future mission needs. The Ombuds provides the workforce with a confidential, independent, informal, and neutral resource to address workplace challenges. The Ombuds engages on many complex and high profile issues, and has successfully worked with employees at all levels to help address workplace challenges that distract from achieving the Department's mission.

Mission Statement

Help DOE work better together by tapping into the power of collaborative approaches to address workplace challenges.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$850,000
FY 2020 enacted	\$850,000
FY 2021 request	\$850,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 4

History

The Ombuds was established on March 6, 2012 and was created to provide an alternative for federal headquarters and field employees who want to speak with a neutral, independent party about workplace challenges in a confidential environment. To date, the Ombuds has supported over 7,000 individuals and addressed over 20,000 issues.

Functions

When faced with workplace challenges, the Ombuds provides confidential, independent, and neutral support to individuals and groups seeking a path forward. The Ombuds brings expertise identifying

and addressing root causes of workplace challenges and offers tailored approaches to solutions. The Ombuds provides support to individuals, groups, leaders/management teams, and the Department as a whole by identifying the root cause of workplace challenges; brainstorming options and assessing pros and cons; and developing and implementing plans. The Ombuds identifies areas of concern or those of a systemic nature and makes recommendations on how they can be best addressed. In cases where a process exists for addressing a concern, the Ombuds makes referrals to other Department resources. Specific Ombuds functions include:

- Formulates strategic and performance plans; manages the human, financial and material resources of the Ombuds; and benchmarks against other ombudsman programs.
- Promotes understanding of existing processes for resolving disputes; advocates for alternative dispute resolution; and identifies systemic problems and proposes strategies for improvement.
- Briefs senior leadership on strategies and activities including statistical information on contacts with the Ombuds while maintaining confidentiality of the information; identifies systemic issues affecting productivity, morale and the workplace; and identifies strategies and options for improvement.
- Interfaces with the Office of the Chief Human Capital Officer; the Office of the General Counsel; the Office of Environment, Health, Safety, and Security; Office of Hearings and Appeals, National Nuclear Security Administration and other offices.

The Ombuds acts in accordance with the International Ombudsman Association's Code of Ethics and Standards of Practice, to the extent they conform to federal agency rules and regulations, and other federally mandated requirements. These govern the way in which the Ombuds receives workplace concerns, helps to resolve issues, and assists with general improvement of the Department.

The Ombuds is a resource for informal dispute resolution only and does not participate in any internal or external formal process. The Office does not investigate, arbitrate or adjudicate. In addition, contact with the Office does not forestall established

timeframes within DOE formal processes, nor does it constitute legal notice to DOE or official notice to initiate a formal process.

Recent Organization Accomplishments

At the onset of maximum telework, Ombuds quickly developed a webinar for leaders, *Leading Teams Through Change*, with over 274 participants. Survey results revealed 98% of the participants agreed the content was useful, valuable, and relevant to their success at work and 95% would recommend to others.

Due to the International Ombudsman Association's conference and training being cancelled this year, Ombuds took a leading role in the Federal sector collaborating with other Federal ombuds to create and deliver training for new Federal ombuds. This resulted in 70 individuals receiving training that would not have been available for approximately one year. Survey results indicated 98% strongly agreed or agreed that the topics were relevant, the sessions were useful, and the trainers were knowledgeable, professional, & responsive to questions.

From 2012-2019 nearly half (48%) of all of the concerns brought to the Ombuds were issues within supervisory relationships. We obtained support and buy-in from stakeholders across DOE to address this systemic issue. We identified the top four areas of concern shared most frequently with us by DOE employees; developed an approach to understanding the behaviors leading to effective leadership; identified and interviewed a dozen DOE leaders and obtained input from their direct reports; collected & analyzed various sources of data; and developed recommendations for improving leadership. We are currently briefing key stakeholders on the analysis and recommendations which will culminate into recommendations to S1 during FY'21. Implementation of recommendations will result in long-term cost avoidance and increased engagement.

Led in the support to over 200 individuals addressing almost 1350 issues leading to the resolution of complex problems, improved working relationships, and increased focus on mission. The average time to close cases was fewer than 5 days. Due to the risk level associated with issues, cost avoidance is estimated to be more than 5 million dollars. Solicited input from the DOE workforce to inform

revised Ombuds messaging resulting in the elimination of ombuds jargon and development of messages that clearly describe our mission, vision, services, and impact.

Leadership Challenges

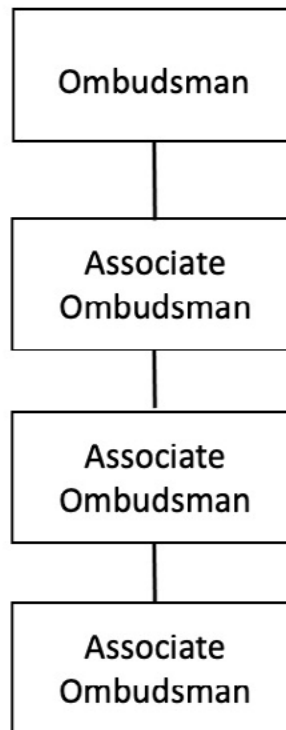
The four members of the Office of the Ombudsman are responsible for providing support to the entire DOE federal workforce. Present staffing levels do not permit the Ombuds to fully realize its potential as an innovator for alternative dispute resolution within DOE.

Critical Events and Action Items

From 2012-2019 nearly half (48%) of all of the concerns brought to the Ombuds were issues within supervisory relationships. We obtained support and buy-in from stakeholders across DOE to begin to address this systemic issue. We developed an approach to understand the behaviors leading to effective leadership; gathered and analyzed data and developed recommendations to improve leadership. Briefings on the findings and recommendations will conclude by the end of this year. As we have done in the past with systemic issues, we will seek the Secretary's endorsement and support of the recommendations.

Organizational Chart

Office of the Ombudsman



Under Secretary of Energy

Supporting the DOE Mission

The Under Secretary of Energy (S3) is one of the statutory principal officers of the Department and holds such responsibilities as assigned by the Secretary.

The Under Secretary of Energy oversees nine Departmental Elements: the Office of Environment, Health, Safety, and Security (AU); the Office of Cybersecurity, Energy Security, and Emergency Response (CESER); the Office of Energy Efficiency and Renewable Energy (EERE); the Office of Fossil Energy (FE); the Office of Indian Energy and Policy Programs (IE); the Loan Programs Office (LPO); the Office of Nuclear Energy (NE); the Office of Electricity (OE); the Office of Project Management (PM); and the Arctic Energy Office (AE). These elements advance the Department's strategic goals of maintaining American leadership in fundamental research as the foundation for groundbreaking innovation and national security; and supporting commercialization and deployment of innovative technologies to deliver reliable, sustainable, and affordable energy and enhance American energy dominance.

The Under Secretary of Energy supports the DOE mission by:

- Advising and supporting the Secretary and Deputy Secretary.
- Participating in establishing strategy, priorities, and resource allocations for the Department (including development of budget requests).
- Engaging with high-level external audiences such as Members of Congress; senior Executive Branch counterparts; state, local, and tribal government officials; foreign government and international organization counterparts; and key DOE contractors in support of DOE's energy missions.

Mission Statement

To ensure America's security and prosperity by addressing its energy challenges through transformative science and technology solutions.

Budget

The chart below reflects the combined budgets for the organizations reporting to the Under Secretary of Energy, excluding the Power Marketing Administrations.

Fiscal Year	Budget
FY 2019 enacted	\$5,255,929,000
FY 2020 enacted	\$5,877,124,000
FY 2021 requested	\$3,446,148,000

FY 2020 authorized full-time equivalents (FTEs) in organizations reporting to the Under Secretary of Energy total 6,990; 4,759 of those FTEs support the Power Marketing Administrations.

Functions

The Under Secretary of Energy focuses on energy policy, applied energy technologies, energy security and reliability, and certain DOE-wide management functions.

Arctic Energy Office (AEO)

The Arctic Energy Office leads cross-cutting operations in the Arctic with a mission to tackle the energy, science and national security challenges of the 21st Century. The office acts as a nexus for DOE activities and represents the Department in engagements involving the Arctic.

Office of Environment, Health, Safety and Security (AU)

AU is DOE's central organization with enterprise-level responsibilities for health, safety, environment, and security; providing corporate-level leadership and strategic vision to establish, sustain, coordinate, and integrate these vital programs. AU is responsible for policy development and technical assistance; safety analysis; and corporate safety and security programs. The Associate Under Secretary for Environment, Health, Safety and Security advises DOE elements and senior Departmental leadership, including the Under Secretary of Energy on all

matters related to environment, health, safety, and security across the complex.

Office of Cybersecurity, Energy Security, and Emergency Response (CESER)

CESER's goal is to improve the security of the United States energy infrastructure against all hazards via Cybersecurity; Infrastructure Security & Energy Restoration; and Innovation, Research & Development.

Office of Energy Efficiency and Renewable Energy (EERE)

EERE promotes affordable and reliable energy to enhance America's economic growth and energy security through technology development in the energy efficiency, renewable power, and sustainable transportation sectors.

Office of Fossil Energy (FE)

FE's mission is to discover and develop advanced fossil energy technologies to ensure American energy dominance, create American jobs, support a resilient infrastructure, maintain environmental stewardship, and enhance America's economy. Ensure America's access to and use of safe, secure, reliable, and affordable fossil energy resources and strategic reserves.

Office of Indian Energy and Policy Programs (IE)

The mission of the Office of Indian Energy is to maximize the development and deployment of energy solutions for the benefit of American Indians and Alaska Natives.

Loan Programs Office (LPO)

LPO's mission is to catalyze energy infrastructure investments to achieve America's energy objectives and advance economic growth.

Office of Nuclear Energy (NE)

The mission of NE is to advance nuclear power as a resource capable of meeting the Nation's clean energy, environmental, and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers through research, development, and demonstration (RD&D). NE supports the diverse civilian nuclear energy programs of the U.S. government, leading federal

RD&D efforts in nuclear energy technologies, including generation; safety; waste storage and management; and security technologies.

Office of Electricity (OE)

A secure and resilient power grid is vital to national security, economic security, and the services Americans rely upon. Working closely with its private and public partners, the Office of Electricity leads the Department's efforts to ensure the Nation's most critical energy infrastructure is secure and able to recover rapidly from disruptions.

OE also has oversight over the Power Marketing Administrations (BPA, SEPA, SWPA, and WAPA).

Office of Project Management (PM)

PM's mission is to provide enterprise level project management leadership, and assist in the development and implementation of Department-wide policies, procedures, programs, and management systems pertaining to project management, professional development, and related activities.

The office is charged with providing the DOE senior leadership with timely, reliable, and credible information to enable the best informed project execution decisions.

Recent Organization Accomplishments

Since the beginning of this Administration, the Under Secretary of Energy has made significant progress across its entire mission space, having...

- **Established U.S. Energy Dominance** for the first time, America became the world's number one producer of oil and natural gas.
- **Led substantial increases in exports of U.S. Liquefied Natural Gas (LNG)** by nearly five-fold and issued 20 long-term authorizations for LNG exports to non-free trade agreement countries since January 2017.
- **Published the Small-Scale LNG Rule** to expedite approval for small-scale natural gas exports.
- **Published 2050 LNG Policy Statement** to allow companies to export LNG through 2050 as an alternative to our original 20-year authorizations.

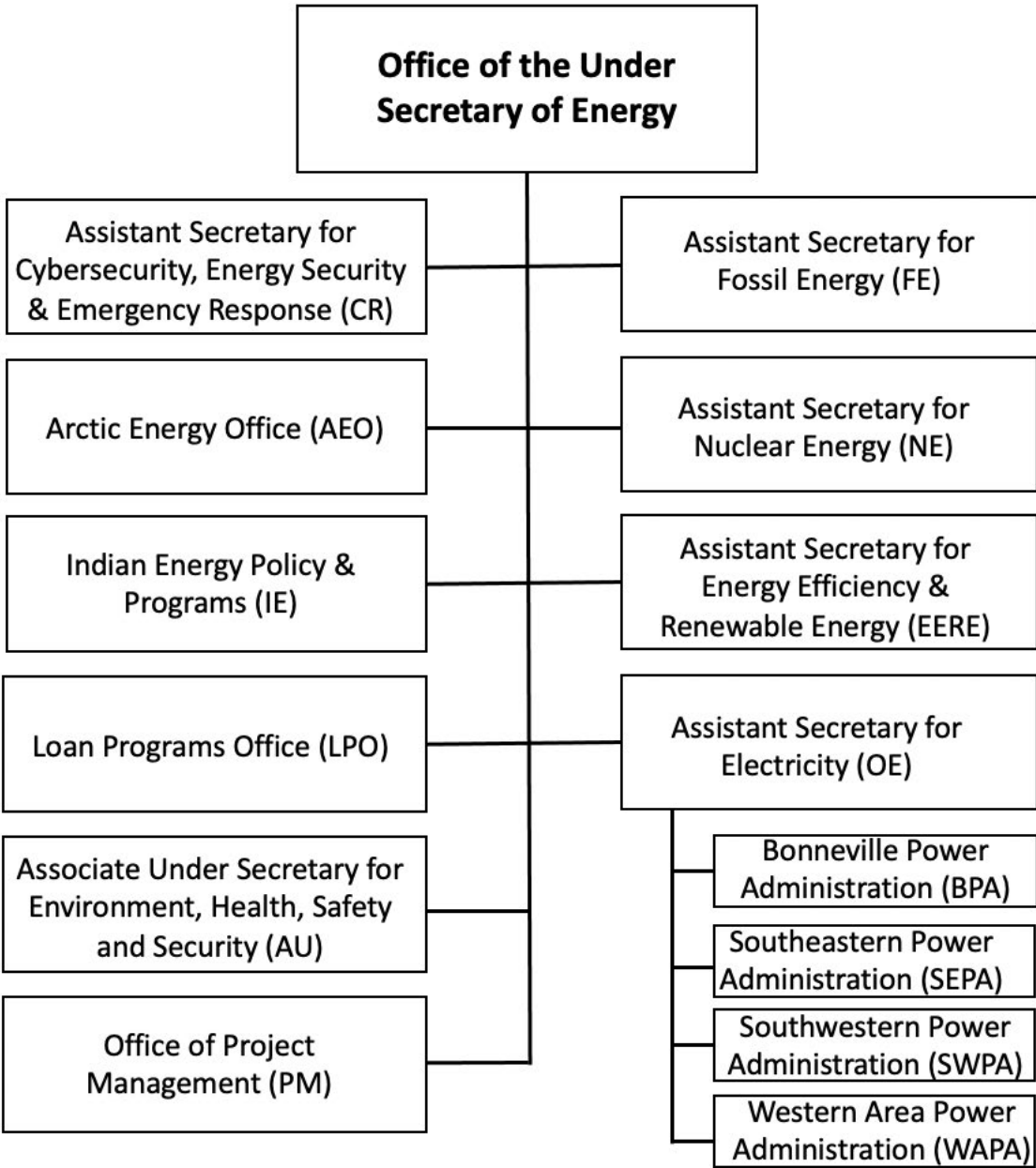
- **Launched Coal FIRST (Flexible, Innovative, Resilient, Small and Transformative) Initiative** to develop the power plant of the future, which can produce electricity and hydrogen from coal, biomass, and waste, with zero or even negative CO2 emissions.
- **Implemented the Nuclear Fuel Working Group's Strategy** to Restore American Nuclear Energy Leadership.
- **Established the National Reactor Innovation Center (NRIC)** to provide a platform for private sector technology developers to assess the performance of their nuclear reactor concepts through testing and demonstration.
- **Launched the Advanced Reactor Demonstration Program** to competitively-select two advanced reactor projects to result in fully functional advanced nuclear reactors within seven years.
- **Successfully Returned Electric Power** to communities affected by multiple catastrophic hurricanes and typhoons.
- **Developed the North American Energy Resilience Model (NAERM)** to understand risks to infrastructure and identify needed investments to improve system resilience across Canada, the U.S., and Mexico.
- **Established Cybersecurity, Energy Security, and Emergency Response (CESER) office** to improve the cybersecurity and resilience of the Nation's energy critical infrastructure.
- **Established the Cyber Testing for Resilience of the Industrial Control Systems (CyTRICS) program** to secure the Nation's Energy Supply Chain and support the Bulk Power Executive Order.
- **Oversaw the expansion of renewable power**, including a doubling of solar production from 2016 through 2019 and a 32 percent increase in wind production.
- **Launched the American-Made Challenges**, by investing more than \$40 million in 16 different American-Made prizes and competitions to advance energy innovation and American manufacturing.
- **Launched the Energy Storage Grand Challenge**, a comprehensive strategy to position the U.S. for global leadership in the energy storage technologies of the future.
- **Launched the American-Made Solar Prize**, a competition designed to revitalize solar manufacturing in the United States, leading to four rounds that will result in \$12 million in prizes.
- **Launched the American-Made Solar Desalination Prize**, a \$9 million prize competition designed to accelerate the development of low-cost desalination systems that use solar-thermal power to produce clean water from salt water.
- **Created the Energy-Water Desalination Hub** as part of the White House Water Security Grand Challenge, announcing nearly \$100 million for the National Alliance for Water Innovation to address water security issues in the United States.
- **Initiated the Plastics Innovation Challenge** which launched a comprehensive program to design new highly recyclable or biodegradable plastics, develop novel methods for deconstructing and upcycling existing plastic waste, and address plastic waste.

Leadership Challenges

The Department has no material weaknesses to report as a result of internal control evaluations. The Department continues work to address Management Priorities, which represent important strategic management issues the Department has in fulfilling responsibilities and initiatives to support the Administration in securing a better future for the Nation.

Organizational Chart

Office of the Under Secretary of Energy (S3)



Office of Cybersecurity, Energy Security, and Emergency Response

Supporting the DOE Mission

The Office of Cybersecurity, Energy Security, and Emergency Response (CESER) is the Department's lead to engage with the energy sector. CESER leads all policy discussion with the private sector to support the Department's agenda. Additionally, CESER is the lead for the National Security Council NSPM-4 policy process on cyber issues. Finally, CESER maintains the Emergency Support Functions under the National Response Framework supported by the Federal Emergency Management Agency (FEMA).

Mission Statement

The mission of the Office of Cybersecurity, Energy Security, and Emergency Response (CESER) is to improve the security of the United States energy infrastructure against all hazards via Cybersecurity; Infrastructure Security & Energy Restoration; and Innovation, Research & Development.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$120,000,000
FY 2020 enacted	\$156,000,000
FY 2021 requested	\$184,621,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 27

History

In recognition of the increasing importance of cybersecurity for the energy sector, DOE created the Office of Cybersecurity Energy Security and Emergency Response (CESER) in 2018. The creation of CESER fulfilled a dual purpose: to work with industry to increase cybersecurity and physical

security protections across multiple energy subsectors and interdependent sectors of critical infrastructure; and to coordinate emergency support function response for the energy sector. CESER was spawned from the Office of Electricity (OE) by divesting the legacy OE research and development, and infrastructure security and energy restoration divisions. Since this divestiture, CESER is growing to address the entire energy sector, not just electricity concerns.

Functions

Cybersecurity

This division seeks to mitigate the risk of energy disruption from cyber incidents and other emerging technological threats within the energy environment. We strategically coordinate the Department of Energy's efforts to improve discovery, protection, prevention, and mitigation of cyber threats and vulnerabilities that disrupt, degrade, or threaten the U.S. energy sector critical infrastructure and operations. Focus areas include DOE Primary Mission Essential Function #3, Emergency Support Function #12, Defense Critical Energy Infrastructure, and Executive Order 13920 implementation.

Infrastructure Security & Energy Restoration (ISER)

The ISER division leads DOE's emergency preparedness and coordinated response and recovery to avoid disruptions to the energy sector caused by physical and cyber-attacks, natural disasters, and man-made events. Additionally, they assist efforts to reduce the impact of disruptive events and respond to and facilitate recovery from energy disruptions in collaboration with industry, the Department of Homeland Security, and other Federal, State, local, tribal, and territorial governments.

Innovation, Research & Development (IRD)

The IRD division manages an Innovation and R&D program designed to assist energy sector and DOE asset owners by developing cybersecurity, energy security, and emergency response solutions for energy infrastructure systems in collaboration with the National Laboratories, and other Federal government, industry, and academic organizations.

Corporate Business Office (CBO)

The CBO handles all project management, budgeting, and human resources functions. This office serves as the back office for all other divisions and facilitates our engagements with Congress and the Office of Management and Budget.

Recent Organization Accomplishments

- CESER manages DOE's premier cyber vulnerability testing program for industrial control system (ICS) digital components: the Cyber Testing for Resilient ICS (CyTRICS) program. During FY2020, CESER began signing agreements with major manufacturers and asset owners to provide digital components for testing. CyTRICS will complete a full pilot test of program processes in the fall of 2020.
- Pursuant to direction in Section 5726 of the FY2020 National Defense Authorization Act, CESER launched a 2-year pilot Securing Energy Infrastructure Executive Task Force (SEIETF) to partner with digital component manufacturers and asset owners to address cybersecurity in sector supply chains. The SEIETF convenes a broad set of stakeholders from across government, industry, academia, and the DOE Labs to: 1) evaluate technology and standards to isolate and defend critical industrial control systems (ICS) from cybersecurity vulnerabilities and exploits; 2) develop a national cyber-informed engineering strategy to isolate and defend critical ICS from cybersecurity vulnerabilities and exploits; and 3) identify new classes of security vulnerabilities of critical ICS.
- In August, CESER completed a new plan to strategically evolve the cybersecurity mission at DOE, to include building new capabilities to perform cyber discovery and pursuit functions; cyber threat intelligence sharing and situational awareness; cyber modeling and simulation; and fostering cyber protections for emerging technologies in energy sector systems. This included signing a 2-year lease on office space in Denver, CO, to open the DOE Integrated Security Center (DISC).
- Federal partners signed an MOU launching the Pathfinder program in February 2020. Pathfinder focuses on three core objectives: 1) Advance Threat-Information Sharing and Analysis; 2) Improve Energy Sector-Specific Knowledge Within the U.S. Government; and 3) Develop Joint Operational Preparedness and Response Procedures. Initial work to identify and coordinate existing federal stakeholder cyber activities in the energy sector was completed in FY2020.
- The energy sector has housed the premier cyber threat intelligence platform for over a decade. This program, known as the Cybersecurity Risk Information Sharing Program (CRISP) is a public-private partnership, co-funded by DOE and industry and managed by the Electricity Information Sharing and Analysis Center (E-ISAC). CRISP is extending its footprint of participants to include utilities that support Defense Critical Energy Infrastructure facilities. The "+ 30 Initiative" provides funding for critical electric sector companies to participate for a period of three years, working together with the E-ISAC and the Pacific Northwest National Laboratory (PNNL).
- In response to the President's Executive Order on Cyber Workforce and the Cyber Solarium Commission report, CESER launched the Operational Technology (OT) Defender Fellowship. This year long fellowship introduces OT Managers in the U.S. to national security through the lens of industrial control systems. This program is sponsored by CESER but managed through INL and the Foundation for Defense of Democracies.
- CESER, in coordination with DOE International Affairs, negotiated a Memorandum of Agreement with the United Arab Emirates to assist the growth and security of the Barakah Nuclear Power Plant, the world's first civil-nuclear power plant in the Middle East.

Leadership Challenges

Manpower

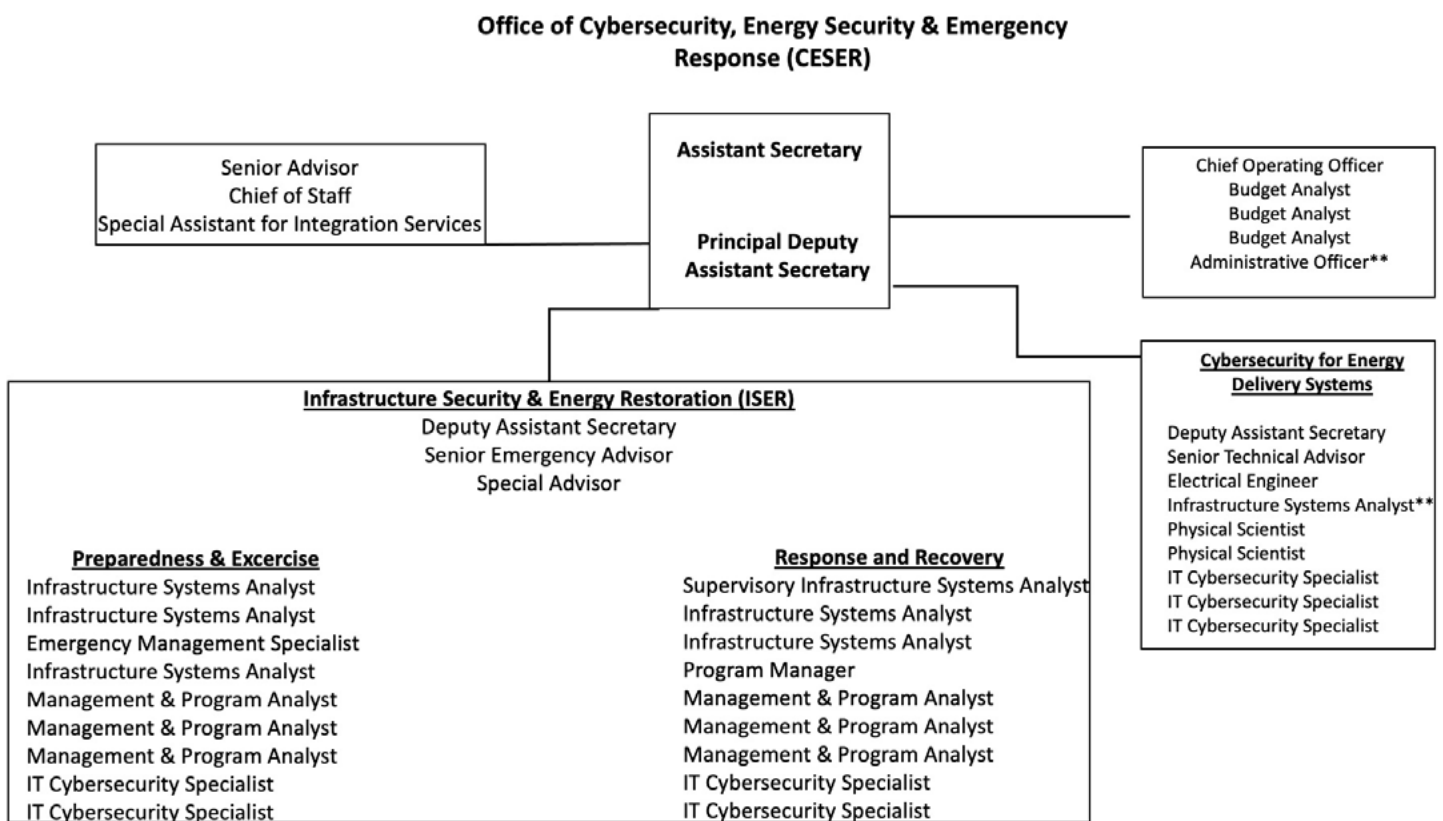
CESER is a growing office, striving to meet the mission of the Department. Currently, CESER has 23 full time federal employees and funds another 9 at the National Energy Technology Lab in Morgantown, WV. These employees are primarily at the Government Service (GS) 14 and 15 levels due to the advanced project management and technical expertise traditionally required for their roles. In 2020 CESER was allocated 13 new

positions. Given the pandemic, CESER struggled to fill all of its opening. In FY21, CESER is allotted 16 more positions. Filling these roles inside of CESER's new structure is a top priority and will require a leadership focus.

Critical Events and Action Items

In the first quarter of CY2021, the Office can expect the quarterly Sector Coordinating Council Meetings. Depending on COVID-19 constraints, these events are usually hosted at DOE HQ and bring in the business and security leaders of the electric and oil and natural gas sectors.

Organizational Chart



Office of Fossil Energy

Supporting the DOE Mission

The Office of Fossil Energy (FE) plays a critical role in the U.S. Department of Energy's (DOE) mission to enhance national security and economic growth through transformative science, technology innovation, and market solutions to U.S. energy, nuclear security, and environmental challenges. This is accomplished through impactful early-stage research and development (R&D) that is poised for further advancement and scale-up of technologies, systems, processes, and methods that utilize fossil energy resources efficiently and responsibly. This ensures the continuous improvement of the standards of living of the American people with clean, efficient, and reliable energy. Additionally, FE enhances national security through its operation of the Strategic Petroleum Reserve (SPR), the nation's emergency crude oil "storage bank" built to protect the U.S. economy during significant petroleum supply or demand interruptions.

Mission Statement

Discover and develop advanced fossil energy technologies to ensure American energy dominance, create American jobs, support a resilient infrastructure, maintain environmental stewardship, and enhance America's economy. Ensure America's access to and use of safe, secure, reliable, and affordable fossil energy resources and strategic reserves.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$1,000,000,000
FY 2020 enacted	\$979,000,000
FY 2021 request	\$930,700,000

Human Resources

FY 2020 Authorized Federal Full-Time Equivalents (FTEs): 787

History

Fossil fuels provide more than 80 percent of the energy mix in the United States and around the world. The U.S. Energy Information Administration projects that fossil energy will remain at nearly 80 percent of the energy mix in 2040, both in the United States and worldwide. Carbon reduction is a global issue, and FE leads the world in technologies for reducing greenhouse gas emissions as cost-effectively as possible. Hydrogen from fossil fuels, including coal, is expected to play a key role in the U.S. transition to clean, low-carbon energy systems. The International Energy Agency predicts the United States and other advanced countries that develop a successful hydrogen economy will rely primarily on fossil fuels along with carbon capture, utilization, and storage (CCUS). FE is already a world leader in this technology and is working to remove cost as a barrier to its widespread use. The vast majority of recent progress made on fossil energy technology development started with investments made by FE—and that progress demonstrates our impact. To name a few, our achievements and investments include advances in the recovery of rare earth elements and critical minerals from coal and coal by-products, new products from coal (i.e., quantum dots for use in medicine and electronics) creating new industries and good jobs in America's coal country. Other examples include highly efficient coal technologies that achieve near-zero emissions, and are commercially deployable in a competitive energy market, research on materials, coating, and sensors to improve the operational efficiency, security reliability, and safety of natural gas supply and delivery infrastructure, advanced methane detection and measurement technology validation, as well as horizontal drilling and stimulation methods that paved the way for oil and gas operators to set us on the pathway toward energy independence for the first time in decades. The United States is now the top producer of both oil and natural gas; however, challenges remain around issues such as methane emissions and produced water. At the same time, we have authorized more than 48 billion cubic feet per day of liquefied natural gas (LNG) exports from over 20 export facilities in the United States.

The SPR continues to serve as a valuable national emergency resource during natural disasters and other oil supply disruptions, as seen during Hurricane Harvey in 2017. The SPR is beginning a large scale effort to repair and replace key

infrastructure to maintain the short-term and long-term effectiveness of its operation. The SPR is also analyzing the best taxpayer use of excess capacity that will be available at the end of oil sales currently mandated by law.

FE has the longest directly traceable history of any organization in DOE. In 1910, the predecessor to the National Energy Technology Laboratory (NETL)¹ was created as a U.S. Department of the Interior (DOI) Bureau of Mines laboratory in Pittsburgh, Pennsylvania. In 1961, Congress established the Office of Coal Research in the DOI that later shifted—along with the related DOI facilities to the Energy Research and Development Administration (ERDA), created by the Energy Reorganization Act of 1974—to carry out a more aggressive energy development program. In 1975, President Ford signed the Energy Policy and Conservation Act that authorized the establishment of the SPR. In 1977, the Department of Energy Organization Act created the DOE. Fossil energy coal and power plant research, development, and demonstration activities focused on a variety of technologies that addressed energy security, environment, and energy cost concerns; however, the highest priority was advancing technology to produce abundant and reasonable-cost transportation fuels from coal. Regarding the petroleum reserves, in 2000, the Northeast Home Heating Oil Reserve (NEHHOR) was established to help ensure adequate supplies of heating oil in the event of potential shortages due to colder-than-normal winters. In 2014, the Northeast Gasoline Supply Reserve (NGSR) was established in response to Superstorm Sandy, and DOE has proposed disestablishment of NGSR since 2018. In 2020, DOE proposed disestablishment of NEHHOR. The NGSR and NEHHOR have never been used for their intended purpose, are costly to maintain, and generally do not provide value to taxpayers.

Today, FE is focused on six research priorities: (1) develop carbon-neutral fossil energy plants of the future; (2) develop carbon-neutral Hydrogen (H₂) technologies; (3) reduce the cost of carbon capture, utilization, and storage (CCUS); (4) increase fossil fuel productivity through big data and artificial intelligence; (5) address the energy water nexus; and (6) advance critical minerals (CM), rare earth elements (REEs), and coal-to-product technologies.

FE is also focused on four programmatic priorities: (1) maintain drawdown readiness while completing the Life Extension Phase Two (LE 2) at the SPR; (2) catalyze private sector investment in Appalachian petrochemicals infrastructure; (3) practice efficient regulatory reviews; and (4) strengthen NETL's technical capabilities.

FE's diverse workforce brings together scientists, engineers, technicians, and other professionals with a wide range of experiences to help solve America's fossil energy challenges.

Functions

Fossil Energy Research and Development (FER&D)

The FER&D mission is guided by the principles of energy dominance, national security, strong domestic energy production, and advancing clean coal technologies through early-stage R&D to revitalize the coal industry. The FER&D function focuses on cutting-edge, early-stage R&D that will prepare innovative new technologies for the private sector to further develop, scale up, and deploy. The FER&D program encompasses the following:

- **Advanced Energy Systems** aim to increase the availability, efficiency, and reliability of fossil energy power systems, while maintaining environmental standards through early-stage R&D. Specific efforts focus on Gasification Systems; Advanced Turbines; Solid Oxide Fuel Cells (SOFCs); Advanced Sensors and Controls; Power Generation Efficiency; Advanced Energy Materials; and Advance Coal Processing.
- **Crosscutting Fossil Energy Research** bridges basic and applied research by targeting concepts with the greatest potential for transformational breakthroughs. Specific activity areas include CM (including REEs); Water Management; Modeling, Simulation & Analysis; University Training and Research; and International Activities in support of the deployment of U.S. technologies and fossil energy resources to international markets.
- **Carbon Capture, Utilization, and Storage (CCUS)** technologies focus on post-combustion and pre-combustion carbon capture; utilization technologies to convert carbon dioxide (CO₂) into valuable products and commodities; and carbon

1 For more historical detail on NETL, please visit: <https://netl.doe.gov/about/history>.

storage to ensure safe and secure geologic storage of CO₂.

- **NETL Coal R&D** supports the NETL scientists and engineers who conduct in-house research activities for FER&D programs. These scientists and engineers comprise the core competencies of NETL in the areas of computational science and engineering; energy conversion engineering; geological and environmental systems; materials engineering and manufacturing; program execution and integration; and systems engineering and analysis.
- **Natural Gas Infrastructure Research** focuses on early-stage research on innovative sensors, materials, and systems that enable industry to detect and mitigate resource loss and improve the reliability and operational efficiency of natural gas supply and delivery infrastructure. The program also has a significant role in addressing areas of public interest and concern, including pipeline safety and reliability; resource stewardship; and infrastructure security. Additionally, the program develops new technologies to reduce flaring and venting of natural gas through conversion to high-value, transportable products or electricity.
- **Gas Hydrates** include performance of early-stage R&D, through DOE National Laboratory and university-led efforts, to evaluate the occurrence, nature, and behavior of naturally occurring gas hydrates, and the resulting resource, hazard, and environmental implications.
- **Unconventional Fossil Energy Technologies** involve field research to improve the understanding of shale geology and fracture dynamics in key and emerging shales, including the Marcellus, Utica, Eagle Ford, Appalachia, Delaware, Bakken, Alaska, and Tuscaloosa basins.

Natural Gas Regulation

FE grants authorization, in accordance with the Natural Gas Act of 1938, as amended, requiring any person who wishes to import and/or export natural gas, including liquefied natural gas, compressed natural gas, compressed gas liquids, etc., from or to a foreign country to obtain an authorization from DOE. DOE grants two types of authorizations: short-term (blanket) and long-term authorizations. A short-term authorization enables a company to

import and/or export natural gas on a short-term or spot market basis for a period of up to 2 years. Long-term authorizations are generally used when a company has a signed gas purchase or sales agreement/contract, tolling agreement, or other agreement resulting in imports/exports of natural gas, for a period longer than 2 years.

Petroleum Reserves

The SPR provides strategic and economic security against foreign and domestic disruptions in oil supplies via an emergency stockpile of crude oil. The SPR also fulfills national obligations under the International Energy Program, which provides assistance from the International Energy Agency (IEA) through its coordinated energy emergency response plans and provides a deterrent against energy supply disruptions. The SPR's storage cavern integrity and maintenance programs ensure the availability of the SPR's crude oil inventory. FE's Office of Petroleum Reserves (OPR) manages three petroleum stockpiles: the SPR, NEHHOR, and NGSR. In addition to its emergency response functions, OPR also partners with FE's Office of Oil and Gas to manage the Naval Petroleum Reserve (NPR) and Oil Shale Reserves program. The SPR is also executing a multi-year, \$1.4B Life Extension Program, and a continuing legacy environmental clean-up/remediation effort at the previously-sold NPR field No. 1 (Elk Hills, CA), and landfill remediation as part of post-sale activities at NPR field No. 3 (Casper, WY).

External Coordination

FE leads and supports numerous efforts to coordinate development and deployment of CCUS, hydrogen production, and other advanced fossil energy technologies. FE plays an important role in implementing and supporting domestic policy efforts by providing information important to policy-makers and regulators, and working closely with various stakeholders and other federal agencies to coordinate government-wide actions such as implementation of IRS § 45Q tax credits. FE also leads numerous bilateral and multilateral international partnerships to leverage FE programs and further advance fossil energy technologies, projects, and supporting policies.

Recent Organization Accomplishments

FE's recent significant organizational accomplishments include:

Onshore Unconventional Technologies

FE awarded and launched four projects for advanced subsea system technologies to improve efficiency and capabilities for enhanced oil recovery offshore, as well as three for low-cost, efficient treatment technologies for produced water, including techno-economic analyses. Also, FE launched a new data visualization platform initiative for subsurface data that will lead and support real-time decision-making.

Advanced Technology Solution for Unconventional Oil and Gas Development

In a DOE sponsored Field Laboratory, the University of Alaska-Fairbanks and industry partner Hilcorp saw production increase from a polymer flood. Using polyacrylamide at their field site on Alaska's North Slope, their two-year operational anniversary passed in August 2020 with operational and production success that far surpassed initial expectations. Incremental heavy oil production has increased by approximately 700 barrels per day with no breakthrough of the injectant. At the Milne Point unit, this success has been rolled out to three other production pads, which will contribute to Trans Alaska Pipeline System reliability by meeting the low flow threshold in the pipeline.

Critical Minerals/Rare Earth Elements

NETL awarded three, 30-month, extramural projects to optimize and improve the efficiency of REEs and, for the first time, CM from coal-based materials in pilot-scale extraction and separation facilities. The significance and major impact of this effort is not only advanced technology development, but also the potential to more fully realize the complete use and value of coal and its capability to supply CM to domestic industries that are currently dependent on off-shore CM supplies.

Negative Emissions Technologies

The FE Carbon Capture Program leveraged past research in materials for expanding and accelerating the development of negative emission technologies such as direct air capture (DAC) and biomass energy with carbon capture and sequestration. As part

of this initiative, the program issued a Funding Opportunity Announcement (FOA) for (i) novel DAC materials and processes, and (ii) testing of existing DAC materials in integrated field units that capture CO₂.

Natural Gas Infrastructure Modernization Partnership Cooperative Agreement

FE published two handbooks: (1) the *Artificial Intelligence (AI) for Natural Gas Utilities: A Primer and The Sampling of Methane Emissions Detection Technologies and Practices for Natural Gas Distribution Infrastructure (AI Primer)* handbook; and (2) the *Methane Emissions Detection Technologies and Practices* handbook. The *AI Primer* is designed to assist pipeline operators, utility systems, and state regulators on how AI can be used to improve natural gas utility service and positioning areas in which AI applications can further the safe, reliable, and affordable operation of natural gas infrastructure and enhance the reliability of natural gas pipeline delivery. The *Methane Emissions* handbook summarizes why methane leaks occur in the context of the natural gas distribution network and identifies existing and emerging leak detection technologies and practices.

Crude by Rail Research for Safe Energy Transport

FE; the U.S. Department of Transportation (DOT), Pipeline and Hazardous Materials Safety Administration; and Transport Canada, Transport of Dangerous Goods Directorate published a Report to Congress on a research study by Sandia National Laboratories (SNL) that investigated physical, chemical, and combustion properties of crude oils, and, in particular, the so-called "tight oils," like Bakken crude, in response to high-profile accidents involving movement of crude by rail. Based on the results of the study, which assessed vapor pressure as it affects the thermal hazards from the combustion events studied, DOE and DOT found that no further regulations by the Secretaries of Transportation or Energy or further legislation is necessary to improve the safe transport of crude oil with regard to vapor pressure.

Natural Gas Regulation

FE has undertaken many supportive and deregulatory measures in FY 2020 to ensure the long-term benefits of U.S. Liquefied Natural Gas (LNG) exports and America's global energy

leadership in LNG. In FY 2020, FE issued approvals for LNG exports to non-free trade agreement countries to 7 new large-scale projects, including two proposed for the West Coast. Also, in FY 2020, to lock in the long-term benefits of U.S. LNG exports, DOE finalized a policy to extend long-term LNG export authorizations to 2050.

Unconventional Resources

West Virginia University and industry partner Northeast Natural Energy completed hydraulic fracturing of six Marcellus Shale wells at the Boggess pad near Morgantown, WV, utilizing stimulation designs based on innovative logging techniques and advanced modeling. These advanced engineered stage and clustering designs are expected to lead to increased resource recovery confirmed through ongoing production monitoring of the wells.

Hydrogen Technologies

The NETL Gasification Systems Program continued FE progress toward commercializing hydrogen technologies by a FOA focused on R&D that enables commercial approaches for a hydrogen-based energy economy while achieving net-negative CO₂ emissions through gasification of coal, biomass, and carbonaceous mixed wastes, such as plastics. The result will be increasingly efficient and fuel-flexible gasification-based plants able to use coal, biomass, and waste plastics for valuable hydrogen and fuels production, which are intended to be integrated with pre-combustion carbon capture to achieve negative carbon emissions.

Coal FIRST Concepts Advance toward FEED Studies

FE completed 13 concept designs and seven pre-FEED (Front End Engineering Design) studies under NETL's Coal FIRST (Flexible, Innovative, Resilient, Small, Transformative) plant concepts request for proposal, "Coal-Based Power Plants of the Future." The studies were used to identify three Coal FIRST plant concepts that are nearly ready for a full FEED study, and four additional promising plant concepts that require additional component development efforts. In addition, two FOAs with a combined value of over \$100M were issued to solicit cooperative agreements to meet the needs of the Coal FIRST program.

Gas Hydrates—Alaska North Slope

In collaboration with the Japan Oil, Gas and Metals National Corporation (JOGMEC), DOE developed the well design, pressure-core acquisition, and surface facility plans for the next phase on the Alaska North Slope long-term reservoir response experiment to drill three wells in FY 2021 to enable a long-term reservoir response experiment for a duration of 18–24 months. This long-term reservoir response experiment in Alaska utilizing depressurization production technology is the next critical step in advancing the production technology to a point where industry could further develop this potential resource.

Natural Gas Pipelines and Fuel Transportation

DOE advanced research on material properties to determine the performance limits of new and existing alloys for natural gas pipelines and fuel transportation. The examination of advanced alloys and composite materials could support pipe transport of natural gas along with other critical fuels and fluids (CO₂, H₂), which may reduce delays in the deployment of new pipelines and address Federal and state regulatory commissions' concerns on using a single pipe to transport new fuels and critical fluids.

Advanced Natural Gas Infrastructure Technology Development

DOE selected 16 research proposals focused on mitigating emissions from midstream natural gas infrastructure to cost-effectively enhance the safety and efficiency of the nation's natural gas production, gathering, storage, and transmission infrastructure. One of the areas of interest focused on accelerating the development of technologies capable of converting gas that would otherwise be flared into transportable, value-added products.

NETL Researchers Develop New Materials and Processes for Converting Coal to High-Value Products

NETL's research is enhancing the value of coal as a feedstock and developing cost-competitive, high-value products derived from coal, creating new jobs, products, and markets for the industry. The research team has converted pennies worth of Powder River Basin coal into a C-based precursors and products with market values thousands of

times greater. NETL Researchers have produced a high-surface-area carbon material that is ideal for use as a sorbent, solid, or mixed-matrix membrane, or sulfur anion storage cathode in LiS batteries. In addition, the research team also developed a novel manufacturing process for high-quality graphene films used commercially in electronic displays, LEDs, and touchscreens. NETL has filed or is filing a report of invention for each of these developments and is working with Ramaco Carbon to license the technologies.

Coal to Products

NETL developed a comprehensive report entitled, *Market Analysis of Carbon Products from Coal*, which contains quantitative estimates of market size and growth for carbon products, and information on producers, importers, exporters, and the potential for coal-derived carbon products to satisfy this demand, as well as barriers to market entry.

CO₂ Utilization

University of Kentucky Center for Applied Energy Research Develops Electro-Catalytic Process to Produce Formic Acid from CO₂ in a DOE sponsored project that uses an immobilized catalyst and a charge carrier to selectively reduce carbon dioxide (CO₂) directly and exclusively to formic acid. This lab scale system has continuously operated for more than 100 hours. The successful development of this process will produce a valuable product—formic acid—at a lower cost than is currently available, and will reduce the cost of CO₂ capture from utility coal-fired power plants.

The Institute for the Design of Advanced Energy Systems Integrated Platform (IDAES) Spearheads Cutting-Edge Research and Modeling. Recent IDAES accomplishments include: (1) identifying a process bottleneck at an existing power plant enabling a 44% improvement in the plant's minimum operating load; (2) enabling the optimization of an amine-based post-combustion CO₂ process reducing the operating cost by 15-18% using models validated against data from the National Carbon Capture Center; (3) reducing the energy demand of a complex separation system by more than 40% through efficient, automated exploration of 42 million alternatives; (4) identifying how retrofitting existing generators with energy storage has the potential to reduce equipment wear and tear by

30%; and (5) showing that generator interactions with the bulk power market are more complex than previously thought—a finding with the potential to radically change how new power plants are designed and valued. IDAES has thousands of downloads and an active, growing global user community from multiple industries.

Advanced Energy Systems

For the first time in the United States, NETL partner, the University of Central Florida (UCF), detonated coal within a rotating detonation engine (RDE), a pressure gain combustion system. In a separate test, UCF accomplished the first ever detonation wave measurements in an RDE using advanced high-speed laser diagnostics leveraging particle image velocimetry (PIV). This effort demonstrates the potential for using a new, efficient, and clean mode of coal combustion in an RDE. The PIV measurement capability will enable quantification of flow field characteristics which, until now, could only be observed qualitatively or modeled based on theory alone.

SPR Crude Oil Engagements

In response to the severe disruption in crude oil prices caused by the COVID-19 pandemic, DOE provided storage for 21.1 million barrels of crude oil through emergency exchange agreements with U.S. producers. Marking the first time such agreements were initiated, these efforts reduced the growing glut of crude oil that led to significant risks to the U.S. economy. Other activity included sales of 9.85 million barrels of SPR crude oil to meet the requirements of Section 501 of the Consolidated Appropriations Act of 2018 (P. L. 115-141) and Section 403 of the Bipartisan Budget Act of 2015 (P.L. 114-74), raising a total of \$566.6M. DOE also completed a \$5 million test purchase of nearly 126 thousand barrels of sweet crude oil now stored at the Big Hill site. Finally, as part of DOE's efforts to improve global energy security, OPR and DOE International Affairs partnered with the Government of Australia to conclude an arrangement for the first-ever SPR storage of crude oil owned by a foreign nation.

Leadership Challenges

Strategic Petroleum Reserve

Determining the right size and configuration for the future of the SPR, whether to include emergency fill operations as a formal SPR mission, and whether to commercialize a portion of the SPR.

Program Direction Investment Levels

Support and approval for an increase in Program Direction is critical to supporting FE's programs and operations necessary to meet R&D challenges related to clean energy; low carbon; environmentally prudent development and water protection; national energy security; and jobs.

Workforce Recruitment and Retention at NETL

Recruitment and retention of qualified technical staff, according to needs indicated in staffing analyses, to rebalance the workforce; to strengthen and expand Federal competencies and expertise associated with strategic initiatives; to emphasize FE's S&T mission; and to satisfy a requirement for succession planning to accommodate the potential retirement of 40% of FE's current workforce in the next five years.

How to transition toward a low-carbon energy future leveraging fossil resources to minimize economic disparities and maintain power quality.

Critical Events and Action Items

Strategic Petroleum Reserve

The Secretary will need to provide the final authorization for the fourth and final Energy Security and Infrastructure Modernization (ESIM) Fund crude oil sale in the spring of 2021. This sale will raise the final \$450 million for the \$1.4 billion LE2 Project that SPR must have in hand to commit to construction contracts during the spring of 2021.

Office of Minerals Sustainability (OMS)

Secretary of Energy concurrence to elevate a Division of Minerals Sustainability to an Office level to elevate the importance of sourcing domestic resources to strengthen economic security. The function focuses on R&D and analysis that will support the U.S. need for technologies for the

exploration, extraction, and processing of critical minerals in the U.S. This would support industries growing demand for these critical minerals in the high tech, automatic, energy storage, renewable energy, and other manufacturing industries.

Selections for Carbon Ore, Rare Earth, and Critical Minerals (CORE-CM) FOA announcement

In September 2020, FE released a \$122 million FOA, "Carbon Ore, Rare Earth, and Critical Minerals (CORE-CM) Initiative for U.S. Basins," that will competitively award R&D innovation centers that will enable multiple regions of the country to accelerate the full potential for carbon ores and critical minerals.

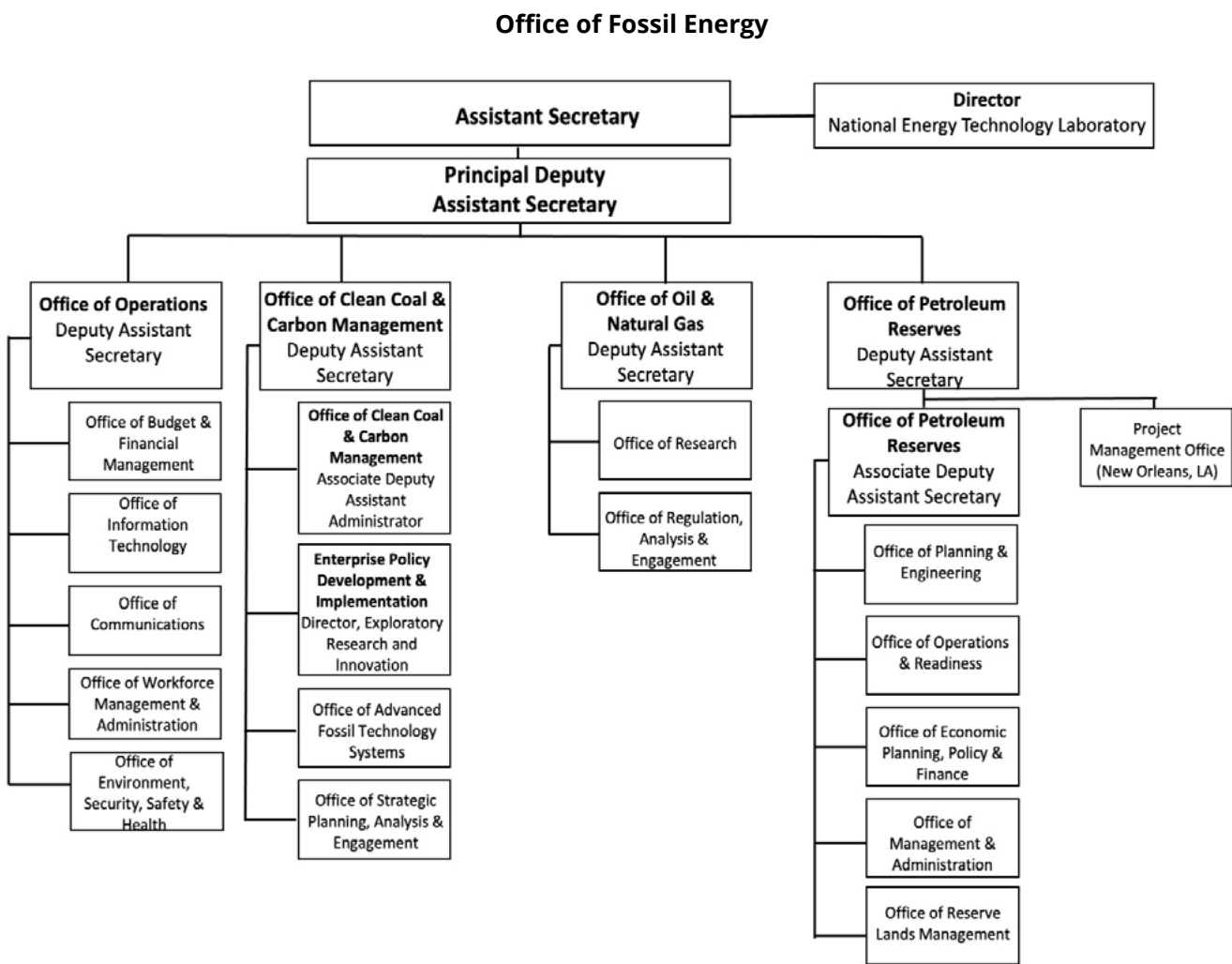
Release of Batch 2 Hydrogen FE FOA (large FY 2021 FOA with many hydrogen-related areas of interest) in February 2021

This FOA is currently being drafted and areas of interest are still to be determined. The FOA is also contingent on final FY 2021 Congressional Appropriations. Should the final appropriation not be passed by Congress by February 2021, the FOA will be delayed.

Announcement of winners of the Science-informed Machine Learning to Accelerate Real Time Decisions in the Subsurface (SMART) Visualization Platform (VP) Challenge Prize

The SMART VP Challenge prize competition aims to develop an intuitive data visualization tool for the subsurface environment that can be readily accessible by scientists, engineers, subsurface operators, and decision makers. The tool should work in unison with data generated by the SMART Initiatives machine learning solutions to resolve static and dynamic subsurface properties, features, and processes at scales ranging from sub-meters to hundreds of kilometers. Prize competitors are asked to focus on bringing the subsurface to life through the development of an innovative, user-friendly, intuitive and attractive visualization platform. FE seeks competitors with software development expertise who are up to the challenge of creating a new visualization platform which will assist in making subsurface insights accessible to a wider range of users and stakeholders. The SMART VP Prize Challenge offers up to \$1.5 million in total cash prizes.

Organizational Chart



Arctic Energy Office

Supporting the DOE Mission

With a direct report to the Under Secretary and a crosscutting mission, the Arctic Energy Office (AEO) aims to be nimble and move across the DOE complex, coordinating the numerous activities within the Department. Utilizing this structure, it can bring together Program Offices, National Labs and stakeholders to one single point in the Department.

Mission Statement

The Arctic Energy Office will lead cross-cutting operations in the Arctic with a mission to tackle the energy, science and national security challenges of the 21st Century. The office will act as a nexus for DOE activities and represent the Department in engagements involving the Arctic.

Budget

AEO is operating within the Office of Policy (OP) funding line until an approved budget is provided for the new office. OP provided approximately \$100K to AEO in FY 2020, \$450K of carryover dollars in FY 2021, and \$250K in FY 2021 funds.

Human Resources

The office has hired three interim employees to stand up the office and identify qualified candidates for permanent staff. The Director is through an IPA with the University of Alaska, Fairbanks, a Senior Advisor is on staff via a change of station coordinated with Los Alamos National Laboratory, and another Senior Advisor is part of AEO via detail from DOE International Affairs. To support coordination of the AEO's initial stakeholder engagement and organizational development, an Advisor is on detail from Legislative and Government Affairs through February 2021.

History

The Secretary was granted the authority to establish the Arctic Energy Office, by the 2001 National Defense Authorization Act. Specifically, the language stated that "The Secretary shall locate such office at a university." This language drove the selection of University of Alaska – Fairbanks as a partner university for AEO.

In the 2020 Senate Energy & Water Development (SEWD) Appropriations Bill report, under Crosscutting Initiatives, language is included to support the re-establishment of the Arctic Energy Office, including: "The Department is directed to support a renewed focus on the Arctic region, and as a cross-cutting activity, use the Arctic Energy Office as a centralized area to support the use of energy resources, but also innovative activities, including microgrids and integrated energy systems."

The office was officially re-established on November 27th 2019 by Secretary Perry, as committed to by Secretary Brouillette at his confirmation hearing, with a renewed focus on the Arctic region.

Functions

The office will have three primary areas of focus: Energy, Science, and National Security. While it will not provide funding opportunity announcements, it will coordinate and streamline existing research and deployment activities in the Arctic, including work by the Office of Science to measure solar radiation, work by Fossil Energy on modular gasification applications in challenging environments, work by the Office of Electricity on deployment of microgrid technologies in Alaska, and work by Energy Efficiency and Renewable Energy on next generation river power systems. The Office will build on this work to define a focused research agenda based on these activities.

Additionally, the Office will engage and collaborate with other governmental agencies with equities in the Arctic region, including the Departments of Defense and State.

The geographic scope of the office is not limited to activities within the state of Alaska. AEO will also support our international engagement obligations, such as the Arctic Council, which interacts with the 7 other Arctic nations in the region.

Recent Organization Accomplishments

Hired three interim employees over the course of the past six months; secured office space at University of Alaska-Fairbanks for AEO via GSA lease; launched new office and website in September 2020; coordinated 2020 Arctic Lab Partnerships (ALPs) virtual workshop to identify key arctic-relevant research needs; reviewed

and updated document assessing arctic critical infrastructure; participated in monthly inter-agency Arctic Policy Working Group; coordinating AEO introductory meetings with DOE departments in preparation for launch of DOE-internal arctic working group; and initiated AEO introductory meetings with external organizations.

Leadership Challenges

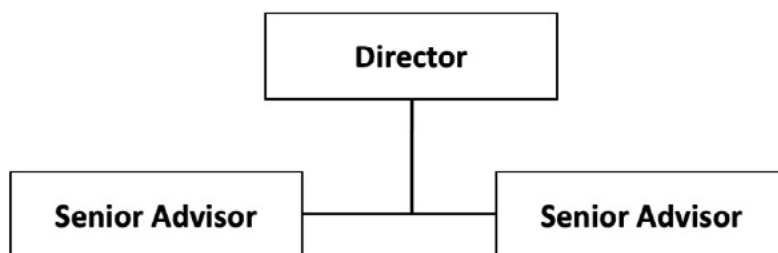
As a new office within DOE, AEO currently has no consistent funding source within Congress for sustained and reliable funding levels. Bringing on permanent FTEs is a priority for the interim staff that the office is working on currently. AEO has a critical coordination role to play at DOE, ensuring that the above mentioned challenges are addressed is vital to ensuring the success of AEO in

coordinating Arctic functions at DOE.
Critical Events and Action Items

Continued and sustained funding from Congress will be needed. Additionally, Congressional allies will need to be expanded beyond the Alaska delegation by educating others on the impacts of Arctic research well outside of Alaska and the Arctic Circle.

Organizational Chart

Office of Arctic Energy



Office of Nuclear Energy

Supporting the DOE Mission

As an applied research and development (R&D) organization, the Office of Nuclear Energy (NE) supports the DOE Mission by enabling nuclear innovation, supporting unique research infrastructure, and solving crosscutting challenges facing the nuclear energy sector. NE invests in R&D that the private sector or other nongovernment stakeholders are unable to perform due to the cost, scale, or timeframe required. NE funds and creates opportunities for world-class researchers in industry, academia, and the National Laboratories to collaborate and solve pressing scientific and engineering challenges. By leveraging private-public partnerships and our National Laboratory system, we are making nuclear energy more cost effective, accelerating advanced reactor deployment, making nuclear fuel cycles more sustainable, encouraging a resilient supply chain, and promoting a strong nuclear workforce.

Mission Statement

The mission of NE is to advance nuclear power as a resource capable of meeting the Nation's clean energy, environmental, and national security needs by resolving technical, cost, safety, proliferation resistance, and security barriers through research, development, and demonstration (RD&D). NE supports the diverse civilian nuclear energy programs of the U.S. government, leading federal RD&D efforts in nuclear energy technologies, including generation; safety; waste storage and management; and security technologies.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$1,326,090,000
FY 2020 enacted	\$1,493,408,000
FY 2021 request	\$1,179,931,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 273

History

NE originated in January of 1980. During World War II, most nuclear research focused on developing an atom bomb. After the war, the United States government encouraged the development of nuclear energy for peaceful civilian purposes. Congress created the Atomic Energy Commission (AEC) in 1946 to control nuclear energy development and explore peaceful uses of nuclear energy. On March 1, 1949, the AEC announced the selection of a site in Idaho for the National Reactor Testing Station; this was the origin of what is now the Idaho National Laboratory (INL). The world's first usable amount of electricity from nuclear energy was generated in Idaho in 1951. Over the years, 52 mostly first-of-a-kind reactors were designed, built, and decommissioned at Idaho's National Laboratory.

Functions

NE can be characterized by ten major program activities that address the breadth of issues important to sustaining nuclear power as a source of clean energy.

Sustaining the Current Fleet of Light Water Reactors

Light Water Reactor Sustainability

NE conducts R&D on technologies and other solutions that can improve economics, sustain safety, and maintain the technical reliability of the current domestic fleet of commercial nuclear power plants.

Accident Tolerant Fuels

Following the events at Fukushima, Congress directed NE to develop Accident Tolerant Fuels, a next-generation nuclear fuel with higher performance and greater tolerance for extreme, beyond design basis events. Partnering with industry, this program is on schedule to demonstrate batch reloads to commercial reactors in the mid-2020s.

Deploying Small Modular Reactors

Advanced Small Modular Reactor (SMR) Research and Development

NE supports first-of-a-kind costs associated with design certification and licensing activities;

engineering; supply chain development; and testing through cost-shared arrangements with industry partners to promote the development and deployment of SMRs that provide safe, clean, affordable power by the early 2030s. Broad SMR deployment would provide additional clean baseload for decarbonizing the U.S. electrical grid and for other sectors (i.e., industrial processes) of the U.S. economy.

Demonstrating Advanced Reactors

Advanced Reactor Demonstration Program (ARDP)

A key pillar of the NE mission is to establish an advanced reactor pipeline to improve the Nation's economic and energy security posture. In FY 2020, Congress appropriated \$230,000,000 for DOE to establish a comprehensive program to demonstrate multiple advanced reactor designs. The program will support 2 advanced designs that can be demonstrated in the next 7 years, and up to 5 additional designs that have a licensing and demonstration horizon in the early 2030s.

Advanced Reactor Technology R&D

NE conducts R&D that can help reduce long-term technical and regulatory barriers for multiple innovative advanced reactor technologies. Efforts focus on early stage, cross-cutting, industry-informed R&D that provides benefits widely applicable to the advanced reactors.

Crosscutting Technology Development

NE conducts high risk innovative R&D that could overcome technical limitations in Advanced Reactors and develops enabling technologies that have applicability across multiple technical areas. The Nuclear Energy Advanced Modeling and Simulation (NEAMS). The NEAMS program develops advanced modeling and simulation tools to address light-water and non-light-water reactor technology and fuel cycle needs.

Transformational Challenge Reactor (TCR)

The TCR program exploits advanced manufacturing methods to deliver a new approach to nuclear design and qualification.

Department of Defense (DoD) Mobile Microreactor

The DoD Strategic Capabilities Office (SCO) plans to construct and operate a mobile nuclear microreactor demonstration at a Department of Energy site before the end of 2023. In March 2020, SCO awarded three companies (X-Energy, BWXT, and Westinghouse) to each develop an engineering design and safety case for their respective mobile microreactor technologies.

Developing Advanced Nuclear Fuel Cycles

Domestic Uranium Supply

Uranium production in the United States has been on a steady decline since the early 1980s. In 2019, the US produced the lowest annual total in more than 70 years, less than 0.5% of the current average amount of U.S. uranium requirements. U.S. uranium properties are operating at minimal levels or have shut down. The nation's only uranium conversion facility is also idle and at-risk of shutting down permanently. A potential solution is a U.S. uranium reserve to provide assurance of availability of uranium in the event of a market disruption.

High-Assay, Low-Enriched Uranium (HALEU)

Many advanced reactor concepts being developed in the U.S. require high-assay, low-enriched uranium (uranium enriched 5 and 20% in the U-235 isotope), however a commercially sustainable source of HALEU does not exist. NE has partnered with industry to demonstrate HALEU production with U.S. technology to enable deployment of U.S. advanced reactor technology.

Advanced Fuels

NE supports long-term technology development activities to develop next generation light water and non-light water reactor fuels with enhanced accident tolerance, improved fuel utilization, and sustainability of nuclear energy.

Materials Recovery & Waste Form Development

Develop advanced material recovery as well as advanced waste form development technologies. Achieving sustainable, economic, and non-proliferation attributes in recycled LWR and Advanced Reactors is critical for the nuclear fuel cycle.

Fast Neutron Irradiation

Versatile Test Reactor (VTR)

The VTR is a sodium-cooled reactor-based fast spectrum testing capability needed modernize U.S. infrastructure for early stage R&D for the testing of advanced fuels, materials and instruments. In accordance with the rigorous methodology established by Department of Energy Order 413.3B, Program and Project Management for the Acquisition of Capital Assets, Critical Decision 1 was approved on September 11, 2020.

Nuclear Science User Facilities and Enabling Capabilities

Idaho Facilities Management (IFM) and Idaho Site-wide Safeguards and Security (S&S)

NE has two major infrastructure programs that provide the basis to enable nuclear research and development missions with significant quantities of nuclear materials. The Idaho Facilities Management (IFM) program provides the basis for planning, acquisition, operation, maintenance, disposition, and protection of NE-owned facilities and capabilities. The S&S program funds all physical and cyber security activities for the INL, providing protection of the Department's nuclear materials; classified and unclassified matter; government property; personnel; and other vital assets.

Nuclear Science User Facilities

Provide single point access, at no cost to the user, unique nuclear energy research capabilities at multiple DOE and University locations through competitive awards. Support commercialization of innovative concepts.

Space Nuclear Power and Propulsion Systems

NE designs, builds, tests, and delivers safe and reliable nuclear power systems for space exploration (the National Aeronautics and Space Administration) and national security applications on a full cost recovery basis.

Nuclear Waste Management

Interim Storage.

The Nuclear Waste Policy Act (NWPA) of 1982 made DOE responsible for the United States' spent nuclear fuel and high-level nuclear waste. The Department remains committed to fulfilling the Federal Government's legal and moral obligations to properly manage and dispose of that material.

The mission of the Interim Storage program is to develop and implement a robust interim storage program as part of a waste management system, and to continue to support the Department's responsibilities for maintaining the security for the Yucca Mountain site.

Used Fuel Disposition R&D

This program includes longer-term scientific research and technology development to enable storage, transportation, and disposal of used nuclear fuel (UNF) and wastes generated by existing and future fuel cycles.

Crosscutting DOE Programs and Projects

Nuclear Fuel Working Group (NFWG)

The NFWG effort was established from the outcome of a Department of Commerce 232 submittal by the U.S. Uranium mining and extraction industry requesting some fraction of the uranium market be reserved for U.S. origin uranium. Preserving the U.S. ability to mine and extract uranium requires both direct support to the U.S. mining and extraction companies as well as revitalizing and expanding the nuclear industry as a whole to create increased demand for domestically sourced uranium.

Grid Modernization Initiative (GMI)

GMI is a collaborative, crosscutting R&D initiative among the Offices of Electricity (OE); Energy Efficiency and Renewable Energy (EERE); Fossil Energy (FE); Cybersecurity, Energy Security, and Emergency Response (CESER); and NE.

Water Security Grand Challenge (WSGC)

NE participates in the WSGC alongside EERE and FE. NE currently funds a selection of projects and programs that support solving energy-water related issues in conjunction with goals of the WSGC.

TeamUSA Civil Nuclear Working Group

The United States Government interagency civil nuclear working group, "TeamUSA," supports the expansion of safe and secure use of nuclear power worldwide.

Nuclear Cooperation Initiative (NCI)

The U.S. Nuclear Cooperation Initiative, supports the President's strategy outlined in the Nuclear Fuel Working Group (NFWG) report to restore the United States nuclear energy leadership and competitive nuclear advantages.

Nuclear Power Ministerial 2021 (NPM)

The NPM is held every four years, and the International Atomic Energy Agency (IAEA) selected the United States Government to host the 2021 event. The NPM brings together IAEA members to explore views on the development and deployment of nuclear power. The Office of Nuclear Energy is leading the planning for the NPM, which is scheduled to take place October 18-20, 2021.

Stewardship of the Idaho National Laboratory

Idaho National Laboratory (INL)

NE provides oversight of the one of the most complex National Laboratories, the Idaho National Laboratory. The Idaho Operations Office is responsible for the effective stewardship of the INL, ensuring effective and efficient mission accomplishment; design, construction, operation, and maintenance of research facilities; integrated environment, safety and health protection; business systems; cultural and biological resources; and security and emergency management.

Federal Program Management

Provides federal staffing resources and costs associated with operations within the Office of Nuclear Energy. Federal staffing is a program concern as the NE Program Direction budget remains essentially flat while programs have grown appreciably in the past four years. An aging workforce, a highly competitive job market for experienced nuclear energy related disciplines, and the flat budget have left NE staffing at a level well below its 2016 total. The current on-board head count in NE is about 80 lower than the FY 2016 level.

Recent Organization Accomplishments

Small Modular Reactor Licensing

In partnership with DOE, NuScale Power, LLC (NuScale) successfully completed the final phase of the U.S. Nuclear Regulatory Commission's (NRC) first-of-its-kind Design Certification Application

review of NuScale's SMR technology in August 2020, and is now on track to complete license approval in August 2021.

Hydrogen Generation Demonstrations at Operating Nuclear Power Plants

DOE awarded two cooperative agreements to demonstrate the feasibility of producing hydrogen through low temperature electrolysis.

Public Private Partnerships and the Gateway for Accelerated Innovation in Nuclear (GAIN)

In November 2015, the Department established the GAIN initiative. GAIN provides industry with access to the unique research capabilities and expertise at the DOE's National Laboratories through its GAIN NE Voucher Program awards.

National Reactor Innovation Center (NRIC)

NRIC was established by the Department in FY 2020 to accelerate demonstration of advanced reactors by providing technology developers with access to the physical infrastructure, materials, sites, and expertise to test and demonstrate their reactor concepts; assess performance; and accelerate the licensing and commercialization of these new nuclear energy systems.

Nuclear Energy University Program (NEUP)

In FY 2020, DOE awarded over \$56,000,000 through NEUP to support 58 university-led NE R&D projects in 25 states. NEUP seeks to maintain U.S. leadership in nuclear research across the country by providing top science and engineering students and faculty opportunities to develop innovative technologies and solutions for civil nuclear capabilities. In addition, NEUP awarded 21 critical university nuclear infrastructure projects and 3 larger scope Integrated Research Projects.

Nuclear Energy Advanced Modeling and Simulation (NEAMS)

In FY 2020, Kairos Power submitted a Topical Report to the NRC requesting approval to apply the BISON NEAMS code in a future license application for a fluoride-salt cooled high-temperature reactor (FHR). The BISON code is a versatile, high-fidelity nuclear fuel performance code that provides insight into how nuclear fuel behaves in a reactor. This direct application of a NEAMS tool to license an advanced

reactor design is a very strong statement of support regarding the value of NEAMS products to industry and the worth of DOE's investment in these modeling tools.

Transformational Challenge Reactor

The TCR program established processes and tools for centralized collection of design; in situ manufacturing monitoring; part tracking and post-manufacturing characterization; and testing data streams into a digital platform, simplifying tracking, quality assurance, and analysis. The program also developed multiple artificial intelligence tools to facilitate correlation between manufacturing and testing data, to be used within the digital platform to more efficiently evaluate component quality.

Industry Cost-Shared Licensing Modernization Project

NE directly supported establishing and successfully executing the four-year Licensing Modernization Project (LMP) on schedule, achieving the project's aggressive goals for support of near-term advanced reactor deployments by establishing a risk-informed and performance-based approach to advanced reactor design and licensing.

Regulatory Approval for Advanced TRISO Fuel Form

The Department's cost-shared partnership with industry resulted in the NRC's August 2020 approval of the performance parameters established for Uranium Oxycarbide (UCO) Tristructural Isotropic (TRISO) coated particle fuel. This was a major collaborative effort among the Electric Power Research Institute (EPRI), the members of the industry's Technology Working Group for High Temperature Reactors (HTR), and the National Laboratories, resolving this long-led technical issue on the path to deployment of robust TRISO-fueled technologies for both commercial and defense use.

Advanced Materials

The American Society of Mechanical Engineers (ASME) recently added Alloy 617 into the Boiler and Pressure Vessel Code, which is the sixth material cleared for use in high-temperature reactors and could allow new designs to operate at even higher temperatures to access markets such as process heat applications and hydrogen production in addition to base load electricity generation.

Microreactor Demonstration Support

In February 2020, INL awarded Oklo Inc. access to high assay low enriched uranium (HALEU) generated from legacy Experimental Breeder Reactor-II fuel. HALEU will be used to develop fuel for an initial Oklo microreactor nuclear demonstration at the INL site. In March 2020, INL completed initial siting assessments for potential microreactor demonstrations at the INL site. Also, INL completed design and construction of the Microreactor Agile Non-nuclear Test Bed (MAGNET), which serves as a non-nuclear electrically heated prototypical test bed supporting industry-identified microreactor integrated system validation testing.

Sample Preparation Laboratory

The Sample Preparation Laboratory (SPL) Project at the INL officially broke ground in July 2020, beginning a planned three-year construction period. The SPL will fulfill the near-term capabilities necessary for conducting the advanced post-irradiation examination needed to improve the understanding of nuclear fuels and materials performance.

Mars Perseverance Rover

In July 2020, the Mars 2020 Perseverance Rover successfully launched from Florida's Kennedy Space Center. Perseverance is powered by a multi-mission radioisotope thermoelectric generator (RTG) which was fueled, built, and tested by DOE National Laboratories.

Accident Tolerant Fuel

Test rods of accident tolerant fuel from all three fuel vendors in the ATF program are currently installed and operating in five commercial U.S. reactors. Other ATF samples are undergoing testing at INL and Oak Ridge National Laboratory. The industry, with the support of the National Laboratories, is gathering the data required to qualify the fuel for use in commercial U.S. reactors.

National and Homeland Security

In 2020, INL was recognized by the Cyberspace Solarium Commission as a leading cybersecurity center, capable of researching and testing the cybersecurity of critical technologies. INL was the only National Laboratory called out in the report as an exemplar capability. In 2020, INL also opened

the doors to the Cybercore Integration Center, a new building that serves as a key component of an innovative and strategic partnership with the State of Idaho.

Nuclear Waste Management Cloud Platform

DOE has developed an integrated software platform hosted in a cloud environment that is capable of supporting a future nuclear waste management program. It positions the Department to be able to act quickly when Congress directs the next phase of a national nuclear waste management program to proceed.

Spent Nuclear Fuel Storage

The High Burnup Storage Demonstration, a project jointly funded by the Electric Power Research Institute and the DOE, is a critically important project related to the relicensing of the long-term storage of spent nuclear fuel, and is needed to help enable nuclear power generation to continue.

Leadership Challenges

Nuclear Retirement Drivers

Nuclear power supplies about 20% of U.S. electricity (approximately 55% of emissions-free electricity in 2019), but its share appears poised for decline. Since 2012 when 104 reactors were operating, 11 reactors have shut down earlier than their licensed lifetime. As of September 30, 2020, an additional six units [5.9 gigawatts (GW)] have announced intentions to close prematurely by the end of 2022.

The Versatile Test Reactor (VTR)

The United States has not had a fast neutron spectrum testing facility for over 20 years, forcing U.S. developers to rely on overseas facilities, effectively ceding U.S. nuclear energy leadership to China and Russia.

Nuclear Waste Management

The major challenge in nuclear waste management is obtaining Congressional action necessary to provide direction and funding to implement any disposal solution to address the country's growing inventory of spent nuclear fuel and high-level radioactive waste.

Stewardship of the Nuclear Infrastructure at the INL

When the INL was formed in 2005, research complexes at the site were transferred from other DOE elements to NE to reconstitute nuclear energy research capabilities. Many of these research facilities were not maintained as they were slated for disposition and disposal, and key support infrastructure was already removed.

Long-Term Thermal Irradiation Capability Needs

The Office of Naval Reactors (NR) has identified a need for a thermal irradiation testing capabilities through at least 2085. The Advanced Test Reactor (ATR), which currently fulfills this mission, is currently projected to operate until at least 2040. NE and NR are currently evaluating options and developing recommendations to ensure continued irradiation testing capabilities.

INL Receipt of Small Quantities of Commercial Spent Fuel for Research

In 2019, through successful negotiations with representatives of the State of Idaho (Office of the Governor and Office of the Attorney General), an addendum to the Idaho Settlement Agreement was reached and signed by the Governor of Idaho and Secretary Perry. This agreement provides a path forward to resume receipt of quantities of commercial spent nuclear fuel at Idaho National Laboratory, subject to the completion of clean-up milestones.

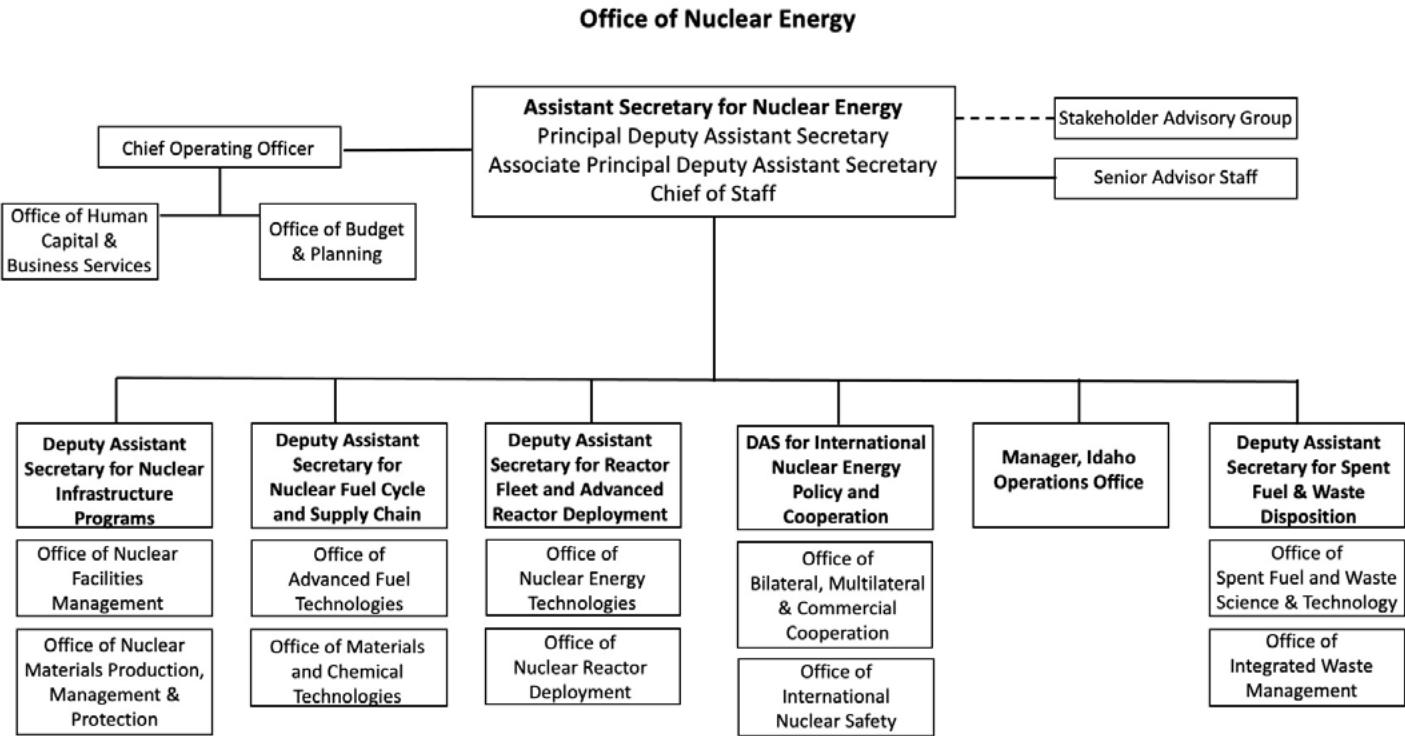
Critical Events and Action Items

Accident Tolerant Fuel

NE intends to award follow on cooperative agreements in February 2021 to the three fuel vendors developing accident tolerant fuel for use in existing commercial U.S. reactors.

Advanced Test Reactor Core Internal Changeout. In March 2021, the Advanced Test Reactor starts an extended shutdown for nine months to conduct the major Core Internal Changeout (CIC) outage.

Organizational Chart



Office of Indian Energy Policy and Programs

Supporting the DOE Mission

The Office of Indian Energy Policy and Programs (Office of Indian Energy, or IE) supports the Department of Energy's Strategic Objective 5 – Increase Domestic and International Accessibility to American Energy Resources, which is to promote global deployment of American energy technologies and export of American energy resources. Specifically, the Office of Indian Energy works to achieve greater energy independence in Indian Country. Indian Country has a wealth of energy resources and is able to contribute to American energy dominance, as well as to its own prosperity. Through development of its resources, Indian Country can achieve greater energy independence, improve electricity access for its communities, and achieve energy and cost savings for tribal communities.

The Office of Indian Energy promotes tribal energy development and deployment to strengthen tribal energy and economic infrastructure and electrification; reduce costs; and increase efficiency by funding energy development, providing technical assistance, and building human and technical capacity for 574 federally recognized Indian Tribes and Alaska Natives across the U.S. This includes the deployment of generation, energy efficiency, or resilience projects on Tribal lands on a fuel and technology-neutral basis, and also consistent with the principles of tribal sovereignty. DOE will support projects that provide technical preparedness and capacity-building which will enable tribes to capitalize on their resources.

Mission Statement

The mission of the Office of Indian Energy is to maximize the development and deployment of energy solutions for the benefit of American Indians and Alaska Natives.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$18,000,000
FY 2020 enacted	\$22,000,000
FY 2021 request	\$8,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 7

History

DOE has implemented a Tribal Energy Program since 2002, beginning within the Weatherization and Intergovernmental Program in the Office of Energy Efficiency and Renewable Energy. The Office of Indian Energy was authorized by Congress in the Energy Policy Act of 2005 and formally established within DOE in 2010. Beginning with the 2015 appropriation, IE has been responsible for implementing all financial assistance, technical assistance and education and training activities within its statutory authority. With increasing resources, and using a fuel and technology neutral approach that respects tribal sovereignty, IE has strengthened its ability to deliver all of its programs supporting energy project development on tribal lands in Alaska and the lower 48 states.

Functions

The Office of Indian Energy functions are designed by the Energy Policy Act of 2005 to: promote Indian tribal energy development, efficiency, and use; reduce or stabilize energy costs; enhance and strengthen Indian tribal energy and economic infrastructure related to natural resource development and electrification; and bring electrical power and service to Indian land and the homes of tribal members. Specific activities include:

Financial Assistance

Provides competitive, merit-based financial assistance for fuel and technology neutral energy project deployment on tribal land.

Technical Assistance

Technical experts from DOE and its national laboratories, along with other partnering organizations, provide support to assist Indian tribes and Alaska Native villages with technical

analysis, financial analysis, and strategic energy planning. The goal of the technical assistance is to address a specific challenge or fulfill a need that is essential to a current project's successful implementation, or ensure the success of a future project. The intended result is a tangible product or specific deliverable designed to help move a project forward.

Education and Training

Supports tribal efforts to build internal capacity to understand and navigate energy projects by providing regional workshops, webinars, Tribal Leader Forums, college student internships, a comprehensive online training curriculum, and an energy resource library.

Recent Organization Accomplishments

Since 2010, the Office of Indian Energy has invested nearly \$85 million in more than 180 tribal energy projects valued at over \$180 million. In 2018, the Office implemented a fuel and technology neutral approach to energy development with an understanding and respect for tribal sovereignty and self-determination and broadened the focus to energy system(s) for autonomous operation (i.e., microgrids). In 2019, eligibility was expanded to include intertribal organizations, and in 2020 the Office of Indian Energy also sought applications for community energy storage and the electrification of unelectrified buildings.

- In FY 2019, DOE's Office of Indian Energy awarded 13 grants for energy infrastructure, building on the 14 grants selected in FY 2018 and awarded in FY 2019. Combined, these fuel and technology neutral energy projects, valued at nearly \$60 million, represent a DOE investment of nearly \$21.5 million. These 27 grants represent over 19 MW of new generation in Indian Country, a savings of over \$4 million annually for those tribal communities, and savings of nearly \$90 million over the life of those projects.
- In March 2020, the Office issued a competitive funding opportunity for up to \$15 million for Indian tribes and tribal entities to deploy energy technology.
- In May 2020, the Office announced more than \$5 million in funding for nine tribal energy infrastructure projects. Combined, these projects

add up to over 3.7 megawatts of installed generation that will power over 180 tribal buildings, with combined lifetime savings of over \$24 million—significant investments that will yield tangible results to improve the quality of life for these communities.”

- In August 2020, the office formalized and expanded the STEM education initiative through an interagency agreement with the Denali Commission (www.denali.gov). Initially, the program delivery included all twelve Alaska Native regions; however, the COVID-19 pandemic cut it short. This situation created the opportunity to transition to online learning in a fashion that began to bring this training to the Lower 48 states in addition to Alaska. Through this program students learn about energy careers and opportunities through hands on activities showing the full spectrum of energy solutions in the country.
- In October of 2020, the Deputy Secretary directed the Office of Indian Energy to implement a formalized process to consider and make prompt determinations on cost-share reduction requests received by IE for awards under the Energy Policy Act of 2005. Consistent with the Secretary and Deputy Secretary's direction to find ways to provide assistance within the Department's statutory authority to alleviate the financial impacts of COVID-19, the process will facilitate the Deputy Secretary's considerations for determining a reduction to be necessary and appropriate.
- In October of 2020, the Deputy Secretary directed that the IE Funding Opportunity announcement (FOA) process undergo a 30-60 day review by the MA office to be streamlined and simplified, in response to ongoing concerns expressed by tribes and tribal entities that the current process is overly complicated, cumbersome, and presents a barrier for many tribal communities to participate in the financial assistance offered by IE.

Leadership Challenges

Long Term Budget and Staffing. Continued support for increased budget requests are critical to continuing to support the Department of Energy's Strategic Objective 5 and implement the functions authorized under Energy Policy Act of 2005. Continuing to fill vacant positions is necessary

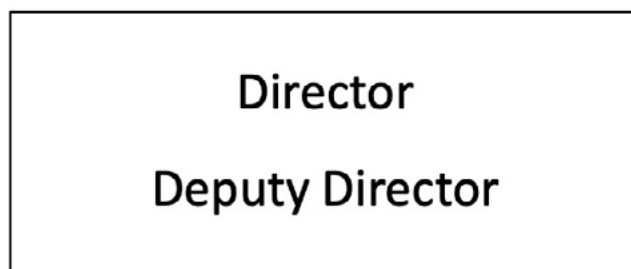
to being able to execute the mission, particularly the Deputy Director position, which has remained vacant for nearly two years. The Deputy Director slot is essential to fill quickly, as it functions as the COO of the office, ensuring day-to-day management and staffing issues are overseen successfully.

Critical Events and Action Items

None. Implementation of the formalized cost-share reduction request process should be monitored closely by HQ to ensure it is done in an effective and efficient manner.

Organizational Chart

Office of Indian Energy and Policy



Office of Energy Efficiency and Renewable Energy

Supporting the DOE Mission

The Office of Energy Efficiency and Renewable Energy (EERE) plays a critical role in advancing DOE's mission to ensure America's security and prosperity by developing affordable renewable energy and energy efficiency technologies (investing in research and development activities); reducing regulatory burdens; and improving grid reliability and resilience.

Mission Statement

EERE promotes affordable and reliable energy to enhance America's economic growth and energy security through technology development in the energy efficiency, renewable power, and sustainable transportation sectors.

EERE is accelerating the development and adoption of sustainable transportation technologies; increasing the generation of electric power from renewable resources; improving the energy efficiency of homes, buildings, and industries; stimulating the growth of a thriving domestic clean energy manufacturing industry; enabling the integration of clean electricity into a reliable, resilient, and efficient grid; and enabling a high-performing, results-driven culture through effective management approaches and processes.

EERE has stewardship responsibility for the National Renewable Energy Laboratory (NREL) in Golden, Colorado, which has 2,685 employees and a \$492,000,000 annual operating budget. NREL's mission is to develop clean energy and energy efficiency technologies and practices; advance related science and engineering; and provide knowledge and innovations to integrate energy systems at all scales.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$2,379,000,000
FY 2020 enacted	\$2,777,277,000
FY 2021 request	\$719,563,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 675-700 FTEs per FY 2020 Appropriations language located in Washington, D.C., and Golden, Colorado. Within this total, EERE also supports 44 FTEs at the National Energy Technology Laboratory who provide project management and procurement support.

History

The statutory foundation for EERE is authorized by United States Code, Title 15 (Commerce and Trade) and Title 42 (Public Health and Welfare) which specifies applicable programs, activities, goals, and objectives.

Functions

EERE is divided into three Technology Sectors—Energy Efficiency, Renewable Power, and Sustainable Transportation—as well as a Corporate Sector, which includes Mission-Critical Support Operations.

Energy Efficiency Sector

EERE's Energy Efficiency portfolio advances American energy competitiveness through the pursuit of research and development (R&D) targeted at high impact technology areas such as critical materials; plastics recycling; manufacturing processes; grid-interactive building systems; advanced lighting; space heating and cooling; and building envelopes. The overall goal of the energy efficiency portfolio is to strengthen the body of knowledge that enables businesses, industry, and the federal government to improve the affordability, energy productivity, and resiliency of our homes, buildings, and manufacturing sectors. This sector is divided into four main functions, including:

Advanced Manufacturing

The Advanced Manufacturing Office supports R&D focused on advancing and creating new understanding of underlying technologies, materials, and processes relevant to the productive

use of energy in manufacturing, as well as the competitive manufacturing of energy related products. This office supports the development of technologies to enable domestic supply of critical materials related to energy applications, substitutes for critical materials, and technologies for reuse and recycling of critical materials.

Building Technologies

The Buildings Technologies Office supports R&D of innovative building energy technologies such as lighting, space conditioning, refrigeration, windows, and envelope and their effective integration into smart, efficient, resilient, grid-interactive, affordable, and secure building systems. In support of the Energy Storage Grand Challenge, particular focus will be placed on building system interaction with the grid in terms of controllable loads and thermal energy storage technologies. Through the Better Buildings Initiative, the Building office fosters the accelerated adoption of energy efficient technologies and practices by attracting and establishing close, trusted relationships with key market leaders, and encourage private sector investment into energy efficient technologies. Finally, it supports DOE working with industry and stakeholders to meet requirements for statutorily-mandated efficiency standards and building energy codes determinations.

Federal Energy Management Program

The Federal Energy Management Program (FEMP) strengthens agencies' ability and agility to manage their critical missions, and provides strategic energy management assistance for agencies to become resilient, efficient, and secure in support of Administration priorities for American energy dominance. FEMP strives to increase government accountability and development of a future-focused workforce. FEMP supplies agencies with the information, tools, and technical assistance they need to meet and track their energy-related requirements and goals through the following focus areas:

- *Strategic Programming and Integration Planning.* Providing agencies with information and resources to help them develop strategic programs and plans to successfully reduce Federal energy and water use. FEMP also develops, analyzes, and shares information about Federal laws and requirements.
- *Facility and Fleet Optimization.* Coordinating processes to integrate mission assurance with optimized and cost-effective facility and fleet operations. Specialty areas include strategic energy management; commissioning; data centers; Federal fleet management; guiding principles for sustainable Federal buildings; laboratories; metering; net zero energy, water, and waste; and operations and maintenance plans.
- *Federal Leadership and Engagement.* Providing accountability on Federal agency and Government-wide energy and water performance; engaging agencies in interagency working groups and workforce development opportunities; and recognizing their efforts. Specialty areas include agency reporting and data; the annual Federal Energy and Water Management Awards; interagency working groups; training; and veteran internships.

Weatherization and Intergovernmental Programs

The Weatherization and Intergovernmental Programs' mission is to facilitate strategic investments in the deployment of energy efficiency and renewable energy technologies and innovative practices across the United States by a wide range of government, community, and business stakeholders, in partnership with state and local organizations.

Renewable Power Sector

Through its Renewable Power portfolio, EERE will perform research to enable solar, wind, water, and geothermal industries to develop and ultimately deploy low-cost, novel power generation technologies. The overarching objective of the Renewable Power portfolio is to lower costs and improve the integration of renewable energy technologies with the grid. Research on improved integration is executed through the Energy Storage Grand Challenge and the Grid Modernization Initiative. Through investments in DOE National Laboratories, industry, and academia, the Renewable Power technology programs will continue to lead the world in developing domestic, clean, reliable energy choices in power generation, which strengthen the U.S. economy while increasing energy security. This sector is divided into the following functions:

The primary function of the Geothermal Technologies Office is to support R&D to strengthen the body of knowledge to support industry efforts to accelerate the development and deployment of innovative geothermal energy technologies. The program's technology portfolio prioritizes R&D in three closely related geothermal categories: Hydrothermal, Enhanced Geothermal Systems, and Low Temperature.

Solar Energy Technologies

The Solar Energy Technologies Office funds R&D to improve the affordability and performance of solar technologies while supporting the reliability and resilience of the U.S. electric grid. Reflecting the recent and projected future growth in photovoltaic (PV) deployment, the program is placing a continued emphasis on addressing the challenges and opportunities related to integrating increasing penetrations of solar onto the electric grid. The office's efforts include building the knowledge base upon which industry can achieve further reductions in the cost of solar electricity, promoting greater energy affordability.

Water Power Technologies

The Water Power Technologies Office conducts R&D to strengthen the body of scientific and engineering knowledge supporting industry efforts to develop new technologies that increase U.S. hydropower, and marine and hydrokinetic generation.

Wind Energy Technologies

The primary function of the Wind Energy Technologies Office is to drive innovation through research, development, and testing of advanced wind technologies. The portfolio focuses on land-based, offshore, and distributed wind, as well as integration of wind energy on the grid. The primary goal is cost reduction, while also informing market choices; ensuring the reliability, resilience, and security of wind power and the grid; exploring means for mitigating siting and environmental challenges; and nurturing a robust U.S. manufacturing sector and related workforce.

Sustainable Transportation Sector

EERE's sustainable transportation portfolio supports comprehensive, analysis-based research strategies that ultimately enable industry to accelerate the

development and widespread use of a variety of promising sustainable transportation technologies. Broadly, transportation programs within EERE pursue four key parallel solution pathways: (1) fuel diversification, replacing conventional fuels with cost-competitive, domestically produced alternatives; (2) vehicle efficiency, using less fuel to move people and freight; (3) energy storage, delivering durable, reliable, resilient, and affordable energy storage options across sectors; and (4) mobility energy productivity, improving the overall energy efficiency and efficacy of the transportation or mobility system. The pathways and activities also include those necessary to address statutory requirements and the supporting advanced data-driven, technical, economic, and interdisciplinary systems analyses critical to informing R&D investment priorities. This sector is divided into three main technologies:

Bioenergy Technologies

The Bioenergy Technologies Office focuses on R&D of transformative, sustainable bioenergy technologies that can support a growing bioeconomy. The office invests in development of technologies for producing cost-competitive advanced biofuels, biopower, and bioproducts from the nation's abundant domestic, renewable biomass and waste resources.

Hydrogen and Fuel Cell Technologies

The Hydrogen and Fuel Cell Technologies Office focuses on R&D that supports multisector partnership efforts to develop and deploy hydrogen and fuel cell technologies that are cost competitive with conventional technologies. The overarching program goal, supporting the DOE H2@Scale initiative, is to facilitate wide-spread adoption of hydrogen and fuel cells across sectors by reducing the cost and improving the performance/durability of fuel cells, as well as developing affordable and efficient technologies for hydrogen production, delivery, and storage.

Vehicle Technologies

The Vehicle Technologies Office funds research to develop new, affordable, efficient, and clean transportation options that increase domestic economic opportunity. This research will generate knowledge that industry can advance to deploy innovative energy technologies to

support affordable, secure, reliable, and efficient transportation systems across America. The office currently focuses on new innovations in electrification to include: advanced battery technologies; advanced combustion engines and fuels (including co-optimized systems); advanced materials for lighter-weight vehicle structures and better powertrains; and energy efficient mobility technologies and systems (including automated and connected vehicles, as well as innovations in connected infrastructure for significant systems-level energy efficiency improvement).

Recent Organization Accomplishments

Led Significant Achievements in Promoting Security, Prosperity, and Energy Dominance

Global investment in clean energy has increased substantially in response to the need to address security, prosperity, and energy dominance challenges and opportunities. EERE's investment in R&D has supported the following successes:

- Between 2010 and 2019, the average cost to utilities of power purchase agreements (PPAs) for utility scale photovoltaic electricity decreased by 83 percent, and the cost for wind PPAs between 2010 and 2018 decreased by 69 percent.
- In the past 10 years, modeled battery costs for electric vehicles have dropped by 80 percent [to \$169/kilowatt-hour (kWh)], and in the past year alone, EERE-sponsored R&D has helped drive a 2.6 percent energy intensity reduction among industry partners.
- The Solar program met its 2020 goal for unsubsidized, utility-scale solar PV electricity of \$0.06/kWh in 2017; three years ahead of schedule.
- Achieved the 2020 cost target for offshore wind early, surpassing it by 3 cents per kilowatt-hour¹. Following this milestone, WETO significantly adjusted its offshore LCOE targets downward².
- Oversaw the expansion of renewable power, including a doubling of solar production from 2016 through 2019, and a 32 percent increase in wind production.

EERE supported researchers John B. Goodenough and M. Stanley Whittingham were **recognized as Nobel laureates** for their work in developing lithium-ion batteries. The development of lithium-ion batteries have resulted in numerous advancements in key industries such as mobile phones and plug-in electric vehicles.

Researchers at the National Renewable Energy Laboratory (NREL) **set a new world record** for solar conversion efficiency by fabricating a six-junction solar cell with an efficiency of nearly 50 percent.

Initiated the Plastics Innovation Challenge, which launched a comprehensive program to design new highly recyclable or biodegradable plastics; develop novel methods for deconstructing and upcycling existing plastic waste; and address plastic waste. Most recently, in March 2020, DOE announced the Bio-Optimized Technologies to keep Thermoplastics out of Landfills and the Environment (BOTTLE) funding opportunity and the launch of a BOTTLE Consortium focused on designing new plastics and recycling strategies, in collaboration with industry and academia.

Launched the American-Made Challenges. DOE has invested more than \$40,000,000 in 16 different American-Made prizes and competitions to advance energy innovation and American manufacturing.

Established the ReCell Battery Recycling R&D Center and launched the Lithium Ion Battery Recycling Prize to develop technologies to profitably capture 90 percent of all lithium-based battery technologies in the United States and recover 90 percent of the key materials from the collected batteries.

EERE created the Energy-Water Desalination Hub

1 WETO showed that the modeled 2017 LCOE for offshore wind on the East Coast of the United States (the only place where near-term deployment is planned) surpassed the 2020 target by \$0.03/kWh. This occurred through the FY18 GPRA reporting process, which was analyzed and reported in FY19 (e.g. in 2019 we report to OMB on how we performed in FY18, based on 2017 data due to a lag in data availability.) The levelized cost of energy targets for offshore wind (in 2015 dollar terms) were 14.9 cents/kWh by 2020 and 9.3 cents/kWh by 2030. DOE reported an LCOE for calendar year 2017 of 12.4 cents/kWh in 2017 dollar terms. When converted to 2015 dollars, the offshore wind LCOE in 2017 was 11.9 cents/kWh.

2 After surpassing this goal, WETO revised its offshore LCOE targets to 8.6 cents/kWh in 2020 and 5.1 cents/kWh in 2030.

as part of the White House Water Security Grand Challenge, announcing nearly \$100 million for the National Alliance for Water Innovation to address water security issues in the United States.

Reduced the cost of electrolyzers, which produce hydrogen from water and electricity, by 80 percent **and automotive fuel cell costs** by 60 percent in the past decade, while their durability quadrupled to over 120,000 miles.

Funded the development of a renewable jet fuel used for the first time in a commercial flight from Orlando to London Gatwick, a blend of alcohol-to-jet fuel produced using LanzaTech and Pacific Northwest National Laboratory technology.

Rolled Back Unnecessary Regulations, supporting a presidential priority by refocusing energy conservation standards to increase consumer choice and save over \$300 million for the American people.

Protected Consumer Lighting Choices by preventing more stringent regulations on common incandescent lightbulbs that would have essentially regulated those products out of existence, denying families the ability to make their own lighting choices.

Initiated the Sustainability in Manufacturing Partnership to help drive manufacturing productivity improvements, resulting in partners saving over \$6 billion in energy costs.

Leadership Challenges

Recruitment and Retention

Like many government agencies, it is a challenge for EERE to recruit and retain the best staff. For leadership positions, EERE needs to identify high caliber experts in technology areas with executive level management experience. At the staff level, EERE established a “Great Place to Work” program, to attract and retain the best and brightest.

Remaining Agile and Staying Ahead of Cutting Edge Research and Development

EERE works with DOE’s national laboratories and private sector partners to find solutions to today’s and tomorrow’s technical challenges. Those solutions are vital to the EERE mission to create and sustain American leadership in the transition to a global clean energy economy.

Critical Events and Action Items

December 2020/January 2021

Critical Materials Funding Opportunity Announcement (FOA): Next-Generation Technologies and Field Validation Award Selections.

This \$30 million in funding is for research and development that focuses on field validation and

demonstration, as well as next-generation extraction, separation, and processing technologies for critical materials. *EERE, Advanced Manufacturing Office*

January 2021

Water Security FOA: Research and Development for Advanced Water Resource Recovery Systems FOA Selections

This \$20 million funding opportunity is to develop technology innovations that strengthen America’s water infrastructure and enable advanced water resource recovery systems that have the potential to be net energy positive. *EERE, Advanced Manufacturing Office*

FY 2020 Perovskite FOA Selections

This \$20 million funding opportunity is to further advance perovskite research and development by funding projects in device and manufacturing R&D, as well as establishing an independent validation program. This FOA directly addresses FY 2020 appropriations language to further develop manufacturability of perovskites. *EERE, Solar Energy Technologies Office*

March 2021

Down Selection of the three Topic 1 awardees from the FY 2018 Generation 3 Concentrating Solar Power Systems FOA

Topic 1 of the FOA on Integrated Generation 3 CSP systems was broken down into three phases. Phases one and two were focused on further development on key components within the integrated system as well as finalization of the integrated system design. In Phase three, one awardee will be chosen to build a test facility that allows diverse teams of researchers, laboratories, developers, and manufacturers to test components and systems through a wide range of operating conditions necessary to advance the next generation of CSP

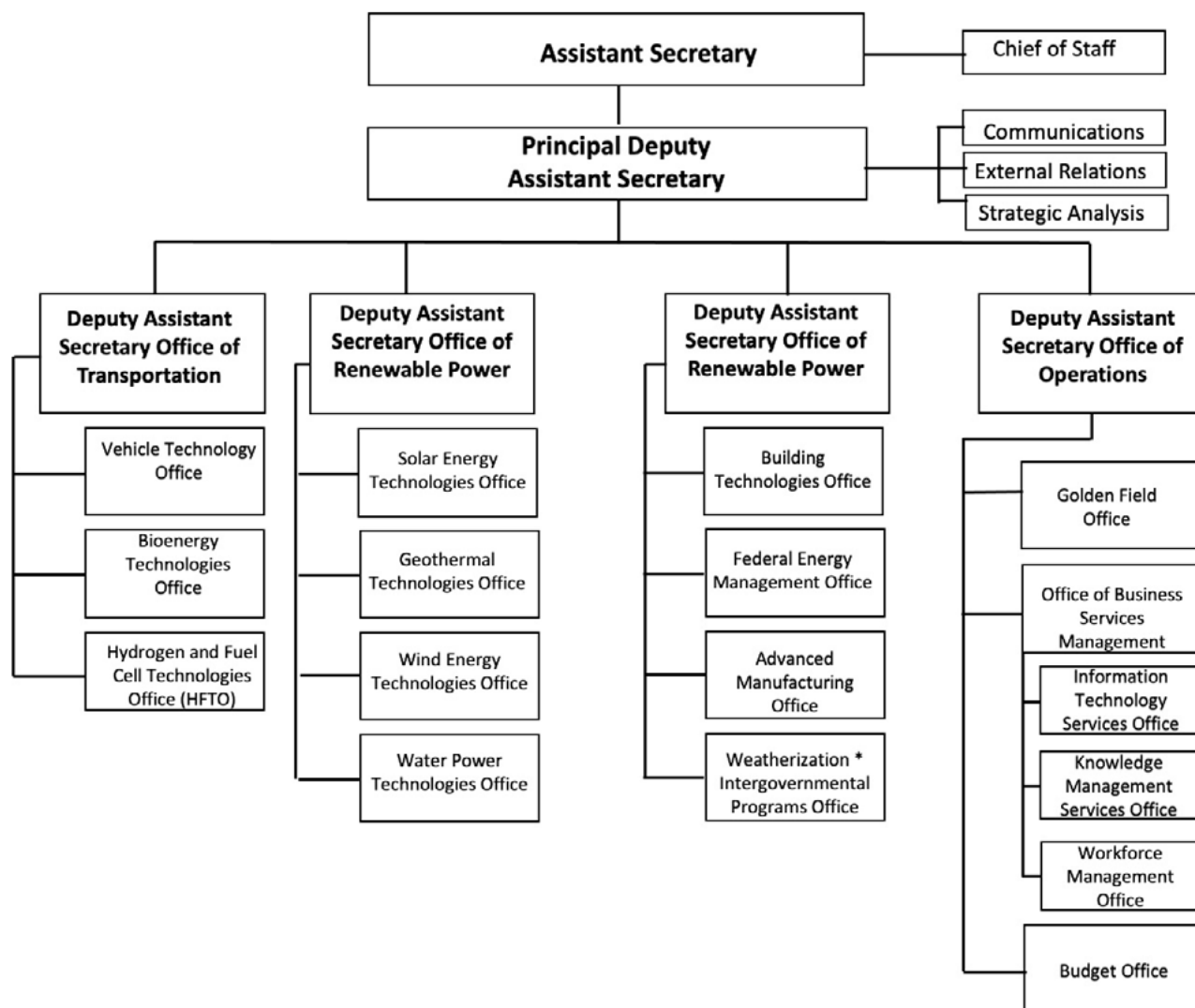
technology. *EERE, Solar Energy Technologies Office*

TBD

Appliance Standards/Rulemaking.

There may be announcements related to two topics (showerheads and manufactured housing) in the coming months. If released, these announcements could draw significant interest from a diverse set of stakeholders, including members of Congress and the media. *EERE, Building Technologies Office*

Organizational Chart Office of Energy Efficiency and Renewable Energy



Office of Electricity

Supporting the DOE Mission

The Office of Electricity (OE) leads the Department of Energy's (DOE, the Department) research and development activities to provide long-term transformational strategies that will help ensure the Nation's most critical energy infrastructure is secure, reliable, and resilient. OE is leading the efforts to modernize the electricity delivery system to ensure that it supports the evolving grid and emerging threats. OE achieves this mission through a mix of technology and policy solutions in partnership with the public and private sectors. OE works with Federal, State, local, and industry partners to bolster the resilience of the energy infrastructure when major energy supply interruptions occur.

Mission Statement

A secure and resilient power grid is vital to national security, economic security, and the services Americans rely upon. Working closely with its private and public partners, the Office of Electricity leads the Department's efforts to ensure the Nation's most critical energy infrastructure is secure and able to recover rapidly from disruptions.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$156,000,000
FY 2020 enacted	\$190,000,000
FY 2021 request	\$195,045,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 74

History

In recognition of the important need to modernize the electric infrastructure, the Office of Electricity Delivery and Energy Reliability (OE) was formed in 2005 to focus on advance technology research and development in electric transmission and distribution (smart grid, renewable integration) and emergency response due to natural and manmade disruptions to the grid. Due to the increasing threat to our national security from growing cybersecurity attacks as well as the ongoing threat of natural disasters, in

2018, the Secretary of Energy directed the creation and standup of the new Office of Cybersecurity, Energy Security, and Emergency Response (CESER) to strengthen DOE's role as the sector-specific agency for the energy sector, support the Department's expanded national security responsibilities, and better address emerging threats and natural disasters. The realignment resulted in those two functions separating from OE. It also moved the four Power Marketing Administrations (PMAs) (Bonneville Power Administration, Western Area Power Administration, Southeastern Power Administration, and Southwestern Power Administration) from under the Deputy Secretary to be managed by the Assistant Secretary of Electricity. The purpose of the realignment of the PMAs was to enhance the synergy between OE and the PMAs to efficiently maximize technology advancement opportunities and to provide the benefit of having in-house real time knowledge of utility systems operations and the electric market. The reorganization allowed OE to focus on long-term strategic and foundational R&D efforts related to the resilience and reliability of our Nation's grid necessary to ensure national security. Specifically, OE is developing strategies to ensure the viability of our defense critical energy infrastructure against threat vectors.

Since the inception of OE, the organization has stimulated advancements in the electric delivery system; improved the understanding of critical dependencies; accelerated the rate of scientific development in supply and demand side electric technologies; identified barriers to continued reliable electric service; deepened consideration of security and resilience measures in infrastructure planning; assisted many states and regions in improvements to their own electricity policies; and expanded partnerships with State and private sector stakeholders. The organization delivers enabling solutions to achieve America's energy security and electricity policy while sustaining applied research into new advanced technologies and policies.

Functions

Advanced Grid Research and Development

OE leads national efforts to develop the next generation of technologies, tools, and techniques for the efficient, resilient, reliable, and affordable delivery of electricity in the U.S. OE manages programs related to modernizing the Nation's power grid, and leads activities designed to accelerate

discovery and innovation in electric transmission and distribution technologies and create “next generation” devices, software, tools, and techniques to help modernize the electric grid. Efforts include, but are not limited to:

- grid scale energy storage;
- advanced modeling to simulate and assess the behavior of electric power systems, as well as associated dependencies on natural gas, and other critical energy infrastructures;
- new grid architectures and control mechanisms;
- advanced technologies such as solid-state high voltage devices, including transformers and power flow controllers that can optimize power delivery and enhance resilience (power electronics);
- complex interactive capabilities that can allow the system to respond to change (adaptive networks);
- new sensing technologies;
- intelligent communications and control systems; and
- new advanced materials that can offer benefits such as lowered cost, greater efficiency, and longer life for smart grid technologies.

Transmission Permitting and Technical Assistance (TPTA)

TPTA's Defense Critical Electric Infrastructure (DCEI) effort enhances U.S. national security by risk-managing and energy assuring critical defense facilities (CDFs) identified by the Secretary of Energy as authorized by the 2015 FAST Act. This work composes four lines of effort: 1) creating a DCEI program platform; 2) developing a DCEI financing and funding strategy; 3) establishing effective coordination mechanisms for key partnerships; and 4) developing DCEI project assessment tools. TPTA's recovery work furthers energy resilience and helps lower the cost of future disasters by supporting comprehensive recovery solutions for affected communities. TPTA also manages policies and programs related to the Energy Policy Act, as well as energy transmission and permitting on behalf of the Department.

Power Marketing Administrations

The four Federal PMAs operate electric systems and sell the electrical output of Federally-owned and operated hydroelectric dams in 34 States. The PMAs also play a large role in transmission, both

as transmission owners and operators. All four of the PMAs function as balancing authorities for their regions. Through the Reclamation Project Act of 1939 and the Flood Control Act of 1944, in addition, the primary statute governing Bonneville's rate setting process is the Northwest Power Act, the PMAs are required to set rates to cover costs at the lowest possible rates to consumers consistent with sound business principles, forgoing any profit.

Recent Organization Accomplishments

Advanced Grid Research and Development

Energy Storage Grand Challenge (ESGC)

On January 8, 2020, DOE announced a cross-cutting effort to create and sustain America's global leadership in energy storage use, production, and exports, while using a secure, domestic manufacturing supply chain that does not depend on foreign sources for critical materials. The vision for the Grand Challenge is to create and sustain global leadership in energy storage utilization and exports, with a secure domestic manufacturing supply chain.

Grid Modernization Initiative (GMI)

DOE announced the results of the 2019 Grid Modernization Lab Call with funding of approximately \$80 million over three years and is focused on developing projects in resilience modeling; energy storage and system flexibility; advanced sensors and data analytics; institutional support and analysis; cyber-physical security; and generation. This funding aims to strengthen, transform, and improve the resilience of energy infrastructure to ensure the Nation's access to reliable and secure sources of energy now and in the future. The selected projects will expand on prior GMLC efforts and the portfolio of projects to emphasize a fully integrated vision of the energy system, from fuel to generation to load, including interdependent infrastructures while focusing on bulk-power system impacts. The Strategy and Multi-Year Program Plan governing the GMI was recently revised to include a broader set of strategic goals and focused actions that address the objectives.

The Grid Storage Launchpad (GSL)

The GSL, OE's first ever construction project, will address the significant capability gaps that exists for accelerating research in and validating the performance of battery technologies that are suited for grid applications. The scope of the GSL includes

the design and construction of a new research facility on the Pacific Northwest National Laboratory campus. Key elements of the GSL conceptual design, cost and schedule were completed and the solicitation for services to design and build the GSL was released for bid in July 2020.

Transformer Resilience and Advanced Components (TRAC) Program Vision and Framework

This document describes the opportunities, goals, and key activities needed for the design of next-generation transmission and distribution (T&D) grid technologies that will influence and shape the research and development (R&D) activities in the future. Standardized designs do not exist for many T&D grid components, and their customized nature drives up equipment and installation costs. Modular and scalable designs would enable greater standardization and allow for more cost-effective capacity expansion. Additionally, local intelligence with embedded sensors, data processing, and communications would enable real-time health monitoring, reducing maintenance costs and enhancing system reliability by preventing failures. In addition, the TRAC program developed a Solid-State Power Substation Technology Roadmap which examined the future of substation technology along with advancements in grid power electronics. The Roadmap details opportunities to improve the performance of substation components and to reconsider the design of these critical nodes to support evolution of the grid.

Kirtland Air Force Base DC Microgrid

A resilient DC microgrid project was brought online at Kirtland Air Force Base (KAFB) in December 2019, through a cooperative R&D agreement between Sandia National Laboratories, with funding from the OE and Emera Technologies. The project, the first of its kind between DOE and Department of Defense (DoD) sites, resulted in the installation of a single-bus, ten-node 250 kW DC microgrid on KAFB that links together generation and load between Kirtland DoD facilities, Sandia's Distributed Energy Technology Laboratory (DETL), and the Photovoltaic Systems Evaluation Laboratory (PSEL) to power a demonstration site consisting of six housing units, a laundromat and a community center as a proof of concept.

Transmission Permitting and Technical

Assistance

Bulk-Power System Executive Order

On May 1, 2020, the President signed Executive Order (EO) 13920, "Securing the United States Bulk-Power System," which authorizes the U.S. Secretary of Energy to work with the Federal partners and the energy industry to secure America's bulk-power system (BPS). In the EO, the President declared that threats to the bulk-power system by foreign adversaries constitute a national emergency. Serving as the backbone of our Nation's energy infrastructure, the BPS is fundamental to national security, emergency services, critical infrastructure, and the economy. The EO calls for DOE to adopt rules and regulations prohibiting certain acquisitions, import, transfer, or installation of bulk-power system components where there is a credible threat that could compromise the BPS. DOE is also working closely with its Federal and industry partners to develop a mechanism to pre-qualify equipment and vendors for the BPS supply chain.

CEII Final Rule

On May 15, 2020 the Critical Electric Infrastructure Information (CEII) Final Rule went into effect. The "CEII" designation protects and secures critical information about the Nation's electric infrastructure as part of DOE's commitment to improve energy security while ensuring a reliable and resilient flow of energy to America's communities and businesses. In the CEII final rule, DOE established administrative procedures for how the Department will designate, protect, and share CEII. The rule also provided procedures for DOE coordination with other Federal agency partners and industry to facilitate mutual understanding and information sharing as it may relate to CEII.

Leadership Challenges

OE's leadership challenges include:

Personnel Resource Demands

OE leadership is sought on a regular basis to help Federal agencies, States, local, and tribal communities meet the Nation's high expectations for innovative electric grid technology; high quality energy resilience system infrastructure analysis; and implement, manage, and execute changes affecting the energy infrastructure.

Financial Resource Investment

Responsible for the grid-scale energy storage program, one of the key components for the development of a flexible and resilient electric grid infrastructure and a top priority of the Department, as well as the lead to strengthen the security of the Nation's defense critical electric infrastructure and mitigate risks to the bulk-power system, OE will need substantial financial investment in order to succeed.

Critical Events and Action Items

Jan/Feb 2021

The Grid Storage Launchpad (GSL), the first ever OE construction project, will address the significant capability gaps that exists for accelerating research in and validating the performance of battery technologies that are suited for grid applications. The scope of the GSL includes the design and construction of a new research facility on the Pacific Northwest National Laboratory Campus. Critical Decision 2/3, required before construction start, is expected to take place in late January or early February.

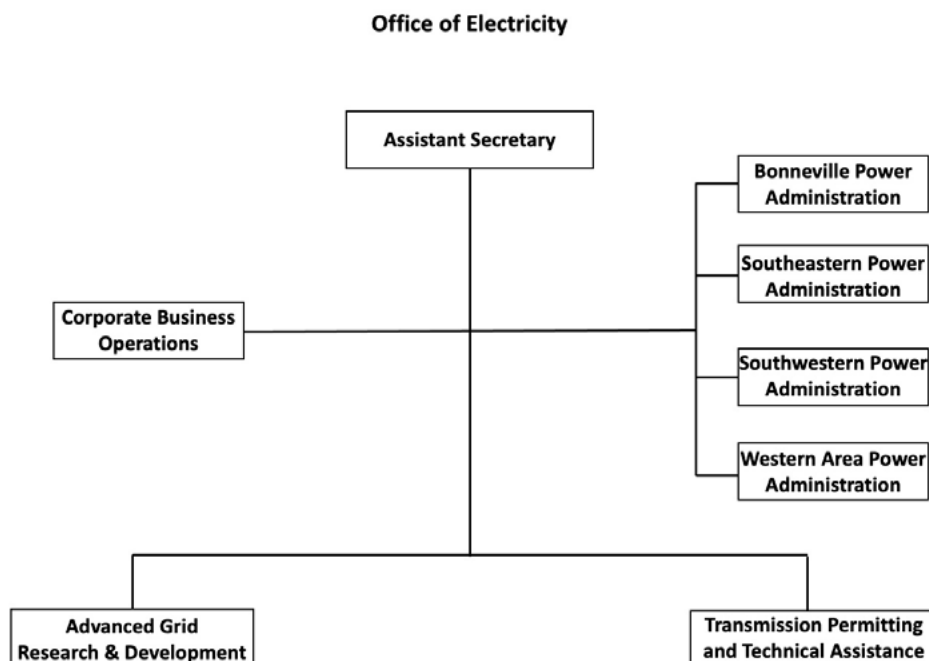
May 1, 2021. [Executive Order \(EO\) 13920, "Securing the United States Bulk-Power System,"](#) issued on May 1, 2020, declared that threats to the bulk-power system by foreign adversaries constitute a national emergency. That designation will expire on

May 1, 2021 and, absent legislative codification, the national emergency declaration would need to be renewed prior to that date. Additionally, during this time frame, it is anticipated DOE would be in the process of publishing a final rule prohibiting certain acquisitions, import, transfer, or installation of bulk-power system components where there is a credible threat that could compromise the BPS.

Second/Third Quarter of FY 2021

In 1964, Canada and the United States ratified the Columbia River Treaty (Treaty). The Treaty has no end date but either country can unilaterally terminate the Treaty from September 2024 onwards provided that at least 10 years notice is given. The second is the expiry of the pre-paid assured flood control operation in Canada of 8.45 million acre feet (MAF) that the U.S. purchased for sixty years in 1964 and the resulting shift to an ad hoc "Called Upon" flood control operation. This ability to terminate the Treaty, and changing flood control provisions whether the Treaty is terminated or not, have prompted both countries to undertake a review of the Treaty to determine its future. The Treaty has worked well in optimizing flood control and power objectives. It would be beneficial to resolve this ahead of 2024. The FY 2021 objective is to calculate and develop a U.S. position on the benefits and value for prepaid flood control.

Organizational Chart



Bonneville Power Administration

Supporting the DOE Mission

The Bonneville Power Administration (Bonneville) supports the Department of Energy's (DOE) Strategic Plan Objective 4: "Improve electric grid reliability and resilience" of Goal 1, Promote American Energy Dominance.

With Bonneville's responsibility to serve the majority of the Northwest region's high voltage needs, Bonneville's asset management strategy for transmission covers nine primary asset programs including alternating current substations, direct current substations, control centers, power system control, system telecommunications, system protection control, rights-of-way, wood pole lines, and steel lines. The assets within these programs deliver electric power to more than 12 million people.

In its 2018–2023 Strategic Plan, Bonneville adopted a more flexible, scalable, economical, and operationally efficient approach to managing its transmission system. To ensure correctly-sized asset investments, Bonneville has and continues to increase its reliance on advanced technology, robust regional planning, industry standard commercial practices, and coordinated system operations. Bonneville is committed to taking a forward-looking approach with its investment decisions and is improving its capital investment program through the systematic incorporation of criticality, health, and risk into investment prioritization.

Mission Statement

As a public service organization, Bonneville Power Administration's mission is to create and deliver the best value for our customers and constituents as we act in concert with others to assure the Pacific Northwest:

- An adequate, efficient, economical and reliable power supply.
- A transmission system that is adequate to the task of integrating and transmitting power from Federal and non-federal generating units,

providing service to Bonneville's customers, providing interregional interconnections, and maintaining electrical reliability and stability.

- Mitigation of the impacts on fish and wildlife from the Federally-owned hydroelectric projects from which Bonneville markets power.
- Bonneville is committed to cost-based rates, and public and regional preference in its marketing of power. Bonneville sets its rates as low as possible, consistent with sound business principles and the full recovery of all of its costs, including timely repayment of the Federal investment in the system.

Budget

BPA is self-financing and does not receive annual appropriations.

Fiscal Year	Budget
FY 2019 enacted	\$4,410,452
FY 2020 enacted	\$4,133,669
FY 2021 request	\$4,245,831

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 3,000

History

The Bonneville Project Act of 1937 provides the statutory basis for Bonneville's power marketing responsibilities and authorities. In 1974, the passage of the Federal Columbia River Transmission System Act (Transmission Act) applied provisions of the Government Corporation Control Act (31 U.S.C. §§ 9101-9110) to Bonneville. The Transmission Act provides Bonneville with "self-financing" authority; establishes the Bonneville Fund (a permanent, indefinite appropriation) allowing Bonneville to use its revenues from electric power and transmission ratepayers to fund all programs without further appropriation; and authorizes Bonneville to sell bonds to the U.S. Treasury. As of the end of FY 2019, Bonneville has a revolving U.S. Treasury borrowing authority of \$7.7 billion, of which approximately \$2.4 billion remains available to be drawn.

The 1980 enactment of the Pacific Northwest Electric Power Planning and Conservation Act (Northwest Power Act) expanded Bonneville's authorities,

obligations, and responsibilities. The purposes of the act include the following: to encourage electric energy conservation to meet regional electric power loads placed on Bonneville; to develop renewable energy resources within the Pacific Northwest; to assure the Northwest an adequate, efficient, economical, and reliable power supply; to promote regional participation and planning; and to protect, mitigate, and enhance the fish and wildlife of the Columbia River and its tributaries. The Northwest Power Act also established a revised statutory framework for Bonneville's administrative rate-setting process and established judicial review of Bonneville's final actions in the U.S. Court of Appeals for the Ninth Circuit.

Functions

Bonneville provides electric power services and transmission services, and acquires energy efficiency throughout the Pacific Northwest. Bonneville serves a 300,000 square mile area including Oregon, Washington, Idaho, western Montana, small parts of eastern Montana, California, Nevada, Utah, and Wyoming, totaling about 14 million people. Bonneville markets the electric power produced from 31 federal hydro projects in the Pacific Northwest owned by the U.S. Army Corps of Engineers and the Department of the Interior's Bureau of Reclamation. In addition, Bonneville acquires power from non-federal generating resources, including the Columbia Generating Station (CGS), a nuclear power plant. Bonneville uses the power from its non-federal purchases and the Federal projects, collectively the Federal Columbia River Power System (FCRPS), primarily to meet the Administrator's long term firm power sales contract obligations. Bonneville currently maintains and operates 15,197 circuit miles of transmission lines, 262 substations, and associated power system control and communications facilities over which this electric power is delivered. Bonneville also supports the protection and enhancement of fish and wildlife, and promotes conservation and energy efficiency as part of its efforts to preserve and balance the economic and environmental benefits of the FCRPS.

Recent Organization Accomplishments

Cost Management

In September 2020, Bonneville completed its public process to review proposed program funding levels

before filing its initial rates proposals for power and transmission services in Fiscal Years 2022 and 2023. In its Integrated Program Review, Bonneville concluded it will hold its program funding levels for power services below the rate of inflation, a key part of its strategic plan.

COVID-19 Response

Beginning in March 2020, Bonneville responded to the expanding COVID-19 pandemic by instructing all non-mission critical operating personal to telework for an indefinite period of time. Bonneville suspended transmission construction projects and limited field operations to critical work. As local health directives permitted, Bonneville resumed construction and maintenance activities. In June 2020, Bonneville completed an expedited rate proceeding to suspend its Financial Reserve Policy surcharge to provide its public power preference customers about \$3 million per month of rate relief for the remainder of FY 2020, and \$30 million for FY 2021.

Wildfire Mitigation

Wildfires pose a threat for transmission providers in the western United States. In 2020, Bonneville completed a Wildfire Mitigation Plan to prevent Bonneville transmission lines and other assets from sparking wildfires, and to protect Bonneville lines and assets from the threat of wildfires. During the 2020 fire season, Bonneville deployed an incident management team to coordinate its response to wildfires.

Columbia River System Operations Review (CRSO)

In September 2020, Bonneville and its partner Federal agencies completed the four-year CRSO. The CRSO produced an environmental impact statement covering the operations of the Federal Columbia River Power System and the associated effects on fish, wildlife, and cultural resources. The CRSO included extensive public involvement and engagement with Pacific Northwest states and tribal governments.

Grid Modernization. Bonneville continues a cross-agency grid modernization initiative. Bonneville's strategic objective is to modernize Federal power and transmission systems and their supporting technology. Grid modernization involves improving

transmission and generation system visibility and controls, and increasing the electricity market skills of Bonneville employees. Part of the grid modernization scope is Bonneville's evaluation of joining the Western Energy Imbalance Market (EIM) and enabling Federal and non-federal resources in its service area to access that market. Bonneville expects that joining the EIM will optimize the day-to-day operation of the power system and leverage hydropower in a market increasingly driven by intermittent renewable resources.

Integrated Regional Transmission Planning

In 2020, Bonneville began participation in the newly formed NorthernGrid regional planning organization under FERC Order 1000. Order 1000 requires transmission-owning utilities to participate in regional planning organizations to guide transmission resource development and optimize grid operations. In the Pacific Northwest, regional planning had been divided under two planning organizations. Bonneville's 2018–2023 Strategic Direction included the objective of pursuing a single entity to combine planning efforts and reduce duplication. The regional parties responding to this initiative included utilities subject to FERC jurisdiction and non-jurisdictional entities. The parties developed the functional structure of NorthernGrid and completed a funding agreement in 2019. The parties selected a project coordinator and began implementation in 2020.

Leadership Challenges

None.

Critical Events and Action Items

The Columbia River Treaty

The U.S. Government reached consensus on a high-level position for negotiations of the post-2024 future of the Columbia River Treaty in June 2015, and received the authorization to negotiate with Canada on the Columbia River Treaty in October 2016. Government Affairs Canada notified the U.S. State Department (DOS) in December 2017 of Canada's mandate to negotiate the Columbia River Treaty with the United States. Negotiations began in spring 2018 and continue to date. Both the DOS and Canadian negotiators have discussed shared objectives and exchanged information on flood

risk management, hydropower, and ecosystem considerations.

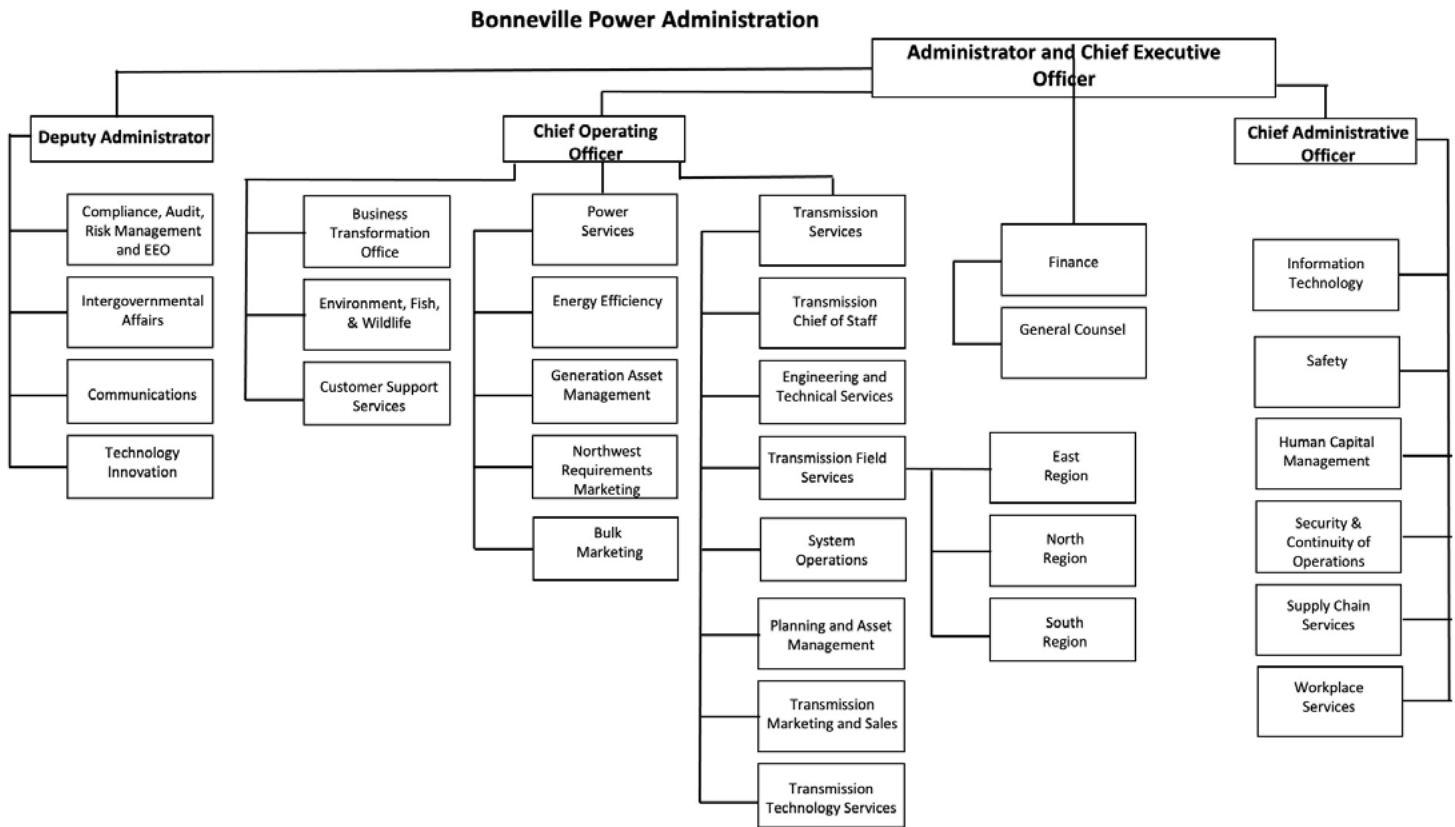
Regional Electric System Reliability

Recent regional forecasts have shown that the Pacific Northwest as a whole is nearing periods of times of the year when regional power supplies may not be adequate to meet demand. In early 2021, Bonneville will continue to work with other regional utilities through the Northwest Power Pool on an initiative to develop a voluntary but enforceable program to ensure that the region maintains a balance of supplies and demand in a very high percentage of likely conditions.

Power and Transmission Rates

In November 2020, Bonneville will file a Federal Register Notice for its initial proposal for power and transmission service rates for Fiscal Years 2022 and 2023. During the first part of 2021, Bonneville will conduct formal rate proceedings with rate case parties, leading to the Administrator's Record of Decision for final rates to be in effect on October 1, 2021.

Organizational Chart



Southeastern Power Administration

Supporting the DOE Mission

The Southeastern Power Administration (SEPA) supports the DOE strategic plan by continuing the core mission to market and deliver clean, renewable, reliable, cost-based Federal hydroelectric power and related services. Specifically, SEPA contributes to the DOE Strategic Plan Goal 1; Objective 2: to support a more economically competitive, environmentally responsible, secure, and resilient U.S. energy infrastructure. This ensures the reliability of service delivery and contributes to the stability of the national electricity grid in the specific area of power and transmission service and energy infrastructure.

Mission Statement

SEPA's mission is to market and deliver Federal hydroelectric power, at the lowest possible cost to public bodies and cooperatives in the Southeastern United States.

Budget

SEPA's total program budget is fully offset by Congressionally authorized use-of-receipts. No funding comes from traditional annual appropriations. All program costs are repaid through power sale revenues with no costs borne by the taxpayer.

Fiscal Year	Budget (Total Program)	Appropriations
FY 2019 enacted	\$75,324,000	\$0
FY 2020 enacted	\$77,301,000	\$0
FY 2021 requested	\$96,647,000	\$0

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 44

History

SEPA was established in 1950 by the Secretary of the Interior as a Federal agency that today operates within the Department of Energy (Department, DOE), as authorized by Section 5 of the Flood Control Act of 1944. Like the other Power Marketing Administrations (PMAs), SEPA must give preference to public utilities and rural electric cooperatives. Unlike other PMAs, SEPA does not own or operate transmission assets. This is due to private utility opposition and the political climate of the 1950's. SEPA was transferred from the DOE in 1977 when the Department was created.

SEPA is one of four PMAs managed by DOE to market the electric power and energy generated by Federal reservoir projects across the United States.

SEPA recovers 100 percent of costs through the rates charged to customers. In Water Resources Development Act of 2000 Section 212, Congress responded to dwindling appropriations for United States Army Corps of Engineers (USACE) hydropower infrastructure funding and authorized "customer funding" for major USACE hydropower investment. Annual appropriations for these investments are no longer needed. Today, USACE primarily only requests routine operations & maintenance appropriations from Congress for regional hydropower costs, as nearly all capital hydropower infrastructure projects are customer-funded.

In 2001, Congress responded to dwindling appropriations for SEPA by allowing the purchase power and wheeling (PPW) portion of the budget to be funded using offsetting collection from power sale revenue up to an annually authorized ceiling amount. This amount changes year to year. In FY 2020, the Congressionally approved ceiling amount was \$56 million. This was the third consecutive year the enacted PPW level fell short of the request level due to Congressional Budget Office scoring issues.

In 2010, Congress authorized net zero appropriations to allow annual authorized program direction (PD) expenses to be offset through revenue.

Functions

SEPA's primary functions are:

- Market 3,392 megawatts of hydroelectric capacity from 22 Federal multipurpose projects, operated by the USACE at cost-based rates.
- Serve 474 public power customers across an 11-State service area.
- Arrange wheeling (transmission) contracts for the delivery of Federal power.
- Dispatch power from three plants on the Savannah River as an approved energy Balancing Authority in accordance with current North American Electric Reliability Corporation (NERC) standards and criteria.
- Conduct annual repayment studies to determine if power rates will produce sufficient revenue to reimburse all generation, transmission, and marketing expenses.
- Establish and effect interim five-year term power rates for four regional electric systems which Federal Energy Regulatory Commission (FERC) approves on a final basis.

Recent Organization Accomplishments

SEPA markets nearly 3,400 megawatts of hydroelectric capacity, averaging 7.7 billion kilowatt hours of hydroelectric energy annually. This is "clean power" without carbon emissions, and annually reduces emission of carbon dioxide by 6 million tons, sulfur dioxide by 3,080 tons, and nitrogen oxides by 2,700 tons. Without this SEPA power, 13 million barrels of fuel oil, 3 million tons of coal, or 25 billion cubic feet of natural gas would be depleted annually to account for SEPA customers' electricity demands.

In 2020, SEPA finalized a Renewable Energy Certificate (REC) component of the Kerr-Philpott Power Marketing Policy to allow distribution of PJM regional transmission organization generated credits to be distributed to the preference customers in the PJM footprint. SEPA anticipates exploring the value of adding REC components to the Cumberland marketing policy in 2021.

In 2020, SEPA transitioned 11 power system operators from a General Service (GS) to an Administratively Determined (AD) pay scale based on division C, title III, Public Law 116-94. This will

allow operators to be paid according to industry standards and will help with recruitment and retention.

SEPA is constantly working both internally and with the USACE to manage the program costs recovered in power rates. As put forward in the FY 2021 budget, SEPA is pursuing the purchase or build of a headquarters building using alternative funding authority in Elberton, Georgia, which will save considerable costs over leasing.

SEPA successfully repays the Federal investment in the hydropower facilities, as well as a significant portion of joint costs shared with flood control, navigation, recreation, and other project purposes.

SEPA consistently meets system reliability targets for the NERC Control Performance Standards (CPS) to meet or exceed industry averages. CPS1 measures a generating system's performance to match supply to changing demand requirements and support desired system frequency. CPS2 measures a generating system's performance to limit the magnitude of generation and demand imbalances.

SEPA has established Memoranda of Agreements with preference customers and the four regional USACE Districts to provide funding to rehabilitate hydroelectric generating equipment. This enhances reliability and lessens future budget impacts. Customers have committed to provide over \$1.7 billion over the next 20 years.

Leadership Challenges

The Nation's electricity landscape continues to change. Many utilities have excess power due to slow economic growth, behind the meter generation, and energy conservation efforts, and impacts from the COVID-19 pandemic. Natural gas prices and price incentivized renewable options offer low cost alternatives to the Federal power products. In addition to changes in fuel and use profiles, the structured electricity markets are evolving and impacting conditions for generating, purchasing, selling, and transferring energy within those markets. Structured markets also direct transmission investment cost recovery and reliability guidelines. While many structured market efforts intend to lower prices, the reality is higher prices for some customers of Federal power which is not always recognized as a renewable energy source.

SEPA works closely with their customers and generation partner, USACE, to find ways to improve the value and cost of Federal Hydropower. This is done through regional partnerships as well as National level efforts such as the Federal Hydropower Council and support for the DOE-led Federal Hydropower R&D Memorandum of Agreement. Leadership engagement and support of the initiatives underway will be important to their success.

In 2020, USACE withdrew a Proposed Rulemaking on Municipal and Industrial Water Supply from 2016, but is continuing to make water supply policy changes through administrative processes where possible. These changes will affect water storage at Federal dams which could negatively impact Federal hydropower production through diminished storage availability, generation capability, and increased power rates.

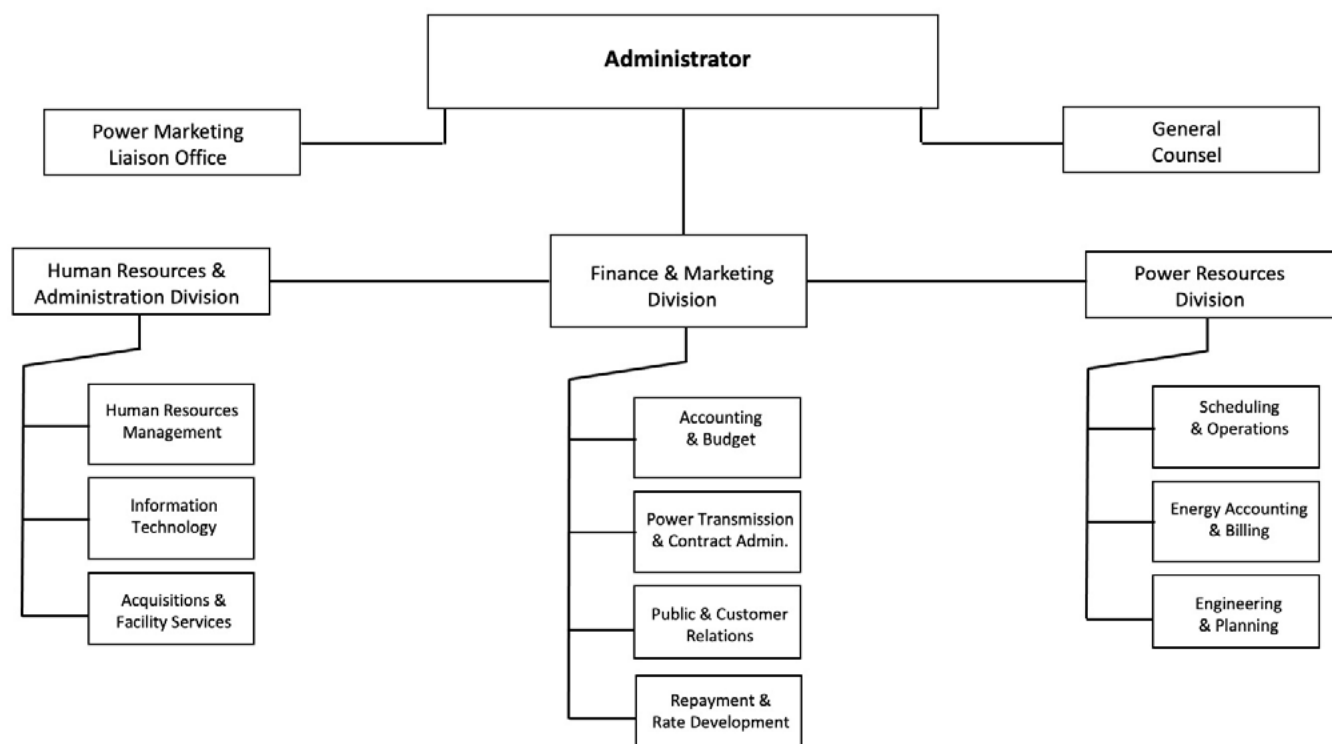
Since FY 2018, Congress has not approved SEPA's requested level for PPW use-of-receipt authority due to CBO scoring issues. This authority is necessary to ensure SEPA has access to funding to meet contractual obligations. If Congressionally enacted levels of PPW fall short of need, SEPA will activate the continuing fund to ensure access to funds to meet contractual obligation for power purchase and transmission wheeling agreements. Solutions to address the PPW scoring issue continues to be discussed with the effected PMAs, DOE, OMB, and appropriators.

Critical Events and Action Items

None at this time.

Organizational Chart

Southeastern Power Administration



Southwestern Power Administration

Supporting the DOE Mission

Southwestern Power Administration (Southwestern, SWPA) supports the Department of Energy (Department, DOE) Mission and strategic plan goals by marketing and reliably delivering clean, renewable, reliable, cost-based Federal hydroelectric power and related services to regional non-for-profit wholesale utilities. SWPA contributes to the stability of the national electric grid in the specific areas of power and transmission service and energy infrastructure. SWPA maintains and upgrades its energy infrastructure to ensure reliable and efficient delivery of Federal power, which is an integral part of the Nation's electric grid. SWPA modernizes its energy infrastructure by incrementally improving facilities, increasing transmission capacity where feasible, accommodating interconnection requests, and enhancing transmission grid security and reliability to support the rapidly changing utility industry, evolving regional needs, and interest in renewable resources. Finally, SWPA partners with its customers and other stakeholders to develop new and innovative solutions to address industry issues.

Mission Statement

To optimally use Federal resources to safely and sustainably provide clean hydropower, transmission, and related services to benefit our customers, regional communities, and the Nation.

Budget

Fiscal Year	Budget (Total Program)	Net Appropriations
FY 2019 enacted	\$126,876,000	\$10,400,000
FY 2020 enacted	\$131,863,000	\$10,400,000
FY 2021 request	\$157,194,000	\$10,400,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 194

History

SWPA was established in 1943 by the Secretary of the Interior as a Federal agency that today operates within DOE. As authorized by Section 5 of the Flood Control Act of 1944, SWPA markets and delivers Federal power, generated at U.S. Army Corps of Engineers (USACE) hydropower projects, primarily to public bodies and rural electric cooperatives. SWPA recovers 100 percent of its costs through the rates charged to its customers.

SWPA was transferred to DOE in 1977 when the Department was created.

Section 212 of WRDA 2000 authorized USACE to accept hydropower infrastructure funding from the power customers which has allowed for the significant major replacements and rehabilitations taking place today. Referred to as "customer funding," this funding source is critical to ensure that capital investments in the USACE hydropower program continue despite limited availability of appropriated funding for capital projects.

In 2001 Congress began to fund the SWPA purchase power and wheeling (PPW) portion of the budget using offsetting collections from power sale receipts, up to an annually authorized ceiling amount.

In 2010, Congress authorized Net Zero appropriations to allow annual expenses to be offset through revenue. SWPA still must request annual appropriation for some capital transmission system expenses not covered by other funding authorities.

Today, SWPA serves over 100 not-for-profit wholesale utilities who in turn impact over 10 million end users in homes and businesses across SWPA's marketing area of Arkansas, Kansas, Louisiana, Missouri, Oklahoma, and Texas.

SWPA also serves several military installations that are critical to the United States defense posture.

Functions

SWPA's primary functions:

Market and deliver power from 24 Federal hydropower projects within its region. SWPA coordinates with USACE, which operates and maintains the dams and hydroelectric facilities, and the preference power customers to schedule power delivery.

Operate and maintain 1,380 miles of transmission line located in Arkansas, Missouri, and Oklahoma in accordance with North American Electric Reliability Corporation (NERC) and Southwest Power Pool (SPP) Regional Transmission Organization (RTO) standards and criteria.

Recent Organization Accomplishments

Clean Energy

On average, SWPA provides nearly 5.6 billion kilowatt hours (kWh) of clean renewable hydroelectric energy annually. This energy production reduces emissions of carbon dioxide by 4.6 million tons per year. The clean renewable hydropower marketed by SWPA replaces 9.7 million barrels of fuel oil, 3 million tons of coal, or 42.8 billion cubic feet of natural gas that would otherwise be depleted annually to meet SWPA customers' electricity demand.

Emergency Response and National Security

This clean resource can respond quickly to provide essential services that stabilize the Nation's grid, including system restoration and voltage control. During Hurricane Laura in 2020, SWPA coordinated with Midcontinent Independent System Operator (MISO), customers, and USACE to bring on hydropower generation, providing a much needed generation injection into the impacted area of congestion and capacity shortages due to transmission damage and constraints in the East Texas transmission corridor of MISO.

Infrastructure Investment

Since 1999, SWPA's customers have approved approximately \$909 million to replace or refurbish failing and obsolete equipment at USACE-owned facilities to ensure generation reliability. Replacement and rehabilitation of major equipment has been completed at four projects under

the program, with work at two projects in the construction phase. Replacement and rehabilitation work at 16 projects is in the design and planning stages, with four of those scheduled to enter the construction phase in FY 2021. The initiative has an estimated customer commitment of over \$1.5 billion for major replacement and rehabilitation work at the hydroelectric plants in SWPA's marketing area over the next 30 years.

Customer and Federal Partnership Coordination

SWPA works closely with preference customers, USACE, and other Federal agencies to explore ways to improve the value, reliability, availability, and efficiency of the region's Federal hydropower. In 2019, SWPA adjusted the scheduling times for preference customers improving the value of the resource in energy markets. SWPA is an active participant in the Federal Hydropower Council (FHC) which brings senior leadership from Power Marketing Administrations (PMAs), USACE, and Bureau of Reclamation together to explore issues on a national level, such as improving the value and cost of hydropower through refinements in the acquisition processes and project management for large hydropower infrastructure investment, such as generator rewinds and turbine replacements.

Cost Management

Every SWPA dollar spent is recovered in the customers' power rates- SWPA works diligently to manage costs. In FY 2019, SWPA worked in coordination with the DOE Realty Officer to purchase a headquarters facility in Tulsa, Oklahoma. This effort will save considerable costs over annual leasing and put downward pressure on power rates. Efforts like this and others have allowed SWPA to maintain steady power rates over the last seven years for the vast majority of customers.

Financial Performance

SWPA's financial performance is measured by SWPA's accomplishment in consistently repaying the Federal investment in the hydropower facilities, as well as a significant portion of the multi-purpose water resource projects' joint costs shared with flood control, navigation, recreation, and other project purposes. The Independent Auditor, KPMG, concluded that the FY 2019 Southwestern Federal Power System (SWFPS) financial statements—

comprised of the combined accounts of SWPA and the related hydroelectric generating facilities and power operations of USACE, a component of the U.S. Department of Defense (DOD)—present fairly, in all material respects, the respective financial position of the SWFPS as of September 30, 2019, and the results of its operations and cash flows for the years then ended, in accordance with U.S. generally accepted accounting principles.

Leadership Challenges

High level challenges currently being faced by the organization:

COVID Pandemic

In response to the pandemic, SWPA had a highly successful transition to maximum telework status. Concerns that State and local electricity no-shut off policies would affect the ability of SWPA customers to pay invoices or the need to sequester and provide sustenance for SWPA dispatcher staff at the 24-7-365 electric operations center locations have not been realized to date. However, the possibility for these scenarios still exists and policy solutions are needed to ensure future pandemic or emergency response requirements are considered non-reimbursable for the PMAs as they are for other Federal entities.

Funding Security

The current funding mechanisms for the SWPA and USACE hydropower program and related infrastructure come from Congressional use of receipt authority. Total program cost for hydropower can be difficult to predict, particularly in drought conditions, and having access to funds when needed is an important management need. SWPA has limited ability to retain funds across fiscal year for long term planning purposes and relies heavily on annually-approved appropriation authority. Since FY 2018, Congressional Budget Office (CBO) scoring changes to PMA PPW use of receipt authority has impacted the approved fund level for these costs when power must be purchased to meet contractual obligations when hydropower generation is unavailable. SWPA has sought several solutions to secure financial stability, most recently a revolving fund that would allow the program to rely solely on power revenue receipts without annual appropriations requirements. Moving to this model would reduce risk, improve

long-term planning, and put downward pressure on power rates for millions of regional ratepayers. However, technical scoring issues have hindered support.

Grid Resiliency

SWPA continues investing resources and technology to defend against ever evolving threats to the electrical power grid. Through coordination with DOE's Office of Electricity and electric utility partners, Southwestern is working with the Department of Defense, DOE labs, DOE's Chief Information Officer, and DOE's Office of Cyber Security, Energy Resiliency, and Emergency Response to improve the Nation's grid security and resiliency.

Increasing Demand for the Water Resource

The USACE water resource projects from which SWPA markets the hydroelectric power are all multi-purpose. As the demand for water for other uses, in addition to the need for hydropower, increases, hydropower can be impacted by loss of water storage and availability, as well as required operational changes that will affect the amount of energy generation and the operating capacity of the generating units. Current USACE water policy negatively impacts Federal hydropower generation and viability in the Southwest and is one of the initiatives being discussed and explored in the FHC mentioned above. Under this policy, water storage (or hydropower's "battery") and water usage (hydropower's "fuel") is being removed without fair evaluation, deliberation, or compensation. Further, without associated financial credits or a reduction in the repayment obligation for the lost resource, such changes will increase SWPA's power rates to its customers, and the Federal hydropower customers will inappropriately subsidize other project purposes. SWPA is also concerned with the USACE interpretation of its discretionary authority to reallocate water storage to the water supply purpose under the Water Supply Act of 1958 (WSA). Previously, through its practice, the USACE had interpreted the WSA language of "serious affects" and "major change" by limiting water storage reallocations to the greater of 15% of storage or 50,000 acre-feet. Through more recent USACE legal opinion, the USACE has abandoned this set limit and is taking a project-by-project approach; the exact methodology will be unique to each reallocation request. USACE has already exceeded the previous

set limit in several recent storage reallocations and continues to do so in active studies in SWPA's region, and SWPA has raised concerns about the lack of an appropriate methodology for determining the impact to the hydropower purpose. The loss of a set limit introduces a higher level of uncertainty of the water resource for the hydropower purpose.

Competitiveness of SWPA's Power Rates

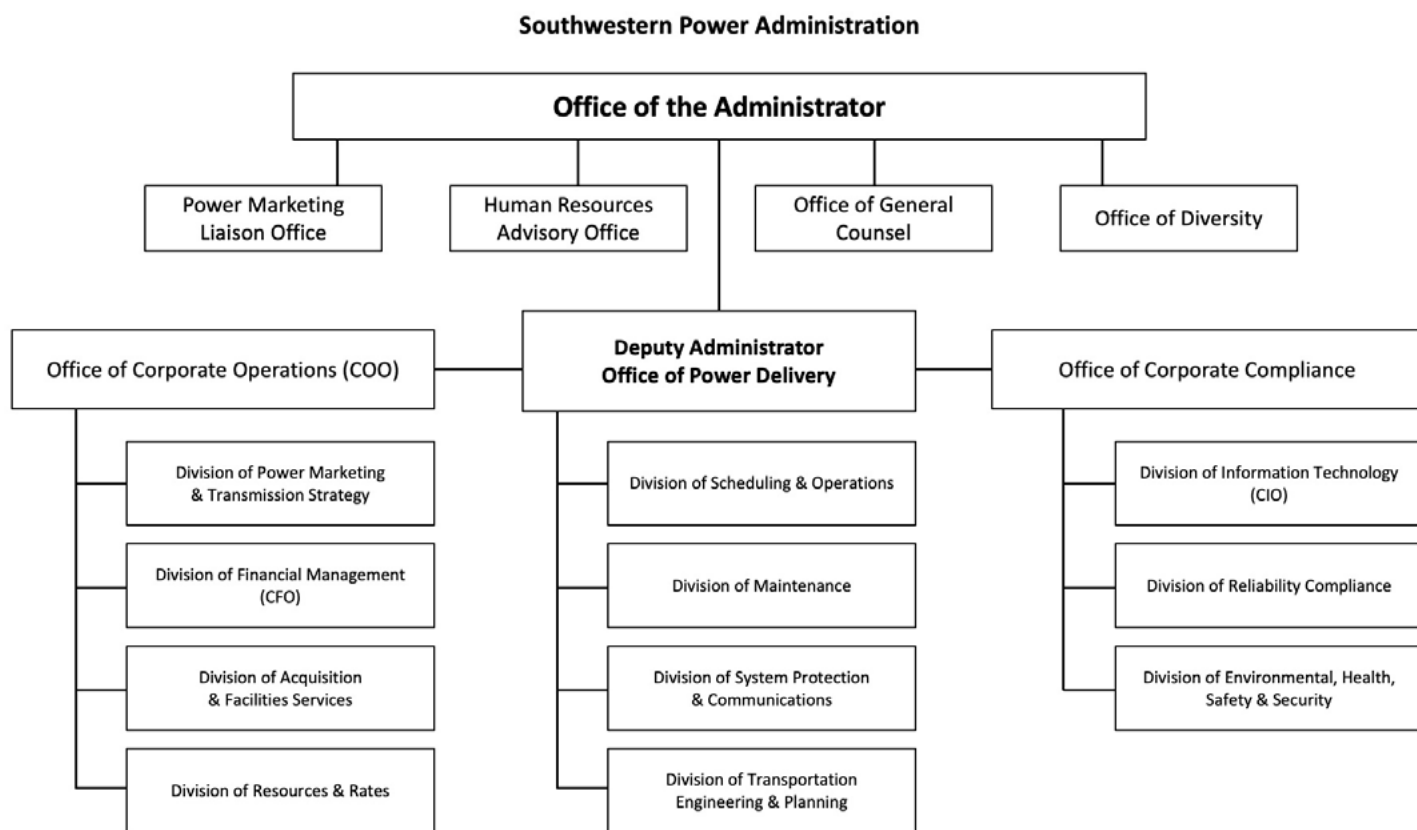
The Federal hydropower product is becoming more expensive, less competitive in the marketplace, and less desirable to customers in the evolving electricity marketplace. In some instances, the PMA rates are over market and customers are considering power supply alternatives to Federal hydropower. SWPA's integrated system composite firm energy rate is currently over estimated market

rates; factoring in supplemental (non-firm) energy, SWPA's integrated system composite energy rate is, on average, slightly below estimated market rates. This could threaten cost recovery of existing Federal investment and jeopardize future funding for the PMAs and the USACE, which is provided, in varying degrees, through existing customers. Ensuring that SWPA's rates do not experience instability or upward pressure while increasing certainty and maximizing flexibility and benefits to SWPA's customers is essential to the sustainability of the Federal power program in SWPA's marketing area.

Critical Events and Action Items

None.

Organizational Chart



Western Area Power Administration

Supporting the DOE Mission

Western Area Power Administration (WAPA), contributes to a more economically competitive, environmentally responsive, secure and resilient U.S. energy infrastructure. A critical leader in the energy industry, WAPA is an integral asset to the Department's mission and future vision of a vibrant, reliable, and responsible energy economy with its vast interconnected power system, expert staff, and strong relationships with utility customers and Federal and industry partners.

WAPA operates and maintains one of 10 largest high-voltage electric transmission systems in the U.S. Mission activities include marketing power, controlling several balancing areas, and maintaining its 17,000-plus miles of high-voltage transmission lines across 1.5 million square miles in 15 central and western states. WAPA markets hydropower generated at 57 Federal hydroelectric dams to more than 700 customers each year, most of which are not-for-profit public utilities in rural America.

By managing its assets in a sustainable manner, and by maintaining and modernizing its facilities, WAPA ensures flexible and reliable operations to accommodate industry change and requested interconnections. WAPA engages increasing interest in renewable resources while partnering with industry to expand infrastructure to deliver renewable energy sources. WAPA performs its mission in a manner that promotes the development of higher capacity U.S. energy infrastructure to ensure flexible, reliable operations and efficient energy markets.

Mission Statement

Market and deliver clean, renewable, reliable, cost-based Federal hydroelectric power and related services.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$89,372,000
FY 2020 enacted	\$89,196,000
FY 2021 requested	\$89,372,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 1,521

History

WAPA was formed from functions previously carried out by the Department of the Interior's Bureau of Reclamation (BOR) and International Boundary Water Commission (IBWC) upon the creation of DOE in 1977. WAPA markets and delivers clean hydroelectric power from 57 hydropower plants owned and operated by the U.S. Army Corps of Engineers (Corps), BOR, and IBWC. The primary authorization for BOR and Corps dams is to provide flood control, irrigation, and navigation, among other functions; however, any power produced in excess of project pumping needs, is sold to repay the government's investment in the projects (for example Hoover Dam). WAPA markets this power to customers in a manner that encourages the most widespread use at the lowest possible rates consistent with sound business principles. (Flood Control Act of 1944)

One of WAPA's greatest accomplishments occurred in 2009 when it was authorized by Congress via the American Recovery and Reinvestment Act to borrow up to \$3.25 billion from the U.S. Department of Treasury to support the development of projects that facilitate and optimize the delivery of reliable, affordable power generated by renewable energy resources. WAPA established the Transmission Infrastructure Program (TIP) to carry out and manage this authority and has already seen three projects successfully completed. WAPA's headquarters office is located in Lakewood, Colorado, which is within its service territory, and its Administrator and CEO reports to the Assistant Secretary, Office of Electricity.

Functions

In compliance with Reclamation Act of 1902 and the Reclamation Project Act of 1939, WAPA's

mandated functions performed include: power marketing; providing transmission and ancillary services; building transmission lines; operating and maintaining transmission infrastructure; and providing energy system balance and delivery services.

Recent Organization Accomplishments

Strategic Roadmap 2024

The creation of the Strategic Roadmap 2024 applies WAPA's historic mission to the dynamics of an evolving energy industry environment that includes a myriad of new regulations; a growing presence of interruptible and intermittent generation resources; and constraints on WAPA hydro resources. The Roadmap ties together WAPA's strategy, initiatives, capital budgets, and annual targets to enable the agency to continue to meet customer needs and provide the best value as an organization. It consists of four overarching goals ("Critical Pathways") all aimed toward promoting WAPA's mission. These Critical Pathways are: Business; Technology and Organizational Excellence; Mutually Beneficial Partnerships; Evolution of Services; and Powering and Energy Frontier.

Asset Management

WAPA's asset management program has allowed WAPA to identify how equipment operates, the current state of its assets, individual asset longevity into the future, and how best to invest for asset maintenance and replacement. The Asset Management program is a systematic process for managing WAPA's most important transmission system assets to optimize functionality, operational performance, and return on investment while identifying and managing associated risk. This program currently tracks the overall health of 12 types of transmission equipment starting with the most critical equipment and progressively adding other components each year.

Safety Record

WAPA has a long and proactive safety record. Incident, injury, and lost-time rates are below the industry average of 1.2 recordable incident rate (RIR) and 0.5 days away, restrictions, and transfers (DART) rate. WAPA continues to enhance and build upon its safety record.

Returns to Treasury

WAPA is tasked with full cost recovery of Federal investment in power generation and transmission. Once the rate is recovered from customers, WAPA returns some funds to Treasury to pay down the investment. The amount returned to Treasury varies from year to year as WAPA uses the balloon methodology to recover from customers and has access to receipts to finance ongoing operations. Over the past 12 years, WAPA has returned \$3.6 billion.

Keeping pace with industry

WAPA continues to monitor and respond appropriately to the changing energy environment in the West, particularly when it comes to markets. In 2019, WAPA successfully transitioned its balancing authorities and transmission operators to new reliability coordinators, fulfilling a critical regulatory requirement, after its existing reliability coordinator ceased operations. In addition, in 2019 and 2020 WAPA comprehensively evaluated and selected third-party vendors to provide cost-effective, efficient, and secure energy imbalance management services that will take advantage of greater resource diversity within a larger service territory than WAPA can access on its own.

Continuous process improvement

WAPA's Continuous Process Improvement Program is based on the Lean Six Sigma process improvement methodology. This methodology focuses on improving customer service, efficiency, and effectiveness to support the lowest possible rates consistent with sound business practices. Since the program's inception in March 2014, the program has resulted in more than \$110 million in mostly cost avoidance.

Expanding broadband access to rural America

WAPA had completed a project plan for the pilot project to support three customers' needs for access to broadband using WAPA's existing infrastructure. If successful, this project could provide support to WAPA customers who are otherwise unable to access broadband in rural America.

Transmission and Infrastructure Program

WAPA's Transmission Infrastructure Program (TIP) leverages WAPA's depth of transmission project

development experience and expertise, along with its statutory borrowing authority, to advance projects aimed at expanding and modernizing the electric grid.

TIP accomplishments: The Montana Alberta Tie Line (MATL) was the first TIP project, which was developed to deliver wind generation into the Alberta market. The project's \$161 million loan financing, primarily through construction, was repaid in August 2012. Electric District No. 5 to Palo Verde Hub (ED5-PVH), was the second TIP project and was energized in January 2015 to renewable energy development in the Southwest. The TransWest Express development phase supported preliminary activities before construction of a potential 725-mile transmission line between Wyoming and the Southwest capable of carrying 3000 megawatts of energy. Development activities included environmental reviews, feasibility studies, and permitting requirements. TIP contributed \$25 million to support the development phase and retains the ability to participate in the construction phase, if desired, in the future. To date, WAPA had advanced funding arrangements (AFA) with project developers to cover all costs associated with TIP-led technical and other development assistance for the following projects: AES Energy Storage, Ten West, TransWest Express, Southline, SunZia, and Westlands.

Additionally, WAPA has Memorandum of Understandings (MOU) in place for the following projects: San Luis Transmission Project and Meade to Adelanto Transmission Upgrade.

Physical Security

WAPA has developed a data-driven, risk based approach to protecting its assets, as well as standardized security methodologies and processes throughout its four regions. In addition, WAPA continues to collaborate with stakeholders to implement the most cost effective and efficient security solutions for the enterprise. WAPA conducts risk assessments on its critical facilities every 30 months and its noncritical facilities every five years.

Cybersecurity

WAPA operates a large business information network that covers most of the Western U.S. and serves its widespread constellation of four control centers, seven administrative facilities, 300

substations, and 660 maintenance, communications and other facilities. This network provides administrative services such as email and internet connectivity as well as asset management and financial management systems.

In addition, WAPA operates supervisory control and data acquisition (SCADA) systems in our control centers at Watertown, SD; Phoenix, AZ; Loveland, CO; and Folsom, CA. These systems provide critical grid monitoring and control functions, are connected via private networks to the substations in their respective regions, and as appropriate to neighboring utilities and business partners.

WAPA's Cybersecurity Program has been extremely validated through multiple audits and peer reviews by DOE, the North American Electric Reliability Corporation (NERC), and industry peer groups. WAPA continues to work with the intelligence community, the National Laboratories, and DOE's Office of Cybersecurity, Energy Security, and Emergency Response (CESER) to provide opportunities to improve critical infrastructure skills and awareness.

Ten-Year Capital Plan

The WAPA-wide ten-year capital investment plan is developed via analysis conducted in the Asset Management, maintenance, and regional financial programs. WAPA headquarters financial programs are revised annually. The FY 2020 capital investment is estimated to be approximately \$250 million.

Wildfire Mitigation

Over the past few years, WAPA has evaluated its operational risk and vulnerability to wildfires across the enterprise following multiple severe wildfire seasons across its territory. WAPA reviewed its vegetation management programs for adequacy and accuracy given what the industry now knows about wildfire prevention. WAPA is also collaborating with State and Federal partners to ensure it is doing what it can to prevent fires caused by powerlines, mitigate the impact of fires on WAPA equipment, and provide support to firefighting efforts. WAPA has taken a leadership role in wildfire mitigation strategies, including low-tech and high-tech solutions, routine inspections, voluntarily complying with state laws and regulations in this area, and seeking the advice of wildfire experts on leading practices to reduce wildfire risk.

Leadership Challenges

WAPA's leadership challenges include:

Systems Operations. The changing nature of the grid, the influx of different types of generation, and increased intermittency require all utility operators to change the way systems are managed and operated. WAPA continues to evolve its operations to match the changing needs created by new generation resources.

Varying Hydro Conditions. WAPA markets and delivers power generated from 57 hydropower plants, and continually monitors and manages changes in hydrology. Each of the major river systems (Colorado, Missouri, etc.) is different and water conditions vary widely. In high water years, WAPA markets excess generation, and in low water years, WAPA must purchase power on the market to meet its contractual commitments to customers. In addition, with the rapid retirement of coal, nuclear, and some natural gas plants, hydropower has become one of the last remaining baseload generation sources available across the West, which is essential for continued grid reliability.

Regulatory Environment. WAPA is impacted by several regulatory activities. These include ever-tightening utility reliability standards; Environmental Protection Agency regulations; land use restrictions; tribal and cultural regulations and protocol; fish and wildlife regulations; and a host of related requirements. WAPA maintains a significant environmental team to manage its territory and expends considerable funds and resources to ensure continued compliance with regulations.

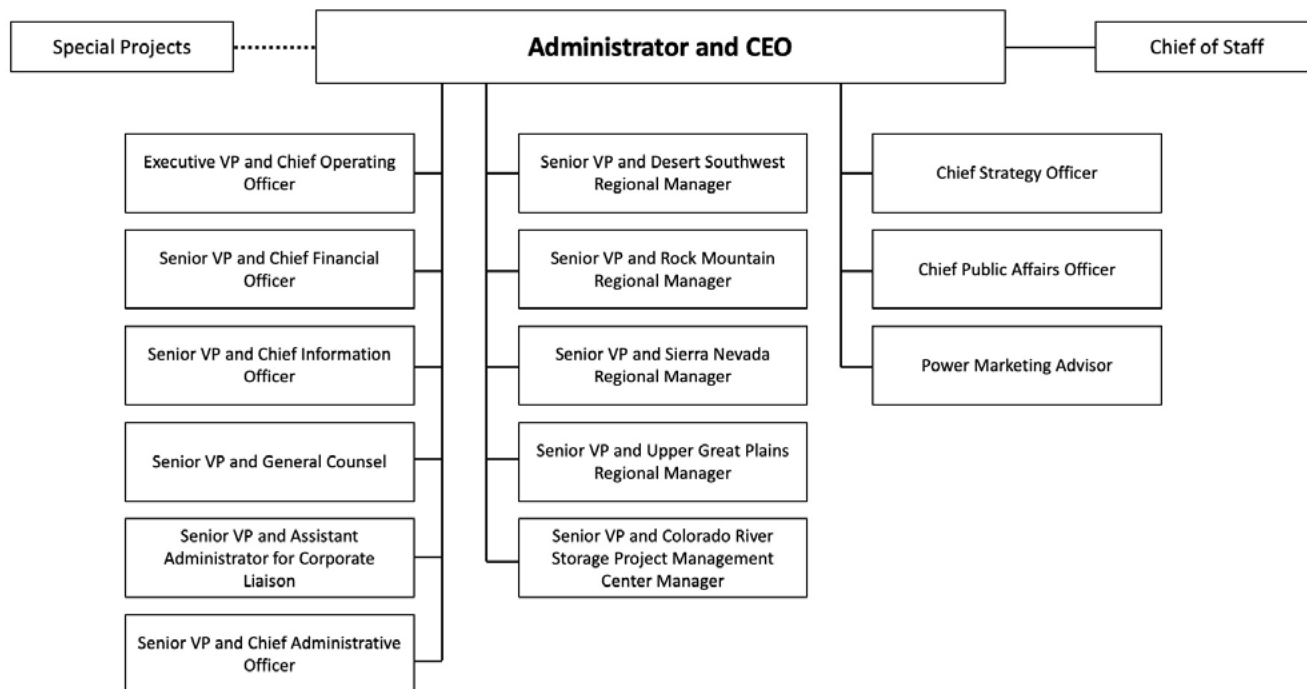
Critical Events and Action Items

January/March 2021. WAPA's Desert Southwest Region plans to announce its decision on energy imbalance management in late 2020 or early 2021. WAPA's Colorado River Storage Project, Rocky Mountain and Upper Great Plains-West will transition into the Southwest Power Pool Western Energy Imbalance Service in February 2021, and its Sierra Nevada Region will transition into California Independent System Operator Western Energy Imbalance Market in March 2021. In addition, WAPA's plans to implement its Responsible Workplace Reentry plan to safely return some employees to the office in response to the COVID-19 pandemic in late January or early March 2021. WAPA

also plans to provide interconnections in support of the Keystone XL project. The design, procurement, and/or construction award may occur during early 2021. WAPA will implement new reliability compliance standards, including: BAL-003.2, CIP-008-6, PRC-006-3, PRC-012-2, PRC-027-1, PER-006-1, and TPL-007-4.

Organizational Chart

Western Area Power Administration



Loan Programs Office

Supporting the DOE Mission

The Loan Programs Office (LPO) provides access to debt capital for large-scale, all-of-the-above energy infrastructure projects in the United States. LPO executes this mission by:

- Guaranteeing loans to eligible innovative energy projects through the Title 17 Loan Guarantee Program (Title 17).
- Providing direct loans to eligible manufacturers of advanced technology vehicles and qualifying components through the Advanced Technology Vehicles Manufacturing (ATVM) Loan Program.
- Providing partial loan guarantees to support economic opportunities to tribes through energy development projects and activities through the Tribal Energy Loan Guarantee Program (TELGP).

Mission Statement

To catalyze energy infrastructure investments to achieve America's energy objectives and advance economic growth.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$39,000,000
FY 2020 enacted	\$39,000,000
FY 2021 request	\$3,000,000

Notes:

1) The Title 17 funding levels are offset by loan guarantee collections of \$20.7M in FY 2019 and \$3.0M in FY 2020 and FY 2021.

2) The Fiscal Year (FY) 2021 budget request maintains current Administration policy to eliminate the Title 17, ATVM, and TELGP. The FY 2021 request also cancels all remaining appropriated credit subsidy in the Title 17 (-\$160.7M) and TELGP (-\$8.5M) programs for the scored offset of -\$169.2M.

Loan Authority

LPO has more than \$40 billion in remaining loan guarantee and loan authority for the Title 17, ATVM, and TELGP programs to finance innovative clean energy projects, advanced technology vehicles, and

component manufacturing and energy projects and activities that support economic development and tribal sovereignty.

Remaining Loan Authority	
Fiscal Year	Budget
Title 17: <ul style="list-style-type: none">• Advanced Fossil Energy• Advanced Nuclear Energy• Renewable Energy & Efficient Energy	\$8.5 billion available ¹ \$10.9 billion available Up to \$4.5 billion available ²
ATVM	\$17.7 billion available
TELGP	Up to \$2.0 billion available

Notes: The FY 2021 Budget Request proposes to cancel the remaining loan volume.

1) The Advanced Fossil Energy loan authority of \$8.5 billion includes the \$2 billion conditional commitment for the Lake Charles Methanol project.

2) Under this Solicitation DOE will make available up to \$3.0B in loan guarantee authority, plus an additional amount that can be imputed based on the availability of an appropriation for the credit subsidy cost of such imputed loan guarantee authority.

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 96

History

In 2007, the Loan Guarantee Program Office (LGPO) and the ATVM Loan Program Office were stood up and began operations under the Department's Office of the Chief Financial Officer. In November 2009, the first Executive Director of the LPO was appointed and in June 2010, LPO was officially established as a new, independent organization, absorbing the LGPO and ATVM organizations. In February 2018, the TELGP was transferred to the LPO from the DOE Office of Indian Energy Policy and Programs.

The LPO Executive Director reports directly to the Under Secretary of Energy and has the responsibility for managing the Title 17, ATVM, and TELGP loan programs.

Title 17 Loan Guarantee Program

Section 1703 of Title XVII of the EAct of 2005 authorizes DOE to provide loan guarantees for

innovative energy projects in categories including advanced nuclear facilities, coal gasification, carbon sequestration, energy efficiency, renewable energy systems, and various other types of projects. Projects supported by DOE loan guarantees must avoid, reduce, or sequester pollutants or anthropogenic emissions of greenhouse gases; employ new or significantly improved technologies compared to commercial technologies in service in the United States at the time the guarantee is issued; and offer a reasonable prospect of repayment of the principal and interest on the guaranteed obligation. In FY 2011, pursuant to the Department of Defense and Full-Year Continuing Appropriations Act, 2011 (Public Law No. 112-10), funds were appropriated that allowed DOE to pay the credit subsidy cost for certain renewable energy or efficient end-use energy technologies. There is currently \$160.7 million remaining in appropriated credit subsidy.

Section 406 of the American Recovery and Reinvestment Act of 2009 amended Title XVII of the EAct of 2005 by establishing Section 1705 as a temporary program for the rapid deployment of renewable energy and electric power transmission projects, as well as leading edge biofuels projects. The addition of the Section 1705 program included an appropriation of funds that allowed DOE to pay the credit subsidy cost of certain loan guarantees. The authority to enter into new loan guarantees under Section 1705 expired on September 30, 2011, but the program continues to administer and monitor the portfolio of loan guarantees obligated prior to the expiration date.

ATVM

Section 136 of the Energy Independence and Security Act of 2007 (EISA) established the ATVM Loan Program, consisting of direct loans of up to \$25 billion in total loan authority to support the development and manufacturing of advanced technology vehicles and qualifying components in the United States. Currently there is \$17.7 billion in remaining loan authority and \$4.3 billion in appropriated credit subsidy. Per EISA subsection (d) (1), ATVM loans must be made through the Federal Financing Bank and the full credit subsidy cost must be paid using appropriated funds.

TELGP

The TELGP was authorized pursuant to Title XXVI of the EAct of 1992, as amended, to make available up to \$2 billion in partial loan guarantees. Funding was first appropriated for the TELGP in FY 2017, and in FY 2018, DOE issued the first tribal energy loan guarantee solicitation to support tribal energy development. Pursuant to the Consolidated Appropriations Act, 2017 (H.R. 244, Public Law 115-31) Congress appropriated \$8.5 million to cover the credit subsidy costs associated with the \$2 billion in available loan authority.

Functions

The LPO currently utilizes the following six divisions to originate new loans and proactively monitor the portfolio: Origination Division; Portfolio Management Division; Risk Management Division; Technical and Project Management Division; Legal Division and Management Operations Division. In administering the Title 17, ATVM, and TELGP loan programs, the LPO:

- Demonstrates the viability and finance-ability of new or significantly improved energy technologies.
- Funds innovative technologies that reduce greenhouse gas emissions and air pollutants.
- Creates jobs by financing the growth of commercial clean energy technologies.
- Provides direct loans to eligible automobile manufacturers and component suppliers for projects that re-equip, expand, and establish manufacturing facilities in the United States to produce advanced technology vehicles, ultra-efficient vehicles, and components for such vehicles.
- Provides access to debt capital for tribal ownership of energy projects and activities that support economic development and tribal sovereignty.
- Protects United States taxpayers by ensuring the loans and loan guarantees LPO provides have a reasonable prospect of repayment.

LPO manages a portfolio comprising more than \$35 billion of loans, loan guarantees, and conditional commitments covering more than 30 projects. Overall these loans and loan guarantees have resulted in more than \$50 billion in total project

investment. \$29 billion in loan funds have been disbursed and over \$11 billion of principal has been repaid to date. The portfolio currently has 3,953 megawatts of generation capacity and annual production of 2.3 million automobiles.

Recent Organization Accomplishments

LPO has had a number of accomplishments, including, but not limited to:

Launching new markets

LPO has provided:

- \$12 billion in debt financing to support the only nuclear power plant currently under construction in the United States at the Vogtle Electric Generating site in Georgia.
- \$2 billion, conditionally committed but not finalized yet, to support a pet-coke-to-methanol project which also captures and sequesters carbon dioxide.
- \$1.7 billion towards on-shore wind power generation.
- \$343 million towards a transmission line.
- \$7.8 billion to support automotive fleet modernization and electric vehicle manufacturing including the first debt financing to Tesla.
- \$5.8 billion to concentrating solar power, including the first projects in the United States with thermal storage.
- \$546 million to advanced geothermal energy.
- \$4.7 billion towards photovoltaic (PV) solar power generation including the first five utility-scale solar PV power plants larger than 100 megawatts in the United States.

Prudently managed portfolio

LPO manages a portfolio of \$35 billion in loans, loan guarantees, and conditional commitments, with losses of only 2.7% of total disbursements of \$29 billion.

Supporting Jobs in the United States

The Title 17 and ATVM programs have supported more than 55,000 jobs in the United States.

Reduced Pollution or Harmful Greenhouse Gas Emissions

Overall LPO projects have prevented more than 50 million metric tons of CO2 emissions.

Improved Loan Origination Process

In 2019, LPO employed an enhanced pre-application consultation process to better prepare prospective applicants to submit successful applications and shorten the time between formal application and loan closing. Overall, LPO reported 294 consultation conversations in 2019, and in 2020 there have been over 300 consultations to date.

Leadership Challenges

LPO challenges include but are not limited to:

Maintaining a strong and healthy portfolio

LPO's Portfolio Management Team vigorously manages the existing portfolio of loans and loan guarantees.

Expanding the existing LPO pipeline of project applications

LPO currently has a robust pipeline of project applications for both Title 17 and ATVM. However, the program needs to maintain a continuous outreach and business development effort to sustain the current pipeline and attract more applications for high-quality projects. Additionally, LPO needs to continue to raise awareness among tribal borrowers and distinguish the value of TELGP from other government programs that support tribes. LPO is addressing these challenges through sustained industry outreach and through the enhanced pre-application process.

Issuing conditional commitments to high-quality projects

LPO must continue with due diligence on high-quality deals in the pipeline to advance worthy projects to conditional commitment.

FY 2021 Budget Request

The FY 2021 budget request proposes to eliminate the Title 17, ATVM, and TELGP, because the private sector is better positioned to finance the deployment of commercially viable energy and

advanced vehicle manufacturing projects. The LPO continues to review applications submitted under currently open solicitations. LPO will continue to work with applicants and conduct due diligence consistent with current law.

Critical Events and Action Items

None.

Organizational Chart



*The Chief Counsel is the principal legal advisor to the Executive Director and reports to the General Counsel of DOE.

Office of Environment, Health, Safety and Security

Supporting the DOE Mission

The Department of Energy (DOE) has a wide portfolio of missions and operations with many unique and significant hazards (e.g., nuclear, chemical, biological, industrial) and security risks (e.g., classified information and nuclear weapon material). The Office of the Associate Under Secretary for the Office of Environment, Health, Safety and Security (AU) plays a key corporate role in enabling DOE to perform its mission in a safe and secure manner in order to protect DOE's workers, the public, the environment, and national security assets.

AU works closely with stakeholders (including DOE Program and Field Office management; subject matter experts; and labor and community representatives) to develop and improve environment, health, safety, and security policy and guidance; foster continuous improvement before incidents occur; and provide corporate technical assistance, coordination, and integration to support all DOE organizations in the resolution of environment, health, safety, and security issues.

AU's unique position and expertise provides it with an overview of environment, health, safety, and security concerns from across DOE Headquarters, field sites, and contractor organizations. This wide perspective allows AU to provide crosscutting expert advice and implementation assistance for the protection of DOE workers and the public, as well as the Department's material and information assets. AU also represents the Department in national and international environment, health, safety, and security matters to assure the Department's interests are represented.

Mission Statement

AU is DOE's central organization with enterprise-level responsibilities for health, safety, environment, and security; providing corporate-level leadership and strategic vision to establish, sustain, coordinate,

and integrate these vital programs. AU is responsible for policy development and technical assistance; safety analysis; and corporate safety and security programs. The Associate Under Secretary for Environment, Health, Safety and Security advises DOE elements and senior Departmental leadership, including the Under Secretary of Energy on all matters related to environment, health, safety, and security across the complex.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$202,839,000
FY 2020 enacted	\$207,839,000
FY 2021 request	\$209,688,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 262

History

From the inception of DOE (and its predecessor Agencies, e.g., the Atomic Energy Commission), DOE has had an organization reporting directly to the Secretary, Deputy Secretary, or an Under Secretary responsible for developing and supporting implementation of policies and requirements to ensure the protection of workers, the public, and the security of DOE assets. This has been and remains a critical function given that DOE operates facilities with significant hazards and significant national security assets. These hazards include high level radioactive waste and toxic chemicals. National security resources include classified information and material related to DOE's nuclear weapon surety mission.

AU was created in May 2014, as part of a broad DOE reorganization. The Department's environmental, health, safety, and security policy offices, along with the Headquarters Security Operations, were consolidated within the Under Secretary for Management and Performance, reporting to a new Associate Under Secretary for Environment, Health, Safety and Security. AU continues to manage DOE's longstanding environmental, health, safety, and security programs and provides specialized expertise and support to DOE Program Offices to protect DOE workers, the public, the environment, and DOE national security assets.

DOE has an excellent safety record, is a leader in environmental management, and has enhanced its multiple levels of protection to ensure national security. However, significant safety and security challenges remain at DOE, and DOE continues to learn and improve based upon sharing of best practices and lessons learned from events (such as the accident at the Waste Isolation Pilot Plant). AU works closely with the Program Offices to support efforts to improve safety and security performance and to foster improvements throughout the DOE complex.

Functions

AU's major programmatic activities include:

Policy Development

Leads the Department's development of environment, health, safety, and security policies and requirements, and supports the effective and efficient implementation of policies and requirements to ensure DOE complies with statutory, regulatory, or executive order requirements in accomplishing its mission.

Policy Implementation Assistance

Works proactively with DOE Program and Field Offices to provide high-quality, customer-oriented assistance to enable effective implementation of environment, health, safety, and security requirements. Supports the field in resolving environment, health, safety, and security issues. Provides consultations on requests for exemptions from DOE requirements. Supports DOE's National Training Center in developing and conducting environment, health, safety and security training that is tailored to DOE needs and missions.

Environment, Health and Safety Leadership

Provides leadership and support for improvements in environmental, safety, and health performance throughout the DOE Complex through its various corporate roles such as Designated Agency Safety and Health Officer for DOE's Federal Employee Occupational Safety and Health (FEOSH) program; chair of the Nuclear Safety Committee; Champion for Integrated Safety Management (which is the Department's framework for the safe performance of work and promoting a strong safety culture); co-chair of DOE's Safety Culture Improvement Panel; and lead for designing programs by which

DOE is reducing the environmental footprint of its operations.

Security Program

Provides personal protection to the Secretary and Deputy Secretary of Energy (where warranted), and other executive personnel as designated by the Secretary. Manages the DOE Headquarters security program to protect personnel, facilities, property, and classified information. Manages the enterprise-wide effort to help DOE programs deter and detect insider threat actions by federal and contractor employees.

Classified Information Protection

Serves as a central focal point for identification of classified information within the Department. Also serves as the single denial authority for classified information under the Freedom of Information Act which prevents inadvertent releases of classified information. AU supports the National Declassification Center and ensures that information protected under the Atomic Energy Act remains protected at the National Archives.

Other key AU activities include:

Corporate Environment and Safety Programs

Manages corporate programs that assist the DOE complex with ensuring that environmental and safety requirements are being met, including:

- DOE's Analytical Services Program, which ensures that the analytical environmental laboratories that DOE utilizes to support disposal of low-level radioactive waste meet regulatory requirements.
- The DOE Laboratory Accreditation Program, which implements performance standards for DOE contractor radioactive dosimetry and radiobioassay programs.
- The DOE Filter Test Facility, which inspects and tests all the high efficiency particulate air filters used at DOE sites to ensure confinement of radioactive material.

Health Studies

Manages and conducts studies to increase scientific knowledge on the health effects of exposure to ionizing radiation and other industrial hazards:

- *Domestic.* Studies on health effects to workers and to the public living in communities near DOE sites.
- *International.* Studies, mandated by Congress or required by international agreement, which take place in Japan, Marshall Islands, Russian Federation, and Spain.
- *United States Transuranic and Uranium Registries.* Research on the potential health effects of transuranic elements based on evaluation/study of DOE workers who volunteered for this program, i.e., “registrants.”

DOE Chief Medical Officer

Serves as the Department’s Chief Medical Officer; keeping fully abreast of emerging national and international developments in public and occupational medical issues.

Occupational Illness Compensation Program

Supports the implementation of the Energy Employees Occupational Illness Compensation Program Act by providing information regarding employment status; exposures to radiation and toxic substances; and operational history of over 350 DOE facilities to the Department of Labor, the National Institute for Occupational Safety and Health, and the Presidential Advisory Board.

Former Worker Medical Screenings

Provides medical screening examinations to former workers who may have been exposed to harmful conditions as a result of working for DOE. As of September 2015, over 110,000 medical examinations have been conducted by the program.

Operating Experience Program

Manages DOE’s Corporate Operating Experience Program to identify and disseminate performance indicators, lessons learned, and operating experience to prevent adverse events and improve performance.

Employee Concerns Program

Manages DOE’s Employee Concerns Program which encourages the expression of employee concerns and provides DOE federal, contractor, and subcontractor employees with a process to have concerns addressed. Manages DOE’s Differing

Professional Opinion Program which addresses the resolution of technical environment, safety, and health concerns that could not be resolved at the local level.

Voluntary Protection Program

Operates DOE’s Voluntary Protection Program (VPP) utilizing the integrated safety management framework that encourages DOE and NNSA contractors to pursue excellence in worker safety and health beyond compliance with rules, orders, and standards. The program parallels the Occupational Safety and Health Administration VPP.

Nuclear Safety Research

Manages DOE’s corporate Nuclear Safety Research and Development Program and supports a broad range of projects to enhance nuclear safety in the design, construction, and operation of DOE nuclear facilities.

Liaison to Defense Nuclear Facilities Safety Board (DNFSB or Board)

Coordinates interactions with the DNFSB to facilitate effective communications between the Board and DOE Senior leadership to address the Board’s nuclear safety concerns.

Security Technology

Provides technical security expertise to internal and external organizations to identify opportunities to enhance the security protection programs and develops and promotes deployment of new technologies to improve security.

Medical Disqualifications

Provides for and coordinates Independent Reviews of Protective Force Medical Disqualifications pursuant to 10 CFR Part 1046, *Medical, Physical Readiness, Training, and Access Authorization Standards for Protective Force Personnel*.

Recent Organization Accomplishments

Revised and issued DOE Order 140.1A, *Interface with the DNFSB*, and the accompanying Desk Reference document of good practices to reflect changes to the DNFSB Enabling Statute Congress enacted in the FY2020 NDAA.

Finalized and issued 10 CFR Part 830, *Nuclear Safety Management*. The revised 10 CFR Part 830 was part of the Departments' Regulatory Reform Initiative and culminates a several year, cross Program Office effort to reduce unnecessary burden and provide a more efficient and effective nuclear safety framework.

Led by the Office of Nuclear Safety, the Department evaluated Defense Nuclear Facilities Safety Board (DNFSB) Recommendation 2020-1 and provided a comprehensive, technically defensible response.

Led the development and implementation of DOE's Pandemic Response Plan providing the framework for DOE's response to the COVID-19 crisis. Provided the primary staffing and leadership for the COVID-19 Response Team responsible for case management to support contact tracing and data management for Headquarters and field sites. This also included providing senior leadership with ongoing daily updates regarding local and national case information, allowing the Secretary to make critical and timely decisions while managing the phases of the Department's overall response to the pandemic.

As the champion for DOE's Integrated Safety Management and Employee Concerns Programs, both focused on improving DOE's safety culture and safety conscious work environment, AU was instrumental in recognizing and bringing these two initiatives together. Organizing and executing our first virtual annual meeting, bringing together over 100 senior leaders from across DOE, we were able to provide critical insights on how the Department can continue to improve our safety leadership and performance.

In the face of the rapidly emerging pandemic early in the year, AU established the framework and approach that allowed DOE to offer temporary relief from safety and security requirements contained in DOE's directives and regulations where compliance has been adversely impacted because of this national emergency. This has been critical to safeguarding the health and safety of our workforce while allowing the Department to remain open to serve the American people and conduct mission critical functions.

Transitioned protection services to the new Secretary, conducted 68 protective operations

missions (including 16 international), coordinated design and build of CLASSIFIED workspace for the Secretary at his residence, and developed from scratch and implemented COVID-19 cleaning procedures and testing protocols (since adopted by DOC, DOL, and EPA).

Deployed trackable Federal and contractor Insider Threat Awareness online training for cleared personnel, thereby addressing an outstanding Executive Branch annual requirement.

Completed 109 Formal Technical Security Reports, deployed to provide Field support (to include that for the Secretary and Deputy Secretary), and pre-planned COMSEC Key Distribution supply-chain and technical support during COVID-19 period of maximum telework to ensure that Departmental mission critical systems and networks remained operational.

AU-11 made significant increases in the number and quality of the Worker Safety and Health forums, with the focus on finding high quality speakers, training the team, increasing our distribution list, promoting, and collecting feedback for improvement. Currently averaging about 250 safety professionals in attendance and offering certificates for CEUs.

Developed a complete overhaul of our policy clarification portal (formerly a response line). The new Portal is significantly more user friendly, making it easier to search and browse previous policy clarifications, as well as submit a new inquiry.

Issued DOE O 426.1B, *Federal Technical Capabilities*, in March 2020.

Conducted virtual DOE-VPP Participants meeting with over 130 participants. Prior to that, DOE-VPP onsite reviews at the 4 DOE sites were conducted.

Collaborated with the National Council on Radiation Protection and Measurements and the Oak Ridge National Laboratory on the epidemiologic studies of several DOE worker populations, specifically workers at the Rocky Flats Plant (RF), the Tennessee Eastman Corporation (TEC 1943-1947), Middlesex, Fernald, and Hanford, including the transfer of radiochemical assays and other relevant data from the U.S. Transuranium and Uranium Registries (USTUR). One focus was to refine the models for

estimating doses associated with DOE worker intakes.

AU worked collaboratively with Department of Labor; the National Institute for Occupational Safety and Health; and the DOE Former Worker Screening Programs to adapt joint outreach efforts under the COVID environment to a virtual platform.

Rapidly promulgated and implemented procedures to conduct remote audits of commercial waste disposal facilities under the DOE Consolidated Audit Program (DOECAP) during the pandemic. DOECAP audits support compliance with DOE requirements and also assure stakeholders that the Department is properly handling its radioactive wastes.

Coordinated complex-wide efforts to address per- and polyfluoroalkyl substances (PFAS) at DOE, engaging dozens of Program Offices and sites in a new working group, gathering and synthesizing data to improve understanding of PFAS uses and impacts within DOE, and engaging with external stakeholders focused on this emerging contaminant of concern.

Developed and deployed new ES&H data analysis and visualization tools for Program Offices and Sites, including:

- Launching a new **Corporate Safety Performance Dashboard**, which presents, in a single location and easily understood format, a set of strategic ES&H metrics of high importance and fundamental interest to DOE management.
- Developing a **Chat Bot** tool, successfully adopted by the DOE COVID-19 Hotline, which uses machine learning tools to analyze a question or phrase typed by the user to quickly return prioritized results from a defined data set.
- Advancing the development of a suite of **machine learning tools** to support critical ES&H functions, integrating multiple data sets with advanced algorithms to enable more rapid and robust analysis.

Successfully completed installation and startup of replacement vehicle barriers at the Forrestal facility. Successfully designed and procured replacement access barriers and CCDF equipment, and designed and specified replacement radio system.

Implemented innovative protective force contract changes and staffing plans to sustain the required Site Security Plan staffing levels while developing a “reserve” of healthy officers that was called upon to staff the DOE HQ during quarantines, resulting in sustained secure operation of HQ facilities.

Collaborated successfully with HQ program offices to conduct Headquarters Security Officer (HSO) program surveys and implement corrective actions. Reconfigured HQ survey inspections into two parts, the data evaluation/interviews and physical inspection. The data evaluation/interviews are being conducted online using WebEx. This effort provided the ability to continue the Survey mission during a time where social distancing was required.

Successfully developed and converted all Classified Matter Protection and Control (CMPC) Training (CMPC Overview, CDCS, Congressional Courier, and CMPC briefings for elected officials) to virtual/ WebEx training. Remote training has increased the speed of the delivery and participation of CMPC training across the board. To date, over 350 participants have received and completed training.

Successfully implemented a continuous evaluation process for HQ personnel security which processed over 60,000 alerts and completed validation of over 1,000 high and medium alerts while completing adjudication of over one third of high and medium alerts referred to adjudication.

Developed and implemented improved HQ management process for Other Government Agency (OGA) security clearances, including obtaining DOE Security Committee and Senior Management approval and successfully implementing the process for 22 other agencies, resulting in the termination of 1,000 security clearances to date.

Updated, revised, staffed, and implemented the AU Continuity of Operations (COOP) program plan. Revitalized AU emergency notifications by developing and implementing a process which engaged all AU senior management, simplified interface with DOE Emergency Operations, and eliminated redundancy.

Initiated the review, revision, and update to 6 DOE Orders: DOE O 474.2 A, *Materials Control and Accountability* (MC&A); DOE O 472.2, *Personnel*

Security; DOE O 473.1A, Physical Protection; DOE O 473.2A, Protective Force; DOE O 142.3A, Foreign Visits and Assignments; with DOE O 470.3C Change 1, Design Basis Threat (DBT), approved in September 2020.

Completed over 30 field assistance requests to facilitate implementation of the DOE Directives thru innovative use of virtual communication methods and professional involvement. The assistance focused on implementation of the DBT; Personnel Security; Protective Force; Physical Security Systems; Foreign Ownership, Control or Influence (FOCI); and technical advice and assistance.

The Office of Security initiated and championed the Secretary's COVID-19 Security 180-day Regulatory Relief mechanisms.

Published new and updated classification guidance on denuclearization activities, isotope separation, and counter unmanned aircraft systems (CUAS).

- Denuclearization classification guidance helps nuclear non-proliferation activities as they may occur around the world and provides DOE needed guidance on how to identify and protect information generated by those activities.
- Isotope separation guidance provided detailed instructions to different programs engaged to produce enriched uranium or staple isotopes.
- CUAS guidance was needed in order to consistently identify and protect information regarding the security posture of the DOE against this new threat as both DOE activities and the threat itself evolve over time.

Managed execution of FY20 budget, formulated FY21 budget and developed an execution plan, and initiated formulation of FY22 budget.

Provided advice and guidance on multiple new procurement actions such as the competitive re-procurement acquisitions for the Filter Test Facility; TSCM/TSP program; Protective Force services; Environment, Health, and Safety crosscutting support services; Security support services; and Headquarters Security Access and Alarm system services.

Recruited and filled over 20 critical hires and 14 promotions, and off boarded 14 staff.

Leadership Challenges

Onboarding and organizational integration of new personnel during the Pandemic is a challenge. Onboarding is the first, and sometimes most lasting impression of the Organization, and we should consider a holistic approach. Once onboard, substituting virtual interaction for in-person interaction and conducting a fair and meaningful evaluation during the year probationary period would be challenges.

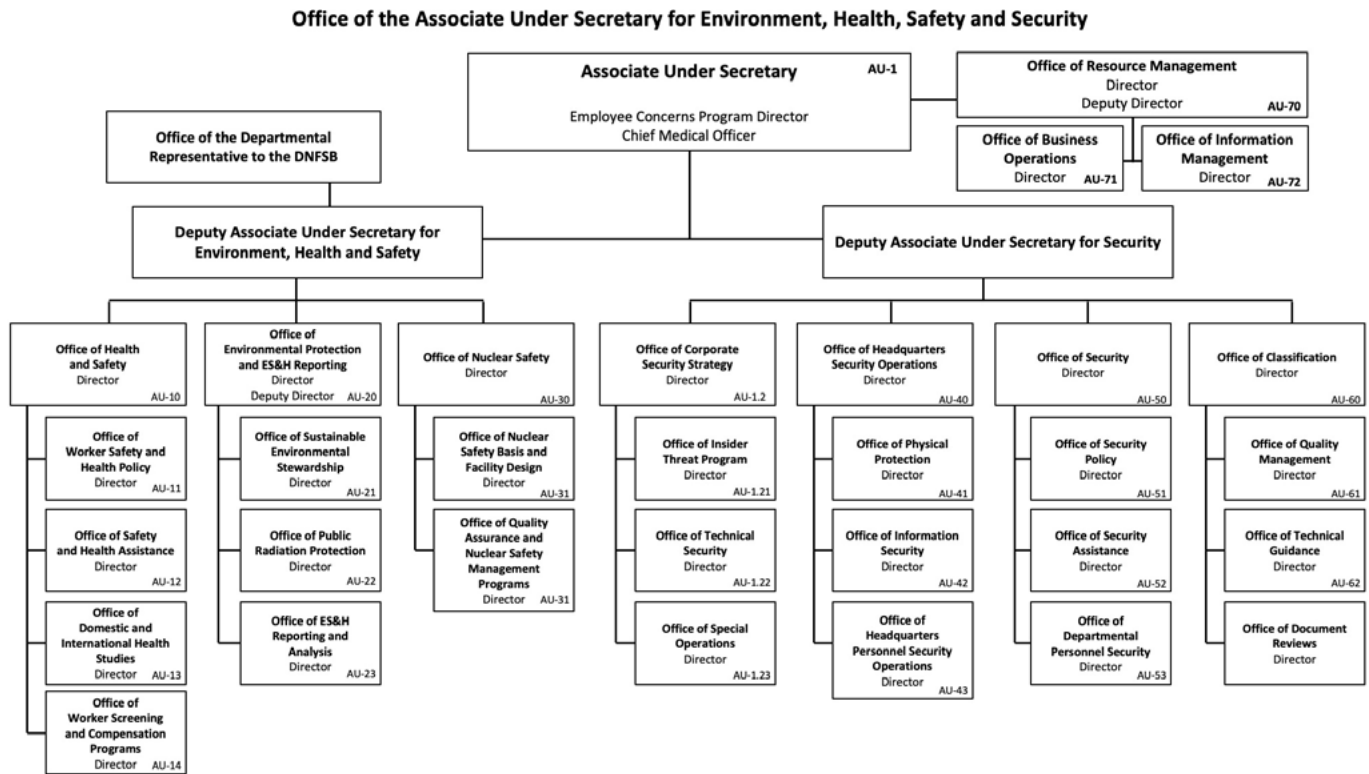
Use of consensus standards is required by law. The DOE role in helping to ensure that Consensus Standards, when issued, are timely and useful for the Department is an ongoing challenge. There is a cost-benefit that needs to be carefully considered. The value to DOE, Consensus organizations, and the commercial industry will be enhanced by a more focused and coherent approach to Standards development, particularly in the area of advanced reactors.

Critical Events and Action Items

Meet with DNFSB

The DNFSB is led by five presidential appointees who provide oversight advice and recommendations to the Secretary on nuclear safety issues that could impact adequate protection of public health and safety at defense nuclear facilities. It has proven beneficial for the incoming Secretary to have a short meeting with DNFSB within the first 3-6 months of taking office. There are several current DNFSB Recommendations being implemented by DOE which impact DOE missions.

Organizational Chart



Office of Project Management

Supporting the DOE Mission

The Office of Project Management (PM) supports the Department's mission by providing enterprise level project management leadership and expertise to ensure the efficient delivery of new or updated capital asset capabilities to enhance America's energy and nuclear security, and address the environmental legacy and liabilities of the cold war. In support of this goal, PM provides project management policy, guidance, and independent assessments to enable senior leadership to make informed decisions for capital asset projects within a mature project management framework and governance structure. PM monitors the Department's effectiveness in delivering capital asset projects using a project management success metric, which states, "On a three-year rolling basis, complete at least 90% of departmental projects baselined since the start of FY 2008 within the original scope baseline and not to exceed 110% of the cost as reflected in the performance baseline established at Critical Decision (CD)-2," which is the decision point where project scope, cost, and schedule commitments are established.

Mission Statement

PM's mission is to provide enterprise level project management leadership, and assist in the development and implementation of Department-wide policies, procedures, programs, and management systems pertaining to project management, professional development, and related activities.

The office is charged with providing the DOE senior leadership with timely, reliable, and credible information to enable the best informed project execution decisions.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$15,000,000
FY 2020 enacted	\$12,600,000
FY 2021 request	\$15,600,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 30

History

The project management office was originally called the Office of Field Management (FM) and was under the purview of the Office of the Chief Financial Officer in the 1990s. In FY 2000 Energy & Water Development Appropriations, the Senate initiated and the House concurred to eliminate funding for DOE's Office of Field Management. At that time, it was viewed by many that the office had lost its independence. Thus, it lost its credibility.

During the intervening period, appropriators directed DOE to contract with the National Research Council (NRC) to study DOE's project management. Numerous reports were produced and provided to Congress. In its first report, NRC recommended that External Independent Reviews (EIRs) of DOE projects be undertaken and guidelines established for them. The NRC's second report yielded the study entitled, Improving Project Management in the Department of Energy. That became a principal tool in revising DOE's project management, along with the Deputy Secretary's Project Management Initiative, directing changes in the Department's project management effort. Taken together, the external NRC study and the Deputy Secretary's initiative formed the basis for creation of the Office of Engineering and Construction Management (OECM), which continued to reside under the authority of the Office of the Chief Financial Officer.

In FY 2001, OECM began to address the voids in DOE's project management caused by the elimination of funding for FM. Work began systematically on the following issues: a newly designed DOE Order; a revised Energy Systems Acquisition Advisory Board (ESAAB) process; a revised EIR process; development of a Project Engineering and Design (PED) requirement for new projects; research into a career development program for project managers; and liaison with the engineering and construction industries, to name a few. In FY 2006, OECM was placed under the purview of the Office of Management (MA), vice CFO, to enhance its independence, and minimize any budget influence over capital asset project baselines.

In 2007, the Deputy Secretary met with the Comptroller General of GAO to clarify their expectations for removal from their GAO High-Risk List (HRL), specifically for “Contract (Project) Management.” The Department had been on this List since its inception in 1990. The Comptroller General provided the five criteria which was used to determine inclusion on the High-Risk List, one of which was the need to conduct an internal root cause analysis. This immediately precipitated a Department-wide initiative, led by OECM, to complete a DOE project management root cause analysis. In April 2008, the Department produced its DOE “Contract and Project Management Root Cause Analysis (RCA)” followed in July 2008 with its Corrective Action Plan (CAP). These documents highlight the top ten issues that had impeded improved project execution performance, to include lack of upfront planning, inadequate federal staff, deficient risk management, funding turbulence, and more. The documents continue to be a key reference as we refine project management processes. As a result of the improvements initiated under the CAP, GAO has narrowed their focus of the High-Risk List to only contract and project actions greater than \$750 million, and only for NNSA and EM.

In FY 2012, the project and contract management oversight offices within the Office of Management (MA), the Office of Engineering and Construction Management (OECM) and Office of Procurement and Assistance Management (OPAM) respectively, were merged and consolidated into a singular Office of Acquisition and Project Management (APM). The OECM Director became the new APM Director and took on the additional role as the Department’s Senior Procurement Executive (SPE). This complemented the consolidation of similar functions and mergers within both NNSA and EM. These APM organizations worked collaboratively to address continuous improvement initiatives regarding project management.

In FY 2015, the Under Secretary for Management and Performance reorganized and consolidated parts of the Office of Management (MA) and the Office of Environmental Management (EM) into one organization and created a new office entitled the Office of Project Management Oversight and Assessments (PMOA). This new office reported directly to the Under Secretary for Management and Performance (S3), but the Director was directly accountable to the Deputy Secretary when

performing functions as the Executive Secretariat of the Energy Systems Acquisition Advisory Board (ESAAB) and the Project Management Risk Committee (PMRC). The Deputy Secretary chairs the ESAAB, and the PMRC is the senior project management advisory committee to the ESAAB and other senior leaders. The PMRC is chaired by an administration senior advisor to the Deputy Secretary of Energy. In the absence of a senior advisor, the PM Director serves as the Chair of the PMRC.

This reorganization was prompted by the Secretary of Energy’s “Improving the Department’s Management of Projects” Memorandum, dated December 1, 2014. It elevated the function and organizational position of project management, which resulted in a new Dash-1 Directorate. In this memo, each Under Secretary was also directed to establish, if it did not already exist, its own project assessment office that does not have line management responsibility for project execution. These assessments offices conduct peer reviews of projects in their purview that have a total project cost of \$100 million or greater (or lower as deemed appropriate by the Under Secretaries). These offices were established to model the review process already established in the Office of Science, and recognized as best practice. In 2017, the Under Secretary for Management and Performance was reorganized and replaced by the Under Secretary of Energy. The Office of Project Management Oversight and Assessments (PMOA) was renamed the Office of Project Management (PM) and retained as a direct report to the Under Secretary of Energy. The Office of Environmental Management (EM) was moved from the Under Secretary of Energy to the Under Secretary for Science to foster increased collaboration between EM and the national laboratories to address the challenges of the environmental legacy of the cold war. In 2019, the Under Secretary of Energy designated PM as the Under Secretary of Energy’s project assessment office and as the Project Management Support Office (PMSO) for all programs under his purview.

Functions

Executive Secretariat of the Energy Systems Acquisition Advisory Board and Project Management Risk Committee

Serve as a member and as Executive Secretariat of the Energy Systems Acquisition Advisory Board (ESAAB) and the Project Management Risk

Committee (PMRC) for the Deputy Secretary. The Board and Committee review all capital asset projects with a Total Project Cost (TPC) of \$750 million or greater. Upon request, the Committee also addresses projects with a TPC less than \$750 million that are at risk of not meeting their performance baselines or are of special interest.

Independent Project Peer Reviews

Conduct independent Project Peer Reviews (PPRs) annually on all projects under the Under Secretary of Energy's purview and EM capital asset projects with a TPC of \$750 million or greater and on other projects at leadership or program request.

Project Management Support

Serve as the Project Management Support Office (PMSO) for all Under Secretary of Energy programs, (to include EERE, FE, NE, and OE) and execute the PMSO functions as detailed in DOE Order 413.3B.

External Independent Reviews

Conduct External Independent Reviews (EIRs) that validate the project performance baselines (to include scope, cost, and schedule) of all DOE and NNSA capital asset projects with a TPC of \$100 million or greater at the time of the project's formal baseline establishment.

Independent Cost Reviews and Estimates

Conduct Independent Cost Reviews (ICRs) or prepare Independent Cost Estimates (ICEs) at critical decisions and upon re-baselining, for capital asset projects with a TPC of \$100 million or greater, as required by statute.

Earned Value Management System Certification and Surveillance Reviews

Conduct initial certification and periodic surveillance reviews to ensure contractor Earned Value Management Systems (EVMS), a project controls management system, for capital asset projects comply with industry standards (EIA-748) and in accordance with contract requirements.

Project Management Policy, Guidance and Oversight

Provide DOE policy, guidance, and oversight for project management.

Project Reporting

Manage, operate, and improve the Department's Project Assessment and Reporting System (PARS), as the independent and auditable project data central repository of all relevant project data and documents. Provide monthly project status report from PARS, for senior leaders with independent assessments of capital asset projects with a TPC of \$50 million or greater. Develop and maintain the Department's project management knowledge repository.

Project Management Expertise

Provide project management advice and counseling to DOE Program Offices on current best practices, requirements, and project performance issues. Assess annual project budget submissions to ensure compliance with regulatory and statutory requirements.

Project Performance Metrics

Maintain project management performance metrics in PARS and share with senior leadership, OMB, GAO, and appropriate others, as requested.

Project Management Career Development Program

Manage the Project Management Career Development Program (PMCDP), along with associated mandatory (17) and elective (14) courses, to provide the professional development, continuous training, and certification of our Federal Project Directors (FPDs). Co-chair Certification Review Board, certifying FPDs at appropriate level.

Recent Organization Accomplishments

Project Management Risk Committee (PMRC)

As Executive Secretariat, supported 22 PMRC meetings to review 11 project critical decisions, two exemption requests, one project peer review, and several other actions over the past year.

Energy Systems Acquisition Advisory Board (ESAAB)

As Executive Secretariat, supported four ESAAB meetings in FY 2020 resulting in the approval of critical decisions totaling over \$11.6B.

Created and Update Departmental Project Management Documentation

Created or updated critical Departmental directives, policies, guides, standard operating procedures, technical standards, and other documents to include DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets.

Independent Cost Reviews and Estimates

Conducted 19 Independent Cost Estimates (ICEs) and Independent Cost Reviews (ICRs) in support of Critical Decisions (CDs) and Baseline Change Proposals (BCPs) valued at approximately \$16.1B. Conducted seven External Independent Reviews (EIRs) in support of validating a project's formal baseline (or re-baseline if a project was unable to achieve its original baseline during execution).

Earned Value Management System Certification and Surveillance Reviews

Conducted six Earned Value Management System (EVMS) certification and surveillance reviews. Developed the EVMS Compliance Standard Operating Procedure to synthesize and consolidate the extensive body of knowledge documents as well as testing protocols used in earned value reviews in order to provide consistency to reviews. Initiated a DOE sponsored research project through Arizona State University (ASU) to improve EVMS effectiveness and efficiency.

Project Peer and Independent Project Reviews

Supported the major Programs by participating in 25 Project Peer Reviews (PPRs), Independent Project Reviews (IPRs), Technical Independent Project Reviews (TIPRs), Project Definitions Readiness Index (PDRI) Assessments, and other similar reviews.

Training Curriculum Delivery

Transitioned PMCDP courses from classroom to virtual learning platform delivery, to deliver training in a more efficient and cost effective way, and to reach a larger segment of the DOE professional workforce. All of the 31 PMCDP courses are now available in a virtual learning environment.

Professional Development Program

Maintained a rigorous professional development program to provide Federal Project Directors (FPDs) with the experience, training, and knowledge

needed to manage complex projects. DOE has 240 certified FPDs, and 95% of projects are led by a FPD certified at the appropriate level at the start of construction.

Research and Technical Publication Assistance

Currently supporting a research effort sponsored by the Construction Industry Institute, in concert with other Federal agencies, to develop cost estimating benchmarks for smaller-scale projects such as laboratories and mixed use office facilities. Additionally, PM is sponsoring a research project through Arizona State University (ASU) to develop an easier method to evaluate maturity of an Earned Value Management System (EVMS) and the project performance data accuracy for the organizations using the system. Many DOE contractors are required to utilize a EVMS compliant with the EIA-748 industry standard on their projects.

Annual Project Management Workshop

Host the annual DOE Project Management Workshop and sponsor the Department's Project Management Awards (workshop cancelled in 2020 in response to the Coronavirus pandemic mitigation efforts). This event is typically attended by nearly 400 federal employees and contractors, and facilitates the exchange of best practices and lessons learned.

Industry Leadership

Office of Project Management staff serve on the Board of Advisors for the Construction Industry Institute (CII), on the Project Management Institute (PMI) Global Executive Council, and actively participate in the Association for the Advancement of Cost Estimating-International (AACEI).

Updates to DOE Project Management Policy

Updated and published one DOE Guide (DOE G 413.3-6A, High Performance Sustainable Building); four DOE Guides (Risk Management, Project Definition Rating Index, Technology Readiness Assessment, and Earned Value Management System) are currently undergoing revision; and preparations have been initiated for the development of three new DOE Guides (Planning and Scheduling; Project Funding; and Scope). An administrative update to DOE Order 413.3B is also underway.

Leadership Challenges

Impacts of the Pandemic

Executing PM's mission under the constraints of the coronavirus pandemic; mitigation efforts have required the implementation of innovative communications methods with project teams and site offices, increased reliance on data analysis versus person-to-person engagement, and streamlining procedures. The flexibility and professionalism of PM's staff has contributed to our success during this period.

Improve Project Management Controls

Improving project management controls—such as the Earned Value Management Systems (EVMS) employed by DOE contractors across the DOE complex—to ensure sustained, timely, and reliable monthly project cost and schedule information.

Strengthen Project Assessment and Reporting

Enhancing capabilities of Department's PARS to provide efficient and effective cost/schedule analysis capabilities to highlight more current project issues.

EM Major System Project Peer Reviews

Leading a newly instituted process of conducting EM Project Peer Reviews (PPRs) of projects, \$750 million or greater.

Improve the Project Management Career Development Program

Improving PMCDP to enhance the skillset of DOE Federal Project Directors (FPDs) and project controls workforce.

Project Management Directives.

Maintaining PM directives (DOE Order 413.3B and 21 associated DOE Guides), incorporating all recent Secretarial policy memorandums.

Project Management Continuous Improvement

Sustaining continuous improvement momentum in project management, senior leader engagement, and conformance with all Departmental project management requirements.

GAO High-Risk List

Continuing efforts for removal from the GAO High-Risk List (for "Contract (Project) Management") for projects greater than \$750 million.

Critical Events and Action Items

3-month events

Brief the Deputy Secretary on GAO's High-Risk List to include the background, recent policy changes, project management success metrics, and strategy forward.

6-month events

Hold Quarterly ESAAB meetings to review all capital asset projects \$750 million or greater.

The Deputy Secretary will hold an Energy Systems Acquisition Advisory Board (ESAAB) meeting to review and approve the Critical Decision (CD)-1, Approve Alternative Selection and Cost Range, for both the NNSA Savannah River Plutonium Pit Processing Facility (SRPPPF) (\$4.6B) and the Los Alamos Plutonium Pit Production Project (\$2.7B).

Organizational Chart

Office of Project Management



September 24, 2020

Under Secretary for Science

Supporting the DOE Mission

The Under Secretary for Science (S4) is one of the statutory principal officers of the Department and holds such responsibilities as assigned by the Secretary.

As of November 2020, the S4 oversees five Department Elements: the Office of Science (SC); the Artificial Intelligence and Technology Office (AITO); the Office of Technology Transitions (OTT); the Office of Environmental Management (EM); and the Office of Legacy Management (LM). These elements advance the Department's strategic goals of maintaining American leadership in fundamental research as the foundation for groundbreaking innovation and national security; supporting commercialization and deployment of innovative technologies to deliver reliable, sustainable, and affordable energy and enhance American energy dominance; and meeting the Department's obligations to address environmental impacts of historic projects to create the nuclear deterrent and develop civilian nuclear power technology.

The S4 supports the DOE Mission by:

- Advising and supporting the Secretary (S1) and Deputy Secretary (S2).
- Participating in establishing strategy, priorities, and resource allocations for the Department (including development of budget requests).
- Engaging with high-level external audiences such as Members of Congress; senior Executive Branch counterparts; state, local, and tribal government officials; foreign government and international organization counterparts; and key DOE contractors.
- Providing executive oversight to ensure the effective execution of missions by SC, AITO, OTT, EM, and LM.

Mission Statement

The mission of S4 and the Immediate Office staff is to provide strategic leadership and educate

stakeholders to enable SC, AITO, OTT, EM, and LM to perform their respective missions (a) to maintain American preeminence in science and technology and (b) to deliver safe, timely, and measurable progress in reducing the Department's environmental liabilities.

Budget

Fiscal Year	Budget (millions)
FY 2019 enacted	\$ 13,928,000,000
FY 2020 enacted	\$ 14,634,000,000
FY 2021 requested	\$ 12,238,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs) in organizations reporting to the Under Secretary for Science total 2,237.

History

The Energy Policy Act of 2005 established the office of Under Secretary for Science. According to the Act, this office was created to enhance "top-level coordination of research and development [R&D] programs." This office has been labeled with different titles from time to time (e.g., Under Secretary for Science & Energy during 2013–17). Since 2005, the S4 has overseen SC. The S4 has at times also been assigned by S1 to oversee other Department Elements; those assignments have varied under different administrations:

- 2005–2013: The S4 oversaw only SC. Anecdotally, a person who served as S4 before 2013 observed that oversight of SC alone (an element with its own statutory, Senate-confirmed Director) made either S4 or that Director redundant.
- 2013–2017: The S4 oversaw SC, the Office of Indian Energy Policy and Programs, and the Assistant Secretaries for i) Fossil Energy; ii) Nuclear Energy; iii) Electricity Delivery & Energy Reliability (now just Electricity); and iv) Energy Efficiency & Renewable Energy. This allocation of responsibilities encompassed certain policy and applied technology missions as well as fundamental R&D.
- 2017–present: The S4 currently oversees SC, AITO, OTT, EM, and LM. This allocation combines fundamental R&D with work to commercialize technologies born in the national

laboratories and to accelerate discharge of DOE's environmental stewardship obligations through innovation and effective project management.

Functions

By statute, S4 serves as the science and technology advisor to the Secretary and advises S1 with respect to specified research and development topics, and to the management of the DOE national laboratories. The statute also specifies that S4 shall carry out additional duties as assigned by S1 "relating to basic and applied research." The S1 also may assign other functions to S4, such as the current oversight of AITO, OTT, EM, and LM.

The S4 serves as a member of the Department's Research and Technology Investment Committee (RTIC), along with the S2; the Under Secretary for Energy (S3); the Under Secretary for Nuclear Security (S5); and the Director of the Advanced Energy Research Projects Agency-Energy. The RTIC provides a periodic venue in which these officers coordinate and prioritize R&D programs and investments throughout the Department.

The S4 also acts as DOE's principal liaison with the national security community on certain topics pertaining to science and technology.

Recent Organization Accomplishments

Elements in the S4 organization have achieved many important accomplishments since mid-2018. A few highlights are described below.

S4 Immediate Office

- In 2018, S1 directed S4 to oversee the development of policies to improve the protection of DOE-funded R&D against illicit foreign influence and misappropriation, including policies to enhance scientific integrity and address conflicts of interests (this is known within the S4 office as the Science & Security arena). In June 2019, DOE adopted a policy prohibiting personnel working in its national labs from participating in so-called "talent recruitment programs" sponsored by the governments of China, Iran, North Korea, and Russia (Foreign Talent Programs). Other policies to address similar Science & Security issues concerning DOE-funded R&D are under development by a cross-cutting intradepartmental task force of career staff.

- Relatedly, DOE anticipates the issuance of a National Security Presidential Memorandum in late 2020, directing all agencies to develop and implement broad policies to address conflicts of interest and of commitment in federally-funded R&D.

Science (SC)

- Since March 2019, SC has organized and managed the National Virtual Biotechnology Laboratory, which incorporates the biotech capabilities of all 17 DOE national labs and coordinates the prompt assignment of research projects among them to provide timely scientific and technical responses to the COVID-19 pandemic.
- In December 2019, DOE approved the mission need statement (CD-0) for the Electron Ion Collider (EIC) project, the first greenfield U.S. particle collider project in decades. In January 2020, DOE selected Brookhaven National Lab (BNL) as the site for the EIC, which will be developed and constructed in partnership with Jefferson Lab; in September 2020, leaders from DOE, Congress, and New York gathered at BNL to mark the launch of the project.
- In late 2018, S4 challenged the fusion energy sciences community to follow the example of the high-energy physics community's P5 process to develop better consensus about their field's research and infrastructure priorities. In response, the American Physical Society convened workshops that culminated in delivery of the Community Plan for Fusion Energy and Discovery Plasma Sciences to DOE's Fusion Energy Sciences Advisory Committee (FESAC) in early 2020.
- In June 2018, DOE commissioned the Summit supercomputer at Oak Ridge National Lab. With capabilities exceeding 200 petaflops, Summit became #1 on TOP500's list of global supercomputers until June 2020 and is currently exceeded only by the Fugaku machine in Japan. Designed to be optimized for machine learning and deep learning, Summit also has demonstrated unsurpassed AI capabilities.

Artificial Intelligence and Technology Office (AITO)

Secretary Perry established AITO in September 2019 as a direct report to S4, to enhance the coordination of DOE's development and deployment of AI technologies.

Office of Technology Transitions (OTT)

Since September 2018, OTT has worked with DOE national labs to convene a series of Innovation XLab summits on specified topics (e.g., energy storage, grid modernization, quantum information science). These summits gather experts from across the entire DOE lab complex to engage with academics and industry attendees to facilitate innovation and commercialization. The two most recent summits occurred virtually in October 2020 and attracted many hundreds of online participants.

Environmental Management (EM)

- In October 2020, EM celebrated the achievement of Vision 2020, a project to accelerate the decommissioning and demolition (D&D) of the Manhattan Project K 25 facility located at the East Tennessee Technology Park (ETTP) campus of the Oak Ridge Reservation. This initiative completed the D&D at ETTP under budget and four years ahead of schedule, thereby avoiding \$500 million of future costs.
- In September 2020, the S2 endorsed the Project Completion/Authorization to Operate (CD-4) milestone for the Salt Waste Processing Facility (SWPF) at Savannah River Site (SRS), a bespoke facility that had been under development since 2002 to accelerate the closure of liquid tank wastes at SRS. The SWPF began treating its first radioactive waste in October 2020.
- In May 2020, EM issued the Request for Proposals (RFP) for a new stand-alone management and operation (M&O) contract for the Savannah River National Lab (SRNL), removing the lab from the portfolio of the site-wide M&O contractor in order to attract a research-focused contractor and expand the scope of SRNL's R&D mission.
- In May 2020, DOE resolved a longstanding impasse with state regulators in California, which allowed EM to commence the demolition of structures at the Energy Technology Engineering Center (ETEC) site within the former Santa Susana Field Laboratory in Ventura County.

- In late November 2019, operations concluded at the Advanced Mixed Waste Treatment Project (AMWTP) at the Idaho Cleanup Project. AMWTP retrieved, packaged, and shipped to the Waste Isolation Pilot Plant (WIPP) for final disposition over 65,000 cubic meters of transuranic waste that had been removed from the Rocky Flats weapons facility in Colorado and buried in Idaho.
- EM is implementing the innovative end-state contract model for procurements. In contrast to long-term contracts with broad objectives but mostly unspecified interim goals, end-state contracts establish indefinite delivery/indefinite quantity (ID/IQ) relationships for services during the contract period, with specific tasks to achieve near-term cleanup progress (end-states) and corresponding pricing to be determined from time-to-time during the contract's term. In December 2019, EM awarded a 10-year, end-state contract for decommissioning, demolition, and remediation projects on the central plateau at Hanford, and end-state model procurements are underway with pending RFPs for other appropriate EM sites.

Leadership Challenges

Important and challenging topics that are likely to benefit from ongoing attention by S4 leadership include the following:

S4 Immediate Office

Developing DOE policies for Science & Security must take into account complex factors, including DOE's reliance on contractor-operated national labs and grants of financial assistance to third parties like universities; national security concerns; and inherent tensions between open scientific inquiry and prevention of illicit disclosure.

SC

- Despite DOE's long history in biological science, the COVID-19 pandemic has illuminated that more can be done to establish the appropriate, prominent place of DOE and its national labs in the federal bioscience enterprise.
- Since 2018, the field of fusion energy has made important progress, but maintaining that momentum will be challenging.
- U.S. investment in the ITER fusion project experiment in France continues to demand a

large share of the budget of DOE's Fusion Energy Sciences (FES) office, yet recent improvements in the management of that project have not put to rest all concerns about the cost and timing of that project.

- Building on the consensus-building Community Planning effort, FES's Advisory Committee is working on a proposed long-range fusion R&D strategy for the field. Because this entails setting priorities, leadership will be needed to preserve the recently-forged cohesion within the community.
- Well-financed private enterprises are showing progress toward fusion energy with a variety of technical approaches. To support such innovation, DOE has proposed a cost-sharing program for collaboration based on NASA's Commercial Orbital Transportation Services (COTS) program that nurtured SpaceX. Should Congress appropriate the necessary funds, FES will need to deploy staff with the appropriate skills to establish and oversee such public-private partnerships.

EM

- At Hanford, DOE's relationship with the State of Washington has been contentious and marked by evident State frustration and distrust. DOE has been working to increase trust through transparency and by maintaining a consistent focus on completing the direct-feed low-activity waste (DFLAW) treatment facility to vitrify certain tank wastes. As a result, the parties have recently been able to discuss difficult issues without the State seeking intervention by the court that issued an amended consent decree in 2016. Constructive engagement by DOE leadership will be needed to maintain that positive trend.
- Ongoing D&D efforts require a new solid waste disposal cell at Oak Ridge, which falls under U.S. EPA jurisdiction pursuant to a federal facility agreement. EPA's Region 4 seeks to mandate technical requirements for this cell that are inconsistent with protective standards for radioactive wastes established by DOE and by Nuclear Regulatory Commission. Pursuant to the facility agreement, DOE has formally appealed the Region 4 standards to EPA Administrator Wheeler. The objections have been presented by DOE leadership to the Administrator, but he has not resolved the dispute as of late October 2020 and this inter-agency controversy may continue into 2021.

Critical Events and Action Items

Critical events or actions that will take place within the first 3 months of the next Presidential term include the following:

S4 Immediate Office

More decisions regarding Science & Security are forthcoming. The prohibition concerning Foreign Talent Programs will be extended to all DOE financial assistance in the first quarter of FY21. A career-staff team is developing, for consideration by DOE leadership in 2021, specific department-wide conflict of interest policy to implement that direction. Leadership will also be presented with options of additional protective measures relative to DOE-funded R&D in sensitive, strategic areas of science and technology.

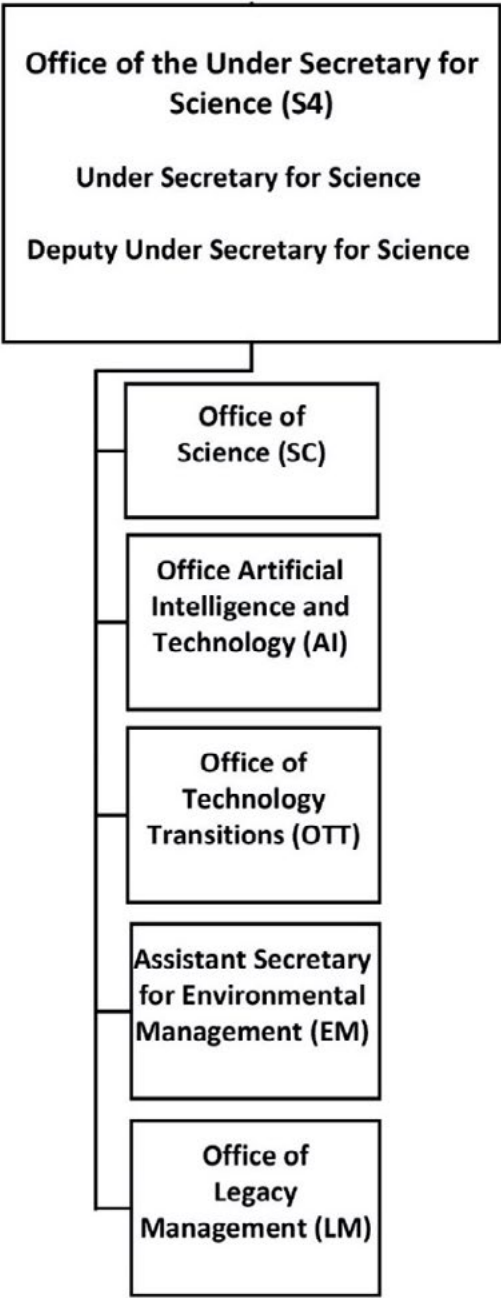
EM

- At Hanford, DOE is in the midst of high-level, holistic negotiations with the State and U.S. EPA. The topics include disposition options for so-called supplemental low-activity waste (LAW)—that is, volumes of LAW that exceed the treatment capacity of the DFLAW facility now under construction. No disposition plan for supplemental LAW has been established; these negotiations may require critical DOE policy decisions on that issue in the spring of 2021.
- EM is preparing to treat radioactive liquid waste in a new facility at Idaho, the Integrated Waste Treatment Unit (IWTU). IWTU was completed in 2014, but technical problems emerged before “hot” (radioactive waste) operations began. The contractor expects in the spring of 2021 to confirm the remedies have worked and will request DOE's CD-4 decision to allow hot waste treatment to begin.

AITO

AITO operated in FY20 (and now under the continuing resolution) with a small PD budget and no funds for sponsoring R&D on its own initiative. While DOE requested increased AITO funding, HEWD's FY21 budget included no funds for it. Given this uncertain situation, the ultimate FY21 appropriation may require critical decisions regarding AITO in early 2021.

Organizational Chart



Office of Science

Supporting the DOE Mission

Within the DOE, the Office of Science (SC) plays a unique and complementary role as a mission-driven science organization supporting discovery science in six science program areas, in addition to mission-relevant, use-inspired research necessary to advance DOE's missions in energy, environment, and national security.

SC is the largest Federal supporter of basic research in the physical sciences in the United States. SC funds programs in physics; chemistry; materials science; biology; environmental science; applied mathematics; and computer and computational sciences; and is the Federal steward for several disciplines within these fields such as high energy physics and nuclear physics; fusion sciences; high performance computing science and technology; and accelerator and detector science and technology. SC is also the largest Federal supporter of fundamental research relevant to future solutions for clean energy. The scale and complexity of the SC research portfolio provide a competitive advantage to the nation as multidisciplinary teams of scientists, using some of the most advanced scientific instruments in the world, are able to respond quickly to national priorities and evolving opportunities at the frontiers of science.

The SC portfolio has two principal thrusts: direct support of scientific research; and direct support of the design, construction, and operation of unique, open-access scientific user facilities. SC supports over 25,000 researchers located at over 300 academic institutions and at all 17 of the DOE national laboratories. Thousands of researchers from universities, national laboratories, industry, and international partners are expected to use SC user facilities in FY 2020. In addition, SC is responsible for the stewardship of ten of the DOE national laboratories.

Mission Statement

The SC mission is to deliver scientific discoveries and major scientific tools to transform our understanding of nature and advance the energy, economic, and national security of the United States.

Budget

Fiscal Year	Budget (millions)
FY 2019 enacted	\$6,585,000,000
FY 2020 enacted	\$7,000,000,000
FY 2021 requested	\$5,837,800,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 785

History

The SC origins trace back to the Manhattan Project. By the close of World War II, it was evident that fundamental knowledge of atomic and nuclear physics had tipped the balance of world power. The Manhattan Project vividly demonstrated the importance of basic research and its linkages to some of the most urgent national priorities. Basic research programs in atomic, nuclear, and radiation physics, and in related disciplines of chemistry and applied mathematics, were foremost among those brought forward from the Manhattan Project.

The all-out effort to create the world's first nuclear weapon created a vast research and development apparatus—including large, multi-purpose facilities that became the nation's first national laboratories—under the control of the War Department's Army Corps of Engineers. In 1946, the Atomic Energy Act transferred responsibility for nuclear research and development from the War Department to a new independent civilian agency, the Atomic Energy Commission (AEC). The tools needed to carry out this mission were of a scale that required the federal government to construct and operate them. Throughout the 1940s and 1950s, the AEC created a network of national laboratories to host machines, such as particle accelerators and colliders and arrays of isotope-separating centrifuges, that became the foundation of this new nuclear science. Many of the Commission's activities were unprecedented and exploratory. The Commission's charter directed it, in part, to ensure continuity of the ongoing activities and to carry out a diversified program of basic research.

Motivated by the Arab oil embargo, lawmakers terminated the AEC and placed its research functions under the newly created Energy Research and Development Administration (ERDA) in 1974. ERDA consolidated existing energy

research activities across the AEC and other agencies; its basic research portfolio included nuclear, solar, fossil, and geothermal energy; as well as conservation, synthetic fuels, and power transmission. In 1977, the establishment of DOE gathered under one authority most of the federal government's energy-related research, policy, and regulatory activities (with the exception of regulation of the nuclear power industry). The Department of Energy Organization Act of 1977 specifically created the Office of Energy Research. In 1998, the Energy and Water Development Appropriations Act changed the name of the Office of Energy Research to the Office of Science (SC). Today, SC continues its longstanding leadership of fundamental scientific research for energy and is the largest U.S. Federal sponsor of basic research in the physical sciences.

Functions

SC accomplishes its mission and advances national goals by supporting:

1. Research at the frontiers of science—discovering nature's mysteries, from the study of subatomic particles, atoms, and molecules that are the building blocks of the materials of our everyday world; to the DNA, proteins, and cells that are the building blocks of entire biological systems.
2. Science for energy and the environment—advancing a clean energy agenda through fundamental research on energy production, conversion, storage, transmission, and use, and through advancing our understanding of the earth and its climate.
3. The 21st century tools of science—providing the Nation's researchers with state-of-the-art scientific user facilities considered the most advanced tools of modern science.

SC also has stewardship and primary oversight responsibility for the majority of DOE's national laboratories, stewarding 10 of 17 laboratories: Ames Laboratory (Ames), Argonne National Laboratory (ANL), Brookhaven National Laboratory (BNL), Fermi National Accelerator Laboratory (FNAL), Lawrence Berkeley National Laboratory (LBNL), Oak Ridge National Laboratory (ORNL), Pacific Northwest National Laboratory (PNNL), Princeton Plasma Physics Laboratory (PPPL), SLAC

National Accelerator Laboratory (SLAC), and Thomas Jefferson National Accelerator Laboratory (TJNAF).

Office of Science Research

SC manages a fundamental research portfolio through six core program offices: Advanced Scientific Computing Research; Basic Energy Sciences; Biological and Environmental Research; Fusion Energy Sciences; High Energy Physics; and Nuclear Physics. The six SC research program offices are responsible for scientific program planning, including engaging the S&T communities; program budget planning; program execution; and management across the relevant scientific disciplines. The research program offices are also responsible for the selection and evaluation of their research and project portfolios that collectively make up the approximately \$7 billion in annual funding that is awarded as grants or cooperative agreements to universities and colleges, or as funding to the 17 DOE national laboratories operated under the Management and Operating (M&O) contracts.

Advanced Scientific Computing Research (ASCR)

ASCR supports research to discover, develop, and deploy computational and networking capabilities to analyze, model, simulate, and predict complex phenomena important to the United States. ASCR applied mathematics and computer science research as well as research on the linked challenges of capable exascale and data-intensive science, and computational partnerships under the Scientific Discovery through Advanced Computing (SciDAC) program, support the computational needs to advance basic science and clean energy. ASCR also supports 4 scientific user facilities: the National Energy Research Scientific Computing Center (NERSC) and the Energy Sciences Network (ESnet); the Oak Ridge Leadership Computing Facility (OLCF) at ORNL; and the Argonne Leadership Computing Facility (ALCF) at ANL.

Basic Energy Sciences (BES)

BES supports fundamental research to understand, predict, and ultimately control matter and energy at the electronic, atomic, and molecular levels to provide foundations for new energy technologies. BES supports a large portfolio of core research in chemical sciences, geosciences, biosciences, and materials sciences and engineering, as well as

the Energy Frontier Research Centers (EFRCs) in key areas related to Departmental priorities. BES supports the Fuels from Sunlight and the Batteries and Energy Storage DOE Energy Innovation Hubs. BES also provides for the operations of five x-ray light source facilities, five nanoscale science research centers, and two neutron scattering facilities, and has six ongoing construction projects, one construction project planned as a new start in FY 2021, and two major item of equipment projects to advance research capabilities to maintain U.S. competitiveness in these areas.

Biological and Environmental Research (BER)

BER supports transformative science and scientific user facilities to achieve a predictive understanding of complex biological, earth, and environmental systems for energy and infrastructure security, independence, and prosperity. Starting with the genetic information encoded in organisms' genomes, BER research seeks to discover the principles that guide the translation of the genetic code into functional proteins and the metabolic and regulatory networks underlying the systems biology of plants and microbes as they respond to and modify their environments. This predictive understanding will enable design and reengineering of microbes and plants underpinning energy independence and a broad clean energy portfolio, including improved biofuels and bioproducts, improved carbon storage capabilities, and controlled biological transformation of materials such as nutrients and contaminants in the environment. BER research further advances the fundamental understanding of dynamic, physical, and biogeochemical processes required to systematically develop Earth System models that integrate across the atmosphere, land masses, oceans, sea ice, and subsurface. These predictive tools and approaches are needed to inform policies and plans for ensuring the security and resilience of the Nation's critical infrastructure and natural resources. BER supports four Bioenergy Research Centers and three scientific user facilities.

Fusion Energy Sciences (FES)

FES supports research to expand the fundamental understanding of matter at very high temperatures and densities, and to build the scientific foundation needed to develop a fusion energy source. The FES program includes experimental research on the fundamental science of magnetic confinement;

theoretical research and advanced simulations to develop a predictive understanding of burning plasmas; materials research, fusion nuclear science, and enabling technology research and development; measurement innovation; general plasma science; and high-energy-density plasma science including the LaserNetUS consortium of high-power lasers. FES supports public-private partnerships through the Innovation Network for Fusion Energy (INFUSE) program to accelerate progress toward the development of fusion energy. FES supports continued progress on the U.S. contributions to the ITER Project to demonstrate the scientific and technical feasibility of fusion energy. FES also supports the operation of two SC user facilities, the DIII-D tokamak operated by General Atomics in San Diego, CA, and the National Spherical Torus Experiment Upgrade (NSTX-U) at PPPL in Princeton, NJ. These user facilities are integral to maintain a world-leading status and resolve high-priority scientific issues for the development of a fusion energy source.

High Energy Physics (HEP)

HEP supports research to understand how the universe works at its most fundamental level by discovering the most elementary constituents of matter and energy, probing the interactions among them, and exploring the basic nature of space and time itself. HEP's portfolio of fundamental research and enabling facilities spans the three "frontiers" of particle physics: the Energy Frontier, the Intensity Frontier, and the Cosmic Frontier. HEP supports major facilities and experiments such as the Fermilab Accelerator Complex, upgraded Neutrinos at the Main Injector (NuMI) beamline of NuMI Off-axis ν_e Appearance (NOvA) Experiment, and the Facility for Advanced Accelerator Experimental Tests (FACET). HEP supports two construction projects, the Proton Improvement Plan-II (PIP-II) and the Long Baseline Neutrino Facility (LBNF)/Deep Underground Neutrino Experiment (DUNE) project, and four major item of equipment projects for accelerator and detector upgrades at CERN in Geneva, Switzerland, and for a next-generation cosmic microwave background experiment (CMB-S4).

Nuclear Physics (NP)

NP's mission is to discover, explore, and understand all forms of nuclear matter, including why it takes on the specific forms observed in nature and how that knowledge can benefit society in the areas of energy, commerce, medicine, and national security. NP supports theoretical approaches based on the theory of Quantum Chromodynamics (QCD) as well as research towards Quantum Computing. NP supports three scientific user facilities which collide particles at nearly the speed of light, producing short-lived forms of nuclear matter for investigation: the Relativistic Heavy Ion Collider (RHIC), the Continuous Electron Beam Accelerator Facility (CEBAF), and the Argonne Tandem Linear Accelerator System (ATLAS). NP supports two construction projects: the Facility for Rare Isotope Beams (FRIB) and the Electron-Ion Collider (EIC). In 2022, FRIB will afford access to eighty percent of all isotopes predicted to exist in nature. The EIC will illuminate how the mass of everyday objects is dynamically generated by the interaction of quarks and gluons inside protons and neutrons. One equally exciting NP frontier uses the nucleus itself as a laboratory for observing nature's fundamental symmetries, including the search for a nuclear decay predicted to only be possible if the neutrino is its own anti-particle.

Additional Programs and Activities

SC also manages and supports the following additional programs and activities: Strategic Planning and Interagency Coordination; International Science and Technology Cooperation and Trusted Research; Diversity, Inclusion and Research Integrity; Crosscutting and Special Initiatives; Workforce Development for Teachers and Scientists; the DOE Small Business Innovation Research Small Business Technology Transfer programs; Accelerator R&D and Production; Isotope R&D and Production; Science Laboratories Infrastructure; and Safeguards and Security.

Strategic Planning and Interagency Coordination (SPAIC)

The Office of Strategic Planning and Interagency Coordination (SPAIC) is the primary coordinator for interactions between SC and the other major federal organizations that fund basic research as well as interagency activities. SPAIC also conducts a formal annual SC strategic planning process preparing a written strategic ten-year plan for SC.

International Science and Technology Cooperation and Trusted Research

The Office of International Science and Technology Cooperation and Trusted Research is working to promote the norms, principles, and values of openness, transparency, and reciprocal collaboration that will inform our international collaborations. The office is also engaging stakeholders in the research enterprise and coordinating with interagency efforts to gain a better understanding of emerging risks and to develop a coordinated federal response. It is developing a comprehensive strategy for international engagement—by country and by topic—rather than in a project-by-project or program-by-program basis.

Diversity, Inclusion, and Research Integrity

Advancing diversity, equity, and inclusion (DEI) is central to advancing scientific excellence. Spearheaded by the Office of Diversity, Inclusion and Research Integrity, SC promotes diverse, equitable, and inclusive workplaces that value and celebrate a diversity of people, ideas, cultures, and educational backgrounds, which is foundational to delivering on SC's mission. Harnessing a diverse range of views, expertise, and experiences drives scientific and technological innovation and enables the SC community to push the frontiers of scientific knowledge for the betterment of America's prosperity and security.

Crosscutting and Special Initiatives

The Office of Crosscutting and Special Initiatives shepherds existing crosscutting topics and works to identify and spearhead new initiatives. Crosscuts are designed to bring together the capabilities and R&D of multiple programs and offices, providing synergy and breadth that can solve complex problems. The long-term objectives are to enhance research integration across the scientific community and to build and adopt new technologies and processes that will fundamentally change the nature of research.

Workforce Development for Teachers and Scientists (WDTs)

The WDTs program mission is to help ensure that DOE has a sustained pipeline of science, technology, engineering, and mathematics (STEM) workers to carry out its mission, whether at DOE laboratories, academia, or federal program offices. This is

accomplished through support of undergraduate student internships, graduate student thesis research, and visiting faculty research opportunities at the DOE laboratories. WDTS is also responsible for annual, nationwide, middle-and high-school science competitions culminating in the National Science Bowl® in Washington, D.C.

Small Business Innovation Research (SBIR) Program/ Small Business Technology Transfer (STTR) Programs

The Federal agencies with annual R&D appropriations greater than \$100 million for extramural work are required by statute to operate SBIR and STTR Programs to support innovative research and technology development performed by small businesses. SC manages the DOE SBIR/ STTR Programs on behalf of the Department, with the exception of ARPA-E, in close coordination with all of the contributing SC research program offices and the DOE applied technology offices—the Offices of Fossil Energy (FE); Energy Efficiency and Renewable Energy (EERE); Nuclear Energy (NE); Environmental Management (EM); Defense Nuclear Nonproliferation (DNN); and Electricity (OE). The 12 participating programs are responsible for topic selection, reviewer assignment, award selection, and project oversight. The SBIR/STTR Programs Office is responsible for issuing topics and solicitations, managing the review and selection process, working with the SC Integrated Service Center to award SBIR/STTR Phase I and Phase II grants, issuing annual reports to the U.S. Small Business Administration, performing outreach, and setting overall policy for the Department's SBIR and STTR Programs.

Accelerator R&D and Production (ARDAP)

The Office of Accelerator R&D and Production (ARDAP) coordinates the ongoing accelerator science & technology R&D (AS&T R&D) investments made through the core R&D programs of SC, and to make investments to ensure that the U.S. continues to produce world-leading scientific facilities. ARDAP's vision is to support U.S. leadership in physical science R&D by coordinating and making accelerator R&D investments that are aimed at addressing AS&T needs and strengthening US capabilities. ARDAP also supports one scientific user facility, the Accelerator Test Facility.

Isotope R&D and Production (IRDP)

The DOE Isotope Program was moved out of the Office of Nuclear Physics and into its own office, the Office of Isotope R&D and Production (IRDP). IRDP supports the production, distribution, and development of production techniques for radioactive and stable isotopes in short supply and critical to the Nation, under the authority of the Atomic Energy Act of 1954. The office also supports R&D efforts associated with developing new and more cost-effective and efficient production and processing techniques, and on the production of isotopes needed for research purposes.

Science Laboratories Infrastructure (SLI)

The SC SLI program supports scientific and technological innovation at the SC-stewarded DOE laboratories by funding and sustaining mission-ready infrastructure and fostering safe and environmentally responsible operations. The program provides state-of-the-art facilities and infrastructure that are flexible, reliable, and sustainable in support of scientific discovery. SLI supports ongoing projects that will provide new laboratory buildings, renovated facilities, and upgraded utilities. While significant improvements to SC laboratory infrastructure have been made, it is important to maintain a strong level of investment and continue making improvements across the SC national laboratory complex. SC, through SLI, participates in the DOE-wide infrastructure crosscut, which is part of DOE's strategy for addressing critical infrastructure needs across the DOE laboratory complex.

Safeguards and Security (S&S)

The SC S&S program is designed to ensure appropriate security measures are in place to support the SC mission requirement of open scientific research, and to protect critical assets within SC laboratories. This is accomplished by providing physical controls that will mitigate possible risks to the laboratories' employees; nuclear and special materials; classified and sensitive information; and facilities. The SC S&S program also provides funding for cybersecurity for the laboratories' information technology systems to protect electronic data while enabling the SC mission.

Program Planning

Successful management of SC's large and complex scientific research portfolios and facilities is a result of the implementation of best practices in program planning, and program and project management. These practices include: (1) employing the best experts—program managers, project directors, contracting officers and other specialists who are experts in their respective fields; (2) conducting multiyear program planning and budgeting; (3) engaging with the broader S&T communities from universities, national laboratories, and industry in both planning and evaluation processes, including through dedicated Federal Advisory Committees; (4) openly competing research activities and projects to encourage the most capable performers to apply; (5) using external merit-based peer review both to inform selection decisions and to assess ongoing research and project performance; and (6) engaging awardees and contractors collectively on a regular basis to encourage exchange of results and ideas. SC's engagement with the broader S&T communities and stakeholders to obtain input in planning efforts is extensive and is accomplished through a number of different processes and mechanisms, including:

- SC-led scientific and technical workshops;
- Reviews and studies by the SC Federal Advisory Committees;
- External studies by organizations such as the National Academies;
- Interagency Committees and Working Groups;
- Requests for Information (RFIs) posted in the Federal Register; and
- SC program manager participation at national meetings and conferences.

SC has established a Federal Advisory Committee for each of the six SC research programs offices, which are governed by the Federal Advisory Committee Act (FACA) of 1972 (Public Law 92-463) and all applicable FACA amendments, federal regulations, and executive orders. The committees include experts from universities, national laboratories, and industries and provide valuable, independent advice to SC upper management regarding the scientific and technical issues that arise in the planning, management, and implementation of the research programs.

Program Management and Evaluation

Merit-based peer review provides the foundation for which SC selects and evaluates the quality and impact of the research and scientific facilities that it supports. SC's sponsored activities, whether at universities, national laboratories, or private sector organizations, are evaluated at multiple stages. Proposals solicited and received by SC are peer reviewed and the results of peer review inform selection decisions for funding. SC engages active researchers from academia, national labs, and/or the private sector to serve as reviewers who participate as volunteers. SC's merit review system is defined by 10 CFR 605. While 10 CFR 605 governs financial assistance (grants and cooperative agreements), SC applies its principles to national laboratory reviews as well. SC evaluates ongoing basic research activities and facility operations using merit-based peer review; the extent to which this is done may vary depending on the size of the award or project. For large and/or multi-institutional research activities and on-going DOE laboratory research activities and research facility operations, external peer reviews are periodically conducted to assess management and/or scientific progress.

Construction projects and Major Items of Equipment (MIE) are governed by the requirements of DOE Order 413.3B, Program and Project Management for the Acquisition of Capital Assets. SC, through the SC Office of Project Assessment, in collaboration with the sponsoring SC program office, conducts regular project reviews to help ensure projects remain on schedule and within budget. These reviews have been an integral part of SC's success in maintaining cost and schedule baselines of its large, complex construction and MIE projects.

Lastly, through the use of its Federal Advisory Committees, SC evaluates its own business practices in order to maintain high standards for program and project management and obtain external advice for continuous improvement. SC charges each of its six Federal Advisory Committees on a periodic basis to establish a Committee of Visitors (COV) to assess the efficacy and quality of the processes used by the respective program office to solicit, review, recommend, monitor, and document funding actions and to assess the quality of the resulting portfolio and make recommendations.

Laboratory Stewardship (Planning and Evaluation)

SC conducts a formal laboratory strategic planning process annually whereby each of its ten national laboratories prepare written strategic ten-year plans that form the basis for detailed discussions during in-person meetings at DOE HQ between laboratory leadership and SC leadership on the laboratories' future directions, immediate and long-range challenges, and resource needs. SC's annual laboratory planning (ALP) process has been recognized as a best practice in the Department.

Each year, SC conducts an evaluation of the scientific, technological, managerial, and operational performance of the M&O contractors of its ten national laboratories. The evaluations provide the basis for determining annual performance fees and the possibility of winning additional years on the M&O contract through an "Award Term" extension. The evaluations also serve to inform the decisions the Department makes regarding whether to extend or to compete the M&O contracts. The current SC laboratory appraisal process has been in place since FY 2006. The appraisal process improves the transparency of evaluations, raises the level of involvement by the SC leadership, increases consistency in the way the laboratories are evaluated, and more effectively incentivizes contractor performance by tying performance to fee earned, contract length, and the public release of grades.

Recent Organization Accomplishments

SC's recent significant organization accomplishments include:

Scientific Discoveries and Findings

SC manages a research portfolio of over 3,000 active research awards. The primary accomplishments from SC-funded research and facilities are the resulting scientific discoveries and findings, which are predominately captured in the archival, peer-reviewed scientific literature. Recent scientific discoveries and accomplishments are on the SC webpage: <https://www.energy.gov/science/listings/science-highlights>

Delivery of New Scientific User Facilities

SC supports the design, construction, and operation of unique open access scientific user facilities

that offer the scientific community and industry unmatched capabilities. SC currently operates 28 such facilities, including particle and nuclear physics accelerators and colliders; light sources and neutron scattering facilities; some of the fastest high-performance computers in the world for open science; nanoscale science research centers; and observational capabilities for environmental and atmospheric modeling. Since 2016, SC has successfully completed 17 such projects in various program areas. In September 2017, SC completed the construction and commissioning of the 12 GeV Upgrade project at Thomas Jefferson National Accelerator Facility, in Newport News, Virginia, on time and within budget. The 12 GeV project tripled the Continuous Electron Beam Accelerator Facility's (CEBAF) original operating energy and commissioned a new experimental area dedicated to providing insight into one of the universe's great mysteries: why the fundamental constituents of matter, quarks, may never be found in isolation. In 2019, the LHC ATLAS Detector Upgrade and LHC CMS Detector Upgrade projects were completed on cost and within schedule. The objective of ATLAS-U was to design and construct leading edge and innovative electronics components and corresponding firmware for the upgrade of the ATLAS high energy physics experiment, installed at the world's largest particle accelerator, the Large Hadron Collider (LHC), at CERN in Geneva, Switzerland. The CMS-U project comprised strategic upgrades to three systems of the CMS detector to cope with increasing collision rates ("luminosity"), also at LHC.

Capital Asset Project Performance

SC continues to lead DOE in project performance for capital asset projects, as measured by the Government Accountability Office's (GAO) project success metrics, which were initiated in FY 2008. SC has delivered 100% of its projects within 110% of their original approved cost baselines in the past three rolling measurements from FY 2018 to FY 2020. In FY 2020, SC has 48 active, capital asset projects (post Critical Decision-0), each with Total Project Costs greater than \$20 million. In 2019, the LHC ATLAS Detector Upgrade and LHC CMS Detector Upgrade projects received the DOE Secretary's Award of Achievement.

Research and Development Awards

In 2019, 41 of the 100 annual awards given out by R&D Magazine were won by researchers at DOE National Laboratories. The R&D 100 awards, sometimes called the “Oscars of Innovation,” are given annually in recognition of exceptional new products or processes that were developed and introduced into the marketplace during the previous year. Seventeen of those 41 DOE researchers were at SC national laboratories.

Quantum Information Sciences

SC’s investments in Quantum Information Sciences (QIS) have ramped up from \$6M in FY 2017 to \$195M in FY 2020. All six core SC programs and the isotope program are supporting research in QIS and efforts are focused on three key areas: early-stage core research within the SC programs, support for five National QIS Research Centers, and plans to develop a quantum Internet that will connect the National QIS Research Centers and DOE laboratories.

Leadership Challenges

SC’s leadership challenges include:

ITER

ITER is an international research and development (R&D) project for the construction and operation of the world’s largest fusion energy research facility near Cadarache, France. The purpose of the project is to validate the technical viability of magnetically confined “burning plasma,” which is anticipated to lead to the realization of fusion energy as a clean and sustainable solution to power generation. The seven signatories to the 2007 ITER Agreement are the United States, European Union, China, India, Russia, Japan, and Korea. All seven Members are co-owners of the ITER facility and, as such, are required to fund and govern the project. The current plan is to achieve the first operational milestone of the project, called “First Plasma,” in 2025. A reassessment of the schedule due to COVID-19 impacts may result in a delay to the baseline schedule. Since the inception of the Agreement, the full U.S. construction costs have risen from a range of \$1.45 to \$2.2B to \$4.7 to \$6.5B, which includes more than \$1B in cost contingency. The U.S. in-kind contributions to the ITER project have been baselined up to First Plasma. (See separate transition paper on ITER.)

Exascale

It is critical to National security and economic competitiveness to maintain the DOE’s Exascale Computing Initiative (ECI). The July 2015 Executive Order 13702 established the National Strategic Computing Initiative (NSCI) and identified DOE as one of the lead agencies. The NSCI called upon the DOE Office of Science (SC) and DOE National Nuclear Security Administration (NNSA) to “execute a joint program focused on advanced simulation through a capable exascale computing program emphasizing sustained performance on relevant applications and analytic computing to support their missions.” In 2016, DOE initiated research and development activities to deliver at least one exascale (10^{18} operations per second) computing capability in calendar year 2021 with two other DOE exascale systems delivered in the 2022-2023 timeframe. This activity, referred to as the ECI, is a partnership between SC and NNSA that addresses DOE’s science and national security mission requirements. Currently, within SC and NNSA, the total leadership computing capability (combined capability of existing DOE high-performance computers) is over 300 petaflops. In FY 2017, the SC R&D portion of the ECI was segregated into the Office of Science Exascale Computing Project (SC-ECP) in SC’s Advanced Scientific Computing Research (ASCR) program. ECP provides the R&D necessary to effectively use exascale-capable systems and while ECI is focused the actual delivery of the exascale hardware. ASCR provides funds in ECI to support site preparations, non-recurring engineering investments and acceptance activities at the Argonne (ALCF) and Oak Ridge Leadership Computing Facilities (OLCF). There were significant challenges associated with achieving this level of capacity due to the physical limits of existing computing technology and concomitant limitations in software design. Naive scaling of current high performance computing technologies would result in systems that are untenable in their energy consumption, data storage requirements, complexity to program effectively, and other factors. Unlike previous upgrades to DOE’s Leadership Computing Facilities, an exascale system capable of meeting critical national needs cannot be developed through incremental improvement of existing systems.

Over the past six decades, U.S. computing capabilities have been maintained through continuous research and the development and

deployment of new computing systems with rapidly increasing performance on applications of major significance to government, industry, and academia. Maximizing the benefits of High Performance Computing (HPC) in the coming decades will require an effective national response to increasing demands for computing power, emerging technological challenges and opportunities, and growing economic dependency on and competition with other nations. Early this summer, Japan overtook the U.S. on the Top500 list that identifies the world's most powerful high performance computers with the deployment of their 415 petaflop Fugaku system. Recognizing the importance of HPC to economic competitiveness, nations in Europe and Asia, particularly China, continue to invest in HPC. The Chinese strategy is increasingly to base their HPC systems on domestic technology, and China continues to lead the U.S. in the number of systems on the Top500 list. In addition, China has 3 exascale machines in the pipeline: a Sunway system in Jinan targeted for 2020, a NUDT system in Tianjin targeted for 2021, and a Sugon system in Shenzhen targeted for 2022. The Chinese have an advantage in that they are not held back by an installed base that needs backward compatibility and therefore, there is no need to "play it safe," leading to an open ended design space ranging from the conventional to the exotic. However, in the past two years, there has been a lack of new Chinese systems on the Top500. (See separate transition paper on Exascale.)

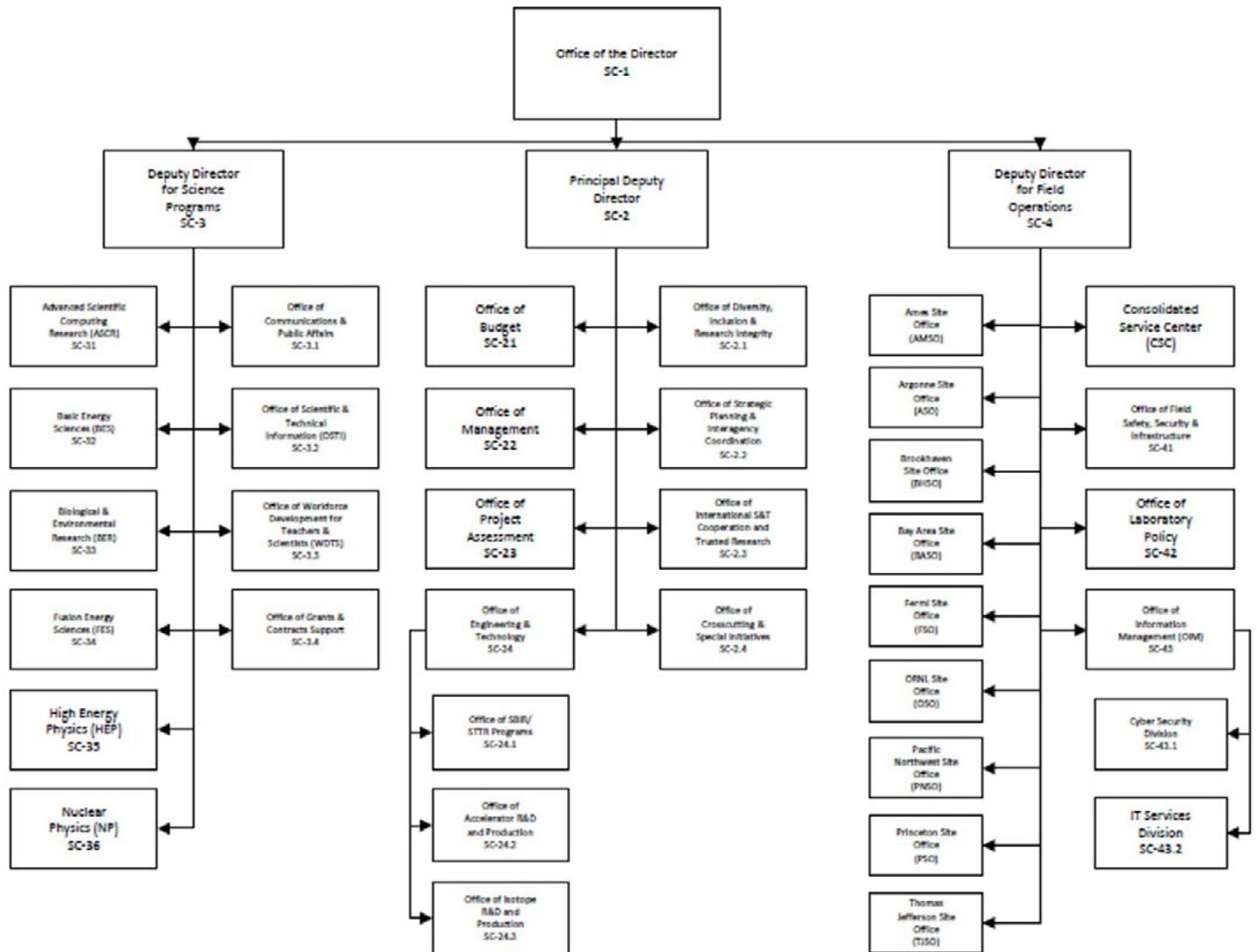
Multiple Concurrent Large Capital Projects

SC is engaged simultaneously in many large capital projects across its lab complex. The lab complex has become a giant, multi-campus construction site, with concomitant project management challenges. As of October 2020, SC is managing 10 projects over \$50M that are past CD-2, close to 40 projects over \$50M that are between CD-0 and CD-2, and 10 projects over \$50M managed outside of the CD process because of the type of project or acquisition.

Critical Events and Action Items

Exascale. Application and exascale software testing and scaling will be initiated on exascale testbeds. The first exascale system is to be delivered during calendar year 2021.

Organizational Chart



Artificial Intelligence and Technology Office

Supporting the DOE Mission

Transform the Department of Energy (DOE) into the United States Government's (USG) lead agency in the civilian use of artificial intelligence (AI) by accelerating the research, development, delivery, and application of AI.

Mission Statement

The Artificial Intelligence & Technology Office (AITO), DOE's center for artificial intelligence, will accelerate the delivery of AI-enabled capabilities, scale the Department-wide development of AI, synchronize AI applications to advance the agency's core missions, and expand public and private sector strategic partnerships, all in support of American AI leadership.

Budget

Fiscal Year	Budget
FY 2019 enacted	N/A
FY 2020 enacted	\$2,500,000
FY 2021 requested	\$4,900,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 5. The current office breakdown is 5 FTEs (4 of them political appointees), 3 detailees from other DOE offices, 1 detailee from a national lab, and 2 contractors.

History

AITO was founded in September, 2019, by former Secretary Rick Perry to serve as the enterprise's nerve center for AI work, to help assess, coordinate, and drive DOE's unmatched progress in this critical area. The goal of AITO is simple: to organize DOE's varied AI activities, whether they be R&D or applications or policy or infrastructure efforts;

identify resources to accelerate their success; and most importantly, align them and focus them like a laser on ensuring AI is used as a force for good.

Functions

AITO is tasked with serving as the coordinating arm of AI within DOE, and between DOE and other USG organizations and outside stakeholders.

Recent Organization Accomplishments

AITO created the AIX database, which collects information on all DOE projects (including those at National Labs) which have some AI cross cut or aspect; there are currently 600+ projects in the database. AITO issued a RFI (closed in July 2020) to assess ideas for an AI Grand Challenge. AITO is an active participant in the COVID Insights Project, and AITO is co-chairing the [First Five Consortium](#), to bring to market an app for first responders battling fires and floods.

Leadership Challenges

As a new office within DOE that is not codified by Congressional statute, AITO currently has no consistent funding source within Congress. Enlisting allies in Congress to support AITO and its mission, as well as sustained and reliable funding levels, are current challenges. Additionally, many staff members are currently either detailees or contractors. Bringing on FTEs is a challenge the office is working on currently. AITO has a critical coordination role to play at DOE, ensuring that the above mentioned challenges are addressed is vital to ensuring the success of AITO in coordinating AI functions at DOE

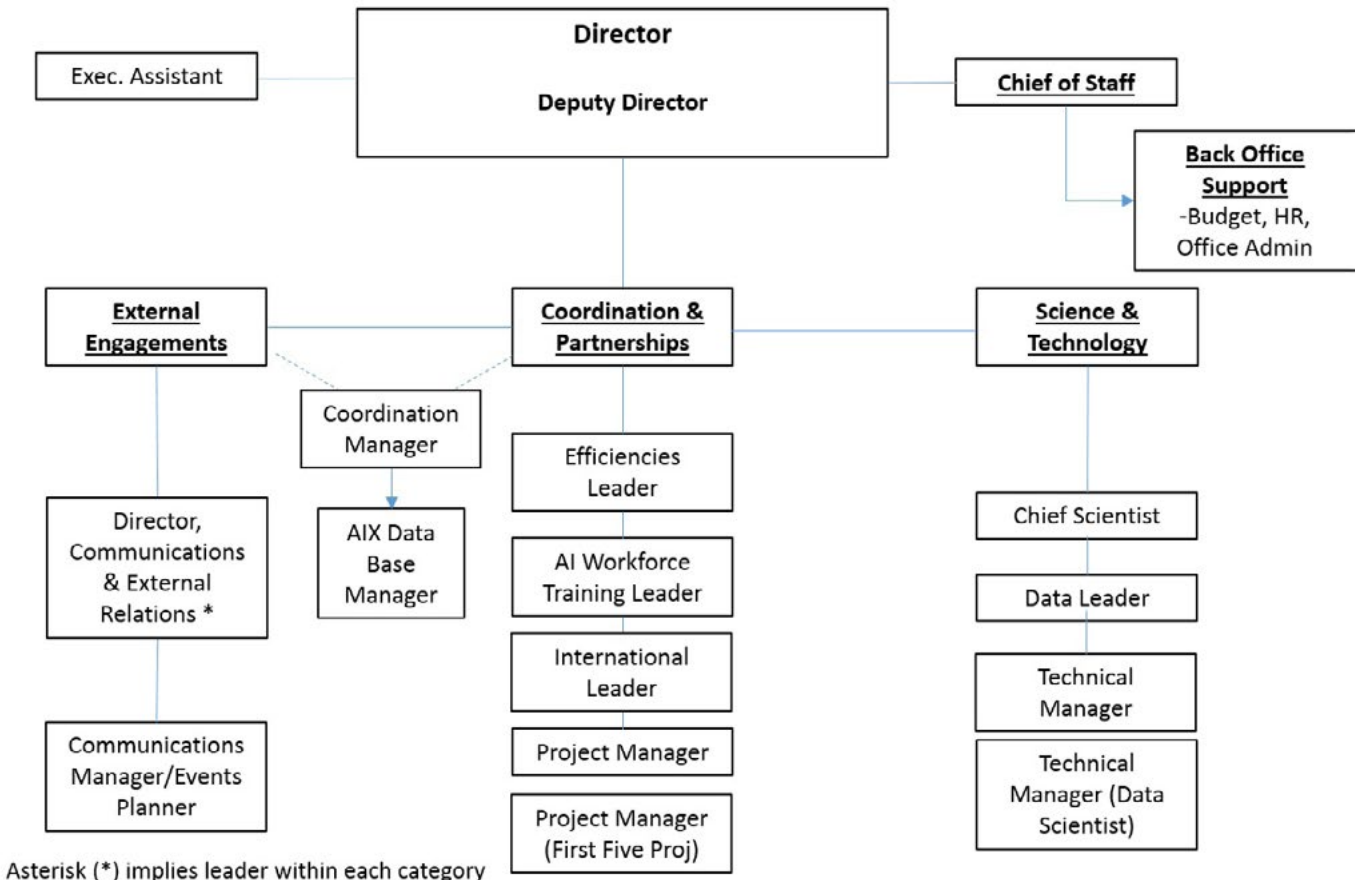
Critical Events and Action Items

Continued and sustained funding from Congress will be needed. Additionally, Congressional allies will need to be gained and fostered.

Organizational Chart

This chart represents the AITO staffing plan.

ARTIFICIAL INTELLIGENCE AND TECHNOLOGY OFFICE (AI-1)



Office of Technology Transitions

Supporting the DOE Mission

OTT fulfills several Departmental and Interagency Strategic Goals.

Interagency

OTT is the interagency co-chair of the Working Group supporting the [Cross Agency Priority Goal to Improve Transfer of Federally-Funded Technologies from Lab-to-Market](#), which highlights efforts to “improve the transition of federally funded innovations from the laboratory to the marketplace by **reducing the administrative and regulatory burdens for technology transfer** and **increasing private sector investment** in later-stage research and development (R&D); develop and implement more **effective partnering models** and technology transfer mechanisms for Federal agencies; and enhance the effectiveness of technology transfer by improving the methods for evaluating the ROI and economic and national security impacts of federally funded R&D, and using that information to focus efforts on approaches proven to work.” This Working Group’s efforts are guided by a [Green Paper](#) released in FY 2019 on maximizing U.S. innovation from government-funded research.

Departmental

OTT leads one of the Department’s six Agency Priority Goals on **Commercial Adoption of Energy Technologies**, on which DOE publicly reports on a quarterly basis through FY 2021.

In addition, OTT leads the Department’s efforts to increase the return on DOE R&D investment through the transition of national laboratory/ production facility-developed technologies to other government entities and the private sector, and to increase the commercial and public impact of DOE investments through expanded utilization of national laboratory facilities and expertise. Core to these efforts are a suite of OTT-maintained tools to facilitate access, programs to enhance impact, and policy reform efforts to streamline partnership development with external entities.

Mission Statement

OTT’s mission is to expand the public impact of the Department’s research and development (R&D) portfolio to advance the economic, energy and national security interests of the nation.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$8,505,000
FY 2020 enacted	\$14,080,000
FY 2021 requested	\$12,639,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 22

History

- Feb 11, 2015: OTT launched by Secretary Moniz and inaugural Director is dual-hatted as the Department’s statutory Technology Transfer Coordinator.
- FY 2016: OTT announces first cycle of statutory Technology Commercialization Fund.
- FY 2017: OTT receives first appropriated budget from Congress.
- FY 2018: Functional transfer to OTT of EERE Tech-to-Market (T2M) portfolio of activities and associated FTEs is completed.
- FY 2019: Director of OTT designated the Department’s Chief Commercialization Officer.
- FY 2020: OTT celebrates 5 years and receives first financial assistance funding from Congress (\$5 million for regional innovation ecosystems).

Prior to FY 2018

As a new organization with limited resources and broad mandate, OTT narrowed its initial focus to effectively deliver on statutory requirements, many of which were overdue and/or lacked effective implementation infrastructure within DOE.

FY 2018 to Present

With the functional transfer of EERE’s T2M program to OTT in FY 2018, the office assumed a greater role as a Departmental node for support and direct funding of the multi-faceted technology transitions

mission. Over the past three years, major mission areas have emerged around policy reforms to streamline access, market analysis, promotion of model success stories, and direct industry outreach and partnership development.

Functions

The Director of OTT or Chief Commercialization Officer, known in statute as the Technology Transfer Coordinator, serves, [by law](#), as the “principal advisor to the Secretary on all matters relating to technology transfer and commercialization.”

As outlined in Sec. 1001 of EPACT 2005, the Technology Transfer Coordinator has four broad statutory oversight responsibilities as the Secretary’s principal advisor in the areas of technology transfer and commercialization. The Director, specifically, “shall oversee”:

1. the activities of the Technology Transfer Working Group (TTWG);
2. the expenditure of funds allocated for technology transfer within the Department;
3. the activities of each technology partnership ombudsman; and
4. efforts to engage private sector entities, including venture capital companies.

The [TTWG](#) comprises DOE and Lab representatives and is charged in statute to, among other things, “coordinate technology transfer activities occurring at National Laboratories” and “exchange information about technology transfer practices.”

In addition to TTWG oversight, the Tech Transfer Coordinator oversees DOE’s technology transfer expenditures and its private sector engagement efforts, items 2 and 4 above. OTT has, in practice, exercised its statutory oversight responsibilities through requests for information and other fact-finding tools which engage Labs and other facilities across the DOE complex.

In addition, OTT is charged with managing the statutory [DOE Technology Commercialization Fund](#), “using 0.9 percent of the amount made available to the Department for applied energy research, development, demonstration, and commercial application for each fiscal year, to be used to provide matching funds with private partners to promote promising energy technologies for commercial purposes.” This amounts to

approximately \$30 million in cost-matched awards to the National Laboratories each year for technologies spanning the DOE applied R&D portfolio. Importantly, the disbursed funding is not OTT funding, but rather appropriated funding from the contributing offices: CESER, EERE, FE, NE, and OE. Based on current DOE policy, ARPA-E, EM, NNSA, and SC do not contribute to the TCF, though they are generally understood to also perform “applied” R&D at varying levels.

OTT is also charged with producing a technology transfer execution plan and reporting annual updates to it. The [latest public version covers 2016-2018](#) and a completed update is under review.

OTT produces an annual report to Congress on the utilization of federal technology across the DOE National Laboratories and Production Facilities and associated technology transfer success stories (latest published report on FY 2016-2017 data available [here](#)). OTT also submits required technology transfer data annually to the National Institute of Standards for its interagency report (latest published report for FY 2016 available [here](#)).

In addition to its efforts to ensure Departmental compliance with statutory requirements, OTT supports a broad portfolio of activities, tools and programs to enhance technology transfer-related outcomes and the nation’s innovation ecosystem:

[Energy I-Corps \(EIC\)](#)

Fosters an entrepreneurial workforce and creates a cohort of DOE National Laboratory market-oriented researchers that have been immersed in an intense program of commercialization training centered on customer outreach.

[Lab Partnering Service \(LPS\)](#)

Provides a “front door” to the DOE for stakeholders to connect with leading DOE National Laboratory expertise, facilities, and technology through a searchable, online platform.

[InnovationXLab Series \(X Labs\)](#)

National Lab-hosted summits that seed public-private partnerships and a two-way exchange of information and ideas between industry, universities, manufacturers, investors, and end-use customers with innovators and experts from across the National Labs.

[Energy Program for Innovative Clusters \(EPIC\)](#)
Funding to support development of regional energy technology innovation clusters.

Market Analysis

OTT conducts market analysis to proactively identify commercialization opportunities and inform marketing and engagement for DOE-developed technologies. OTT facilitates the development and use of market analysis content, methodologies, and data services across DOE offices, and conducts targeted analysis for crosscutting or important gap topics.

Recent Organization Accomplishments

- OTT mobilized quickly in response to the COVID-19 pandemic. The OTT [COVID 19 Technical Assistance Program \(CTAP\)](#) provides lab funding for short-term assistance to outside entities with tough scientific or technical challenges related to combating COVID 19. We established a [COVID-19 portal](#) on the Lab Partnering Service, featuring a curated selection of experts, facilities, technologies, and IP that could be useful in the fight against the virus.
- Developed 2 all-virtual InnovationXLab Summits in October 2020 on [Quantum Information Science & Technology](#) and [Carbon Utilization](#), engaging over 1,000 stakeholders in these strategic technology areas.
- Including these 2 Summits, OTT participated in and contributed substantial content to about 40 in-person and virtual events during FY 2020, reaching thousands of stakeholders in diverse technology sectors.
- Through its FY20 Technology Commercialization Fund round, OTT awarded 82 projects \$33 million in funding more than matched by \$36 million in private cost share.
- With the graduation of Energy I-Corps Cohort 10 in November 2019, OTT has successfully supported 111 teams from 12 National Labs through this program. The program has enabled Lab researcher participants to secure over \$40M in follow-on funding and launched 9 new companies.
- As of October 2020, the Lab Partnering Service enables public access to over 1,400 technology summaries, over 330 experts, over 290 success stories, over 200 facilities, and all 21 National

Labs and Production Facilities. The website has received over 40,000 website visits since formal launch in Summer 2018.

- Beginning FY21, OTT implemented a robust project management system to improve efficiency, transparency, and oversight of all funding and project management activities.
- Since FY 2019, OTT participation in the National Lab appraisal process has been formalized for the 10 Labs stewarded by the Office of Science through a dedicated performance element (4.3). OTT also provides input to the Idaho National Lab and National Renewable Energy Lab appraisals.
- Between July and October, 2020, OTT launched its first ever Prize and Funding Opportunity Announcement (FOA) combining for \$5 million in funding to support regional innovation clusters.
- While OTT is domestically-focused, our commercialization mission is necessarily global in scope and has resulted in several successful international engagements as well:
 - [Director of OTT served as U.S. Head of Delegation at the 5th Mission Innovation Ministerial in September, 2020.](#)
 - [Facilitated a formal collaboration between the DOE and the Dutch Ministry of Economic Affairs and Climate Policy on research and demonstration of hydrogen technology.](#)

Leadership Challenges

Pending Legislation

There are a number of OTT-relevant bills under consideration by Congress with the potential to significantly impact OTT's structure and mission. These are outside the Department's control but noteworthy for the disruptive potential.

Defining Success

Transitions of technology from the federal research sphere to end user consumption/deployment can take years and even decades and rarely follow linear paths. As such, it is often very difficult to define success metrics for technology transition activities. However, many stakeholders, including OMB and Congress, have asked how OTT measures success and pushed for quantitative metrics, which have the potential to distort behavior in suboptimal ways if not carefully defined.

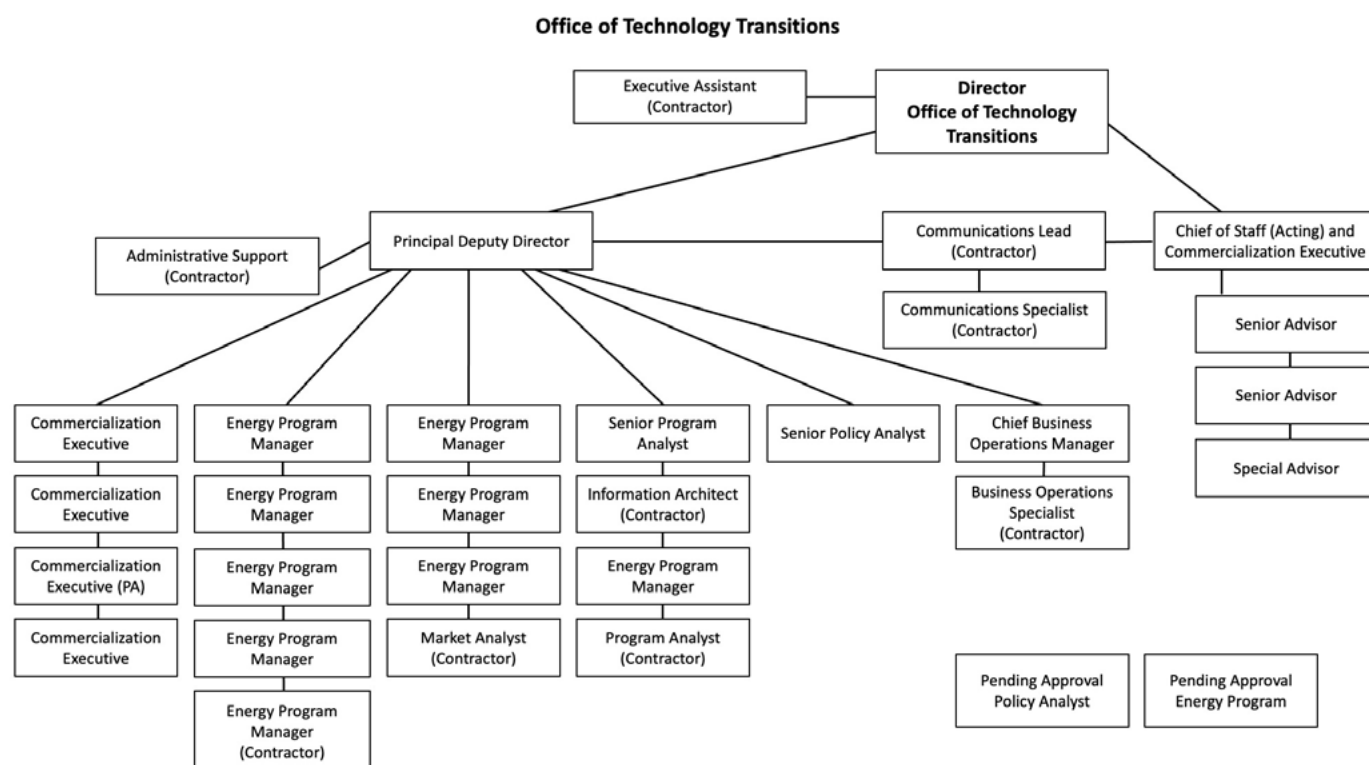
Virtual Engagement

Partnership development is a contact sport and OTT's outreach activities have been significantly disrupted due to the constraints imposed by COVID-19. The silver lining has been that OTT has successfully transitioned to virtual events with an even wider, though less personalized, reach.

Critical Events and Action Items

- Feb/Mar – Energy Program for Innovation Clusters (EPIC) Selections. OTT will award ~\$4 million in financial assistance to incubators/ accelerators supporting regional energy innovation ecosystems.
- Apr – Technology Commercialization Fund Selections. Stewarded by OTT, the TCF program will award ~\$30 million in matching funds to the National Laboratories for applied RD&D with high potential for commercialization

Organizational Chart



Note: This org chart includes 2 approved slots that have not yet been classified as of Oct 2020.

Office of Environmental Management

Supporting the DOE Mission

The U.S. Department of Energy's (DOE) Office of Environmental Management (EM) directly supports DOE's Strategic Objective to continue cleanup of radioactive and chemical waste resulting from the Manhattan Project and Cold War activities. Successful cleanup depends on overcoming technical, quality assurance, schedule, regulatory, budgetary, and management challenges.

Mission Statement

EM's mission is to address the nation's Cold War environmental legacy resulting from nuclear weapons production and government-sponsored nuclear energy research.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$7,175,129,000
FY 2020 enacted	\$7,455,200,000
FY 2021 request	\$6,065,672,000

Human Resources

FY 2020 authorized Federal full-time equivalents (FTEs): 1350

History

The Office of Environmental Management was established in 1989 to address the significant environmental liability that resulted from decades of nuclear weapons production and government-sponsored nuclear energy research that played a key role in domestic security and prosperity. This environmental legacy included millions of gallons of liquid radioactive waste, millions of cubic meters of solid radioactive wastes, and thousands of tons of used nuclear fuel and special nuclear material, along with huge quantities of contaminated soil and water.

Over the past 30 years, EM has made significant progress in its mission, driving down environmental risks to the federal government. Out of an original 107 sites, cleanup activities have been completed at 91 sites in 30 states and the Commonwealth of Puerto Rico. EM is currently responsible for cleanup activities at 16 sites in 11 states.

Significant events that have occurred in the EM mission to date include:

- Opening the Defense Waste Processing Facility (DWPF) at the Savannah River Site in South Carolina in 1996. The DWPF is used to convert radioactive liquid waste currently stored at Savannah River into a solid glass form (through a process called vitrification) for safe long-term storage and ultimate disposal. The DWPF is currently the largest vitrification facility in the world.
- Opening the Waste Isolation Pilot Plant (WIPP) in New Mexico in 1999. WIPP is the only operating deep geological repository in the world and is used for disposal of defense-generated transuranic (TRU) waste. WIPP plays an integral role in the overall EM and NNSA missions, supporting cleanup efforts across the complex and national defense needs.
- Completing cleanup of the former Rocky Flats site in Colorado in 2005.
- Completing cleanup of the former Ashtabula and Fernald sites in Ohio in 2007, and the former Mound site in Ohio in 2008.
- Placing 6 of 9 former defense reactors at the Hanford Site in Washington state in an interim stabilized configuration (cocooning). A seventh reactor at Hanford, B Reactor, has been preserved as part of the Manhattan Project National Park.
- Completing in-situ decommissioning of the P and R reactors at Savannah River in 2011.
- Completing the bulk of planned cleanup activities along the Columbia River corridor at the Hanford site in 2015.
- Completing the demolition and removal of the gaseous diffusion plant complex at Oak Ridge in 2020.

Functions

Waste Management

EM is responsible for the safe and effective management, treatment, and disposal of a variety of types of radioactive waste, special nuclear materials, and spent nuclear fuel. Waste present at EM sites includes tank waste that was produced through plutonium production activities; TRU waste, which consists of clothing, tools, rags, soil, debris, and other items contaminated with small amounts of plutonium or other man-made radioactive materials; low-level and mixed low-level radioactive waste; and hazardous waste.

Facility Deactivation and Decommissioning (D&D)

EM is responsible for facility deactivation and decommissioning (D&D) to ensure facilities are in a safe configuration, followed by demolition or interim stabilization.

Soil and Groundwater Remediation

EM deploys a number of strategies to remediate soil and groundwater including soil removal, soil cap installation, and groundwater pump and treat.

Recent Organization Accomplishments

Finalizing and implementing DOE's interpretation of the term "high-level waste." This interpretation represents a science-driven approach that enables EM to more appropriately manage tank waste in a risk-based and more cost-effective manner.

Completing physical demolition of Hanford's Plutonium Finishing Plant, which produced two-thirds of the plutonium metal used in the U.S. nuclear arsenal.

Approving the start of operation of the Salt Waste Processing Facility (SWPF) at Savannah River, which will significantly ramp-up EM's ability to address tank waste at the site. SWPF construction was completed approximately eight months ahead of schedule, and \$60 million under budget.

Completing a multi-year deactivation and decommissioning effort at the Oak Ridge East Tennessee Technology Park in Tennessee. This marks the first time a uranium enrichment complex

has been removed. This effort was completed four years ahead of schedule, saving taxpayers \$500 million.

Completing the TRU waste treatment mission at Idaho's Advanced Mixed Waste Treatment Project, which involved processing this waste for off-site disposal.

Completing the transfer of radioactive sludge at Hanford's K basins away from the Columbia River to safer longer-term storage at Hanford's Central Plateau. This project was completed ahead of schedule and under budget.

Leadership Challenges

Environmental Liability

The EM mission is a significant contributor to the federal government's environmental liabilities, which are one of the largest costs the government faces. As of FY19, EM's liability is \$402 billion. EM's efforts to address tank waste, primarily located at the Hanford and Savannah River sites, account for approximately 60 percent of the overall liability, as well as, approximately 40 percent of the program's annual budget. With completion of the Salt Waste Processing Facility, Savannah River now has all of the planned facilities to address tank waste there. EM believes the bulk of the tank waste mission at that site could be completed in a decade, reducing liabilities. However, at Hanford, the liability is anticipated to continue to increase as EM works to develop a comprehensive strategy to address tank waste.

Regulatory Agreements

EM has approximately 40 agreements in place with EPA and State regulatory agencies that oversee EM's cleanup mission at virtually all sites across the DOE complex. The types of agreements include Federal Facility Agreements for sites on the EPA National Priority List; RCRA Consent Orders and Site Treatment Plans; Court-ordered Consent Decrees; and Court-enforceable Settlement Agreements. These agreements vary significantly in terms of how cleanup progress is addressed, such as by the number of milestones and level of detail in requirements.

Procurement/End State Contract Model

EM is working to implement a new acquisition approach for its major cleanup contracts called, the “End-State Contracting Model.” This approach utilizes a single award Indefinite-Delivery Indefinite-Quantity contract structure. This model seeks to provide EM with flexibility to task its contractors with discrete scopes of work for site closure or end-states. This model will allow for more realistic and reliable pricing from contractors. EM has started transitioning to end-state contracts for cleanup activities at Hanford and the Nevada National Security Site and is in the process of competing end-state contracts at several major sites, including Savannah River, Oak Ridge, and Idaho.

Workforce Management/Recruitment

EM's workforce is critical to the success of the Department of Energy's cleanup mission. Approximately half of the current EM workforce will be eligible to retire by FY 2026. As part of its Human Capital Management Plan, EM commissioned the U.S. Office of Personnel Management (OPM) to review its current workload requirements versus the number of employees needed to accomplish the assigned workload. The results of this pending study will further assist EM to determine the necessary number of personnel, enhance its succession planning efforts, and contribute to an external recruitment strategy to meet mission objectives. In addition, as with much of the government, EM is currently in a maximum telework posture and is exploring the use of long-term telework options for its staff.

Critical Events and Action Items

Ongoing Procurements/Contract Transitions

In early 2021, EM anticipates awarding and launching transition activities for two major contracts at the Hanford and Savannah River sites. These include:

New Management-and-Operating Contract for Savannah River National Laboratory

EM is in the final stage of competing a new, stand-alone management-and-operations contract for the Savannah River National Laboratory, EM's corporate laboratory. This new contract is expected to enhance the ability of the laboratory to pursue its enduring mission by focusing the contractor

on its research and development (R&D) missions, increasing SRNL's flexibility to pursue more diversified R&D projects and attracting additional expertise in the operation of R&D facilities. EM anticipates awarding the new contract by the first quarter of FY 2021, with transition expected to begin soon after.

Hanford Tank Closure Contract

In May 2020, EM awarded a new end-state contract for tank waste activities at Hanford (the Hanford Tank Closure Contract). However, in response to protests unsuccessful offerors filed with the Government Accountability Office, EM has decided to take corrective action on the procurement. This corrective action is ongoing and a schedule for a new award decision has not yet been finalized.

Hanford Holistic Negotiations

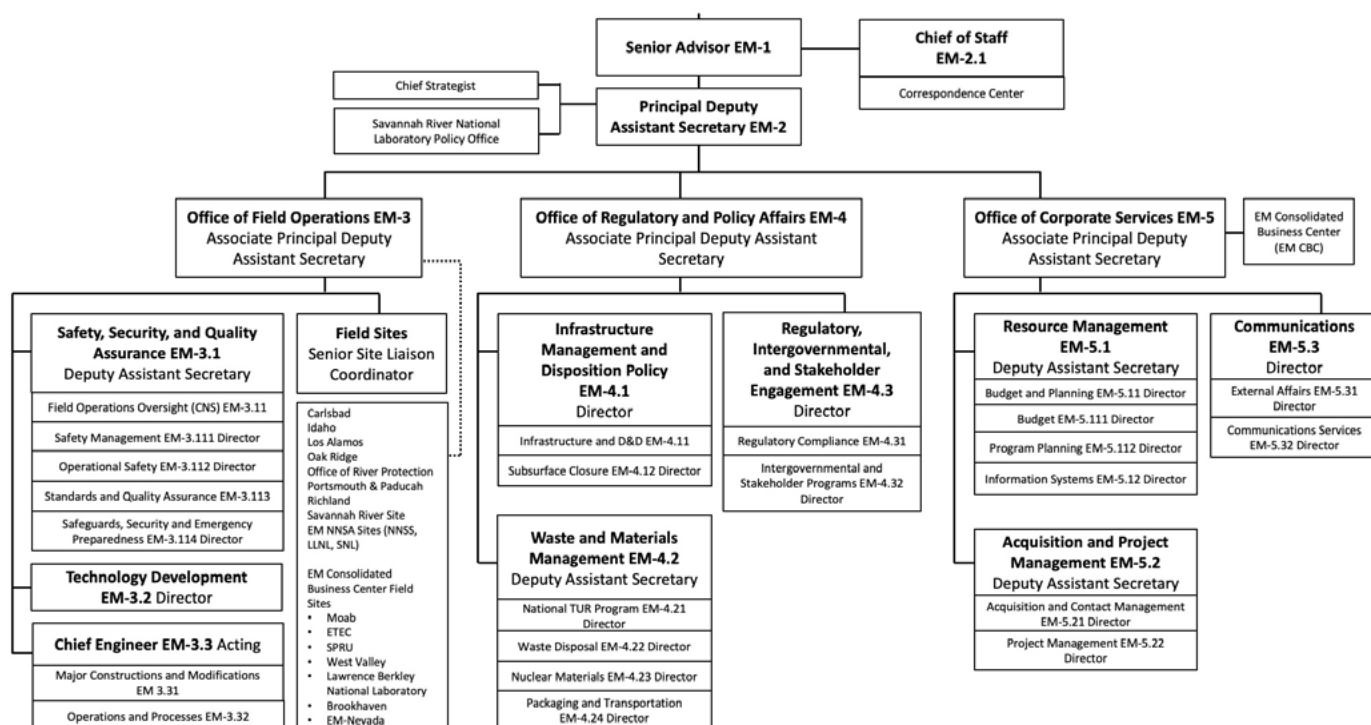
Currently, the tank waste mission at the Hanford site is driven by requirements in the Tri-Party Agreement among DOE, the Washington State Department of Ecology, and the U.S. Environmental Protection Agency (EPA); and the 2016 Amended Consent Decree between DOE and the states of Washington and Oregon. EM is on track to meet an Amended Consent Decree milestone to begin low-activity waste treatment by the end of 2023. However, a more comprehensive approach to the tank waste mission is needed. As a result, DOE, the Washington Department of Ecology, and the EPA have entered into holistic negotiations which are expected to continue through FY 2021.

Los Alamos National Laboratory Transuranic Waste Interim Storage at Waste Control Specialists, LLC

EM is working to finalize a disposition path for TRU waste from Los Alamos National Laboratory currently stored at the Waste Control Specialists commercial radioactive waste disposal site in Texas. The state of Texas has requested EM remove the TRU waste by the end of 2020. EM is actively pursuing options for removal. DOE will continue to closely work with state and regulatory officials on the path forward.

Organizational Chart

Office of Environmental Management



Office of Legacy Management

Supporting the DOE Mission

The Office of Legacy Management (LM) supports the Department of Energy (DOE) mission and Goal 3 of the Strategic Plan in the following areas:

Protect human health and the environment

LM protects human health and the environment by conducting long-term surveillance and maintenance (LTS&M) activities, currently at 100 sites, to ensure that environmental remedies put in place during site cleanup continue to protect human health and the environment. Our site inventory will expand as other DOE sites are transferred to LM upon the completion of remediation and regulatory closure.

Preserve, protect, and share records and information

LM protects and maintains legacy records and information, and makes technology solutions more efficient, relevant, and accessible to the LM stakeholder and user communities. In addition, we preserve the Yucca Mountain Project science and information.

Safeguard former contractor workers' retirement benefits

LM ensures prudent funding and risk mitigation in support of former contractor workers' retirement benefits.

Sustainably manage and optimize the use of land and assets

LM activities promote and enhance sustainable environmental performance for facilities and personal property and incorporate climate resilience in infrastructure planning and design consideration. We also ensure the beneficial reuse of land and assets, so former sites can become community assets.

Sustain management excellence

LM develops and maintains high standards for planning, budgeting, acquisition, and program and project management. The expertise of our 75 federal employees and over 500 contractor partners helps protect human health and the environment by maintaining 100 sites in 30 states and territories, from Puerto Rico to Alaska. LM is an OMB designated High Performance Organization. As stewards of taxpayer dollars, LM is steadfast in our commitment to conservatively manage our funds.

Engage the public, governments, and interested parties

LM management and staff recognize that engaging the public and governmental organizations is critical to achieving nearly all objectives of the organization. Public outreach, governmental collaboration, and effective dialog with tribal nations are central to all our work and remain a high priority. Engaging the public, governments, and interested parties includes strategic outreach, interpretive services, and participation in environmental justice (EJ) efforts. Outreach often takes the form of person-to-person interaction between LM and community members at open houses, tours, and interpretive centers.

Mission Statement

The mission of LM is to fulfill the Department's post-closure responsibilities and ensure the future protection of human health and the environment. We are the caretakers of legacy sites that played a critical role in America's nuclear history. By supporting the Manhattan project and additional nuclear weapons development, as well as experimental peace-time nuclear energy applications, our sites helped America win World War II and the Cold War. We are the federal land managers and stewards of cultural, historical, and natural resources at sites that have been successfully cleaned up and have remedies in place. We work closely with federal, state, local, and Tribal governments to set clear expectations and monitor results to ensure public and environmental safety for generations to come. We use advancements in science and emerging technologies to efficiently improve existing protection levels at our sites.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$158,800,000
FY 2020 enacted	\$162,000,000
FY 2021 requested	\$317,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 75

History

DOE established LM in 2003 to manage post environmental remediation activities at former defense-related sites that were part of the nation's nuclear weapons complex. The sites have been remediated under a variety of authorities and programs, including: the Resource Conservation and Recovery Act (RCRA); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Uranium Mill Tailings Radiation Control Act (UMTRCA); the Formerly Utilized Sites Remedial Action Program (FUSRAP); the Defense Decontamination and Decommissioning (D&D) Program; Nevada Off-Sites, continental underground nuclear tests or proposed test sites in the United States within proximity of the Nevada National Security Site; Nuclear Waste Policy Act (NWP, 1984) Section 151; and the Mercury Export Ban Act. LM conducts long-term surveillance and maintenance (LTS&M) at these sites where nuclear waste has been disposed, where residual contamination remains, or where passive or active treatment of groundwater contaminated by radionuclides or other contaminants of concern is being conducted. Today, LM is responsible for 100 sites in the United States and the territory of Puerto Rico. Our mission and portfolio continue to grow with the projected addition of new sites and programs.

Functions

Long-Term Surveillance and Maintenance

Protects human health and the environment through effective and efficient long-term surveillance and maintenance.

Legacy Records and Information Management

Preserves, protects, and makes accessible legacy records and information.

Work Force Management

Implements departmental policy concerning continuity of worker pension and medical benefits.

Legacy Land and Asset Management

Manages legacy land and assets, emphasizing safety, reuse, and disposition.

Community Impact Mitigation

Mitigates community impacts resulting from the cleanup of legacy waste and changing departmental missions.

Legacy Land and Asset Liaison

Actively acts as liaison and coordinates all policy issues with appropriate departmental organizations.

Recent Organization Accomplishments

LM's recent major organizational accomplishments include:

100th Site Added to the LM Portfolio

In 2019, LM marked a major milestone, when the 100th legacy site was added to LM's portfolio. The transfer of the Colonie, New York, site occurred a year earlier than planned and reflects the sustained progress by DOE in managing the responsibilities associated with the legacy of World War II and the Cold War. LM expects to receive up to 20 additional sites in the next 10 years.

Consecutive U.S. Environmental Protection Agency (EPA) Site Reuse Awards

EPA awarded the 2020 Federal Facility Excellence in Site Reuse Award to LM's Weldon Spring, Missouri, Site. The 228-acre site, located 30 miles west of St. Louis, Missouri, was remediated and revitalized for beneficial reuse as a community educational center, restored native prairie, and recreational site. The site has had more than 346,000 visitors to date. LM's Fernald Preserve, Ohio, was selected the 2019 winner in the same award category.

International Partnership to Advance LTS&M Science

In 2020, LM and Wismut GmbH signed an MOU that formalizes the exchange of information, professional development staff, and structured cooperation on LTS&M and management of legacy uranium mines

and mills. Wismut is a German government-owned company engaged in the application of state-of-the-art technologies for long term stewardship and remediation of legacy uranium mines and mills. Wismut's field operations are similar to the core mission of LM. LM has similar agreement with the International Atomic Energy Agency.

Lifecycle Baseline and Environmental Liability Validation

In 2020, LM completed an independent Life Cycle Baseline and Environmental Liability, \$8B, cost estimate validation that meet the standards of the GAO Cost Estimating and Assessment Guide (GAO-09-3SP, March 2009). The life cycle baseline approach for estimating and documenting environmental liabilities covers a minimum of 75 years.

Continuity Program

In 2020, LM published the Continuity of Operations (COOP) Plan and Business Continuity Plan. The LM Continuity Program is now compliant with requirements of DOE Order 150.1A and Emergency Plans.

Rocky Flats and Mound Pension Plan Termination and Disposition

In 2020, LM completed the Rocky Flats Plan Termination, Retiree Reimbursement Arrangement (RRA), reducing market volatile risks for over 1,200 former DOE contractor employees. This action resulted in retirees receiving either a lump sum payment or an annuity backed by an experienced and stable insurance company. LM's prudent strategy of fully funding its pension plans and taking advantage of favorable markets over time, allowed it to take similar action for all five of its pension plans (Fernald, Pinellas, Rocky Flats Mound, Rocky Flats Guards, Rocky Flats Non-Guards) over the past five years. LM's strategy reduced DOE's accounting liabilities by a combined \$773 million, and eliminated future risk to the department of continuing to sponsor these plans. LM successfully removed approximately \$200 million from DOE's long-term financial liabilities by annuitizing the Mound Employees' Pension Plan. Due to the funded status of the plan at the time, LM returned \$4.25 million to DOE; this was the first time DOE received funds back after a termination.

4.5 Acre Site Closure, Pinellas, Florida

In 2019, LM achieved the unconditional closure of the 4.5 Acre Site, which is a unit within the Pinellas County, FL, CERCLA/RCRA Category 3 Site. The unconditional closure is a first for an LM site. The closure order, issued by the State of Florida, specifies that DOE no longer has any responsibilities for the unit.

Defense-Related Uranium Mines (DRUM) Program

In 2019, LM delivered its first DRUM roll-up report to the Bureau of Land Management (BLM). DRUM is a partnership between DOE, federal land management agencies, and state abandoned mine lands (AML) programs to verify and validate (V&V) the condition of 2,500 defense-related uranium mines (mines) on federal public land by the year 2022. These mines provided uranium ore to the U.S. Atomic Energy Commission for defense-related activities that occurred between 1947 and 1970, and most are abandoned.

Final Disposition of Mound, Ohio, Site

In 2019, LM transferred the last property parcel at the Mound, Ohio, Site from LM to the Mound Development Corporation, a nonprofit community development arm of the city of Miamisburg, for beneficial reuse. DOE transferred ownership of remediated parcels on the 306-acre former weapons and research facility from 1999 to 2019.

Leadership Challenges

LM is facing challenges and opportunities with its aging disposal cells, pursuing major repairs requiring steady resources aimed at long-term stewardship.

LM is planning to transition from one support contractor (Navarro Engineering and Research Inc.) to another (RSI EnTech LLC) to fulfill post-closure responsibilities at over 100 sites.

In response to the GAO Report on Environmental Liabilities (GAO-20-373, May 2020), LM is working with the U.S. Nuclear Regulatory Commission (NRC) to develop agreements and establish procedures for returning a site back to the NRC for additional cleanup work. In response to GAO Report on Environmental Liabilities (GAO-20-373, May 2020), LM is preparing to assess the climate resilience

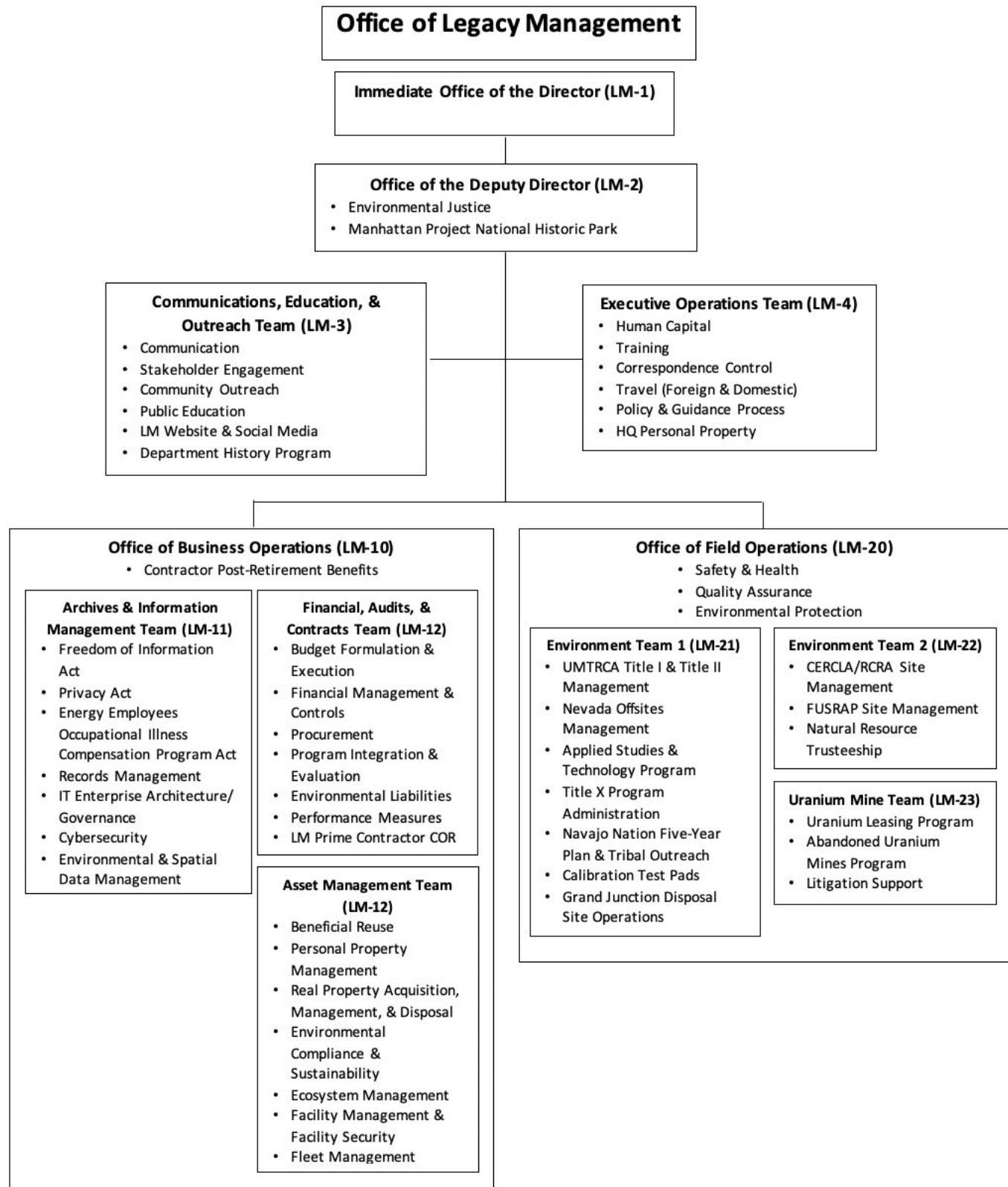
of LM's sites and develop plans to mitigate any significant impacts using the National Labs.

Critical Events and Action Items

Critical events or actions that will take place before and within the first 3 months of the next Presidential term:

- December 2020 – Releasing the draft environmental assessment of the proposed demolition of the Piqua, Ohio, Decommissioned Reactor Site for public review and comment period.
- January 2021 – Start transition activities to new contractor to support the LM mission.
- Project K-25 History Center, Oak Ridge, Tennessee, transitions from Environmental Management (EM) to LM. This transfer of DOE property to the airport authority will support major Oak Ridge authorities. Also, the East Tennessee Technology Park Transition and continuation of support for the GSA transfer to airport authority.
- Tonopah Test Range, Nevada, transition of transfer from EM to LM.
- Colonie, NY, beneficial reuse disposition from LM to 3rd party through the GSA disposition authority. Colonie was our 100th site and we are divesting the site.

Organizational Chart



Under Secretary for Nuclear Security and Administrator, National Nuclear Security Administration

Supporting the DOE Mission

The Under Secretary for Nuclear Security (S5) and Administrator, National Nuclear Security Administration (NA-1) is one of the statutory principal officers of the Department and holds such responsibilities as assigned by the Secretary.

Established by Congress under the National Nuclear Security Administration (NNSA) Act of 2000, NNSA is a semi-autonomous agency within the U.S. Department of Energy responsible for enhancing national security through the military application of nuclear science. NNSA maintains and enhances the safety, security, and effectiveness of the U.S. nuclear weapons stockpile; works to reduce the global danger from weapons of mass destruction; provides the U.S. Navy with safe and militarily effective nuclear propulsion; and responds to nuclear and radiological emergencies in the United States and abroad.

As of November 2020, S5/NA-1 oversees numerous Department Elements, including but not limited to: the Office of Defense Programs (NA-10), the Office of Defense Nuclear Nonproliferation (NA-20), and the Office of Naval Reactors (NA-30). These elements advance the Department's strategic goals of **maintaining the safety, security, and effectiveness of the nation's nuclear deterrent without nuclear explosive testing, reducing global nuclear security threats, providing safe and effective integrated nuclear propulsion systems for the U.S. Navy, and modernizing the nation's nuclear security infrastructure.**

S5/NA-1 supports the DOE Mission by:

- advising and supporting the Secretary (S1) and Deputy Secretary (S2);
- participating in establishing strategy, priorities, and resource allocations for the Department (including development of budget requests);
- engaging with high-level external audiences such as Members of Congress; senior Executive Branch counterparts; state, local, and tribal government officials; foreign government and international organization counterparts; and key DOE/NNSA contractors; and
- providing executive oversight to ensure the effective execution of its nuclear security missions.

Mission Statement

The mission of S5/NA-1 and the Immediate Office staff is to provide strategic leadership and educate stakeholders to enable our program and support offices to perform their respective missions to (a) protect the American People by maintaining a safe, secure, and effective nuclear weapons stockpile, (b) reduce global nuclear threats, and (c) provide the U.S. Navy with safe, militarily-effective naval nuclear propulsion plants.

Budget

Fiscal Year	Budget
FY 2019 Enacted Budget	\$15,228,600,000
FY 2020 Enacted Budget	\$16,704,600,000
FY 2021 Budget Request	\$19,771,000,000

Human Resources

In FY 2021 NNSA will have as many as 2,753 Federal employees including up to 1,943 in the Federal Salaries and Expenses account, 246 for Naval Reactors, and 564 for the Office of Secure Transportation.

History

This year marks the 20th anniversary of the National Nuclear Security Administration, though the organization's heritage goes back much further to the Manhattan Project of the 1940s and the subsequent establishment of the Atomic Energy Commission (AEC). Following World War II, the AEC

and the National Laboratory system were created to oversee future research into atomic science and technology. Following the establishment of the Department of Energy in 1977 through the present day, NNSA's program offices have managed essential missions in support of national security.

For more than seven decades, America's Nuclear Security Enterprise has served a vital role in our national security. Whether maintaining the safety, security, and effectiveness of the U.S. nuclear weapons stockpile or responding to nuclear and radiological emergencies, the NNSA has further developed a strong record of success since its creation by Congress under the NNSA Act (Title XXXII of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65). NNSA's programs have continued to achieve vital national security missions while maintaining a safe working environment for our over 50,000 person workforce.

Functions

S5/NA-1 serves as advisor to the Secretary for nuclear security and manages its national security laboratories, as well as nuclear and non-nuclear production and scientific testing facilities. NNSA's core missions, capabilities, and resources represent the application of science and technology to national security challenges.

S5/NA-1 oversees all programs within NNSA and is responsible for: policy and guidance; strategic and program management; program direction; budgeting; resource allocation; safeguards and security; emergency management; environment; contracts; intelligence; counterintelligence; and personnel.

- **Nuclear Weapons Stockpile.** NNSA supports the Nation's strategic deterrent in accordance with policy guidance to modernize the nation's nuclear stockpile, its design, engineering, and production infrastructure, support military capabilities and requirements as identified by the Department of Defense, and sustain the nuclear weapons currently in the stockpile while extending the life of certain existing systems. This is accomplished through a carefully balanced and executed Stockpile Stewardship and Management Program (SSMP) consisting of research and development; surveillance and assessment activities; maintenance; sustainment efforts, such as life extension programs (LEPs),

alterations (Alts), and modifications (Mods); dismantlement and disposition; enabling and improving base capabilities; and materials development, all without nuclear explosive testing.

- **Nuclear Threat Reduction.** NNSA plays a central role in reducing global dangers by engaging countries and advancing capabilities to prevent, counter, and respond to nuclear and radiological proliferation and nuclear terrorism threats and incidents worldwide. NNSA applies its nuclear nonproliferation, counterterrorism, counterproliferation, and emergency response capabilities across the entire nuclear threat spectrum, from intent through crisis response.
- **Naval Reactors.** NNSA provides the design and development support required to equip U.S. Navy vessels (aircraft carriers and submarines) with militarily effective nuclear propulsion plants and to ensure their safe, reliable, and long-lived operation. NNSA is responsible for designing the reactor plant and developing the next-generation of ballistic missile submarines, attack submarines, and aircraft carriers; providing constant operational support to resolve any problems that arise with the nuclear-powered fleet while at sea; and providing the infrastructure needed to train nuclear-qualified sailors.
- **Science, Technology, and Engineering.** NNSA conducts world-class specialized research, development, testing, and evaluation activities using unique diagnostic tools, experimental platforms, and modeling and simulation architectures. From some of the world's fastest supercomputers to high-energy-density lasers and experimental test beds, the nuclear security enterprise delivers innovative and transformative scientific and technical solutions to the global challenges of the 21st century. NNSA works in partnership across the U.S. Government, academia, and industry to advance its platforms and capabilities and to be better prepared for future technological surprise.
- **People and Physical Infrastructure.** Success in the nuclear security enterprise depends on a highly capable workforce with specialized skills in a broad array of technical fields. Recruiting, retaining, and training today's and tomorrow's workforce with the necessary expertise is critical to mission delivery. NNSA, with its Management and Operating (M&O) partners and non-M&O

contracting partners, devotes extensive effort toward developing its Federal and contractor workforce to support the mission. Specialized facilities and equipment for commodities (such as uranium, plutonium, tritium, lithium, high explosives, and microelectronics) and general-purpose infrastructure to enable safe, secure, and reliable operations are required to meet the mission.

- **Management and Operations.** NNSA deploys layers of physical security, safeguards and safety personnel, and sophisticated cyber security systems to protect the workforce, materials, infrastructure, and sensitive information essential to ensuring mission success. NNSA ensures a robust Defense Nuclear Security Program with clear and consistent lines of responsibility and accountability. Safety operations include supporting safe and efficient material operations, as well as packaging and transporting sensitive materials. These include compliance with environmental, safety, health, and quality requirements and improving the physical infrastructure. NNSA works continuously to improve its project management across the enterprise in partnership with the leadership at its laboratories and other contractor-operated sites. NNSA is focused on building a culture of pride and accountability delivering results to meet its mission goals and providing the best value to the taxpayer. NNSA has systematically strengthened its project management cost estimating capabilities and acquisition systems. NNSA ensures that contract structures and incentives are cost-effective and will hold its contractors accountable to the terms and conditions of its contracts.

NNSA National Laboratories, Plants and Sites

The NNSA nuclear security enterprise is composed of NNSA Headquarters, the NNSA field offices, nuclear weapons production facilities, national security laboratories, and the Nevada National Security Site. At these locations, a highly trained workforce consisting of Federal employees, M&O contractors, and assigned members of the military works to ensure the success of the NNSA mission. NNSA Headquarters develops the strategy and oversees and coordinates activities to ensure they are accomplished in an efficient and fiscally responsible manner. NNSA stewards its laboratories, plants and site through field offices

that provide day-to-day oversight and contract administration. The Field Office Managers report directly to the NNSA Administrator. The Field Offices serve as the local representatives of NNSA; integrating and balancing contract requirements and risk, approving regulatory controls for onsite high hazard work; and managing NNSA interfaces at the tribal, state and local level.

- **National Security Laboratories.** The national security laboratories are Lawrence Livermore National Laboratory (LLNL) in Livermore, California; Los Alamos National Laboratory (LANL) in Los Alamos, New Mexico; and Sandia National Laboratories (SNL) in Albuquerque, New Mexico and Livermore, California. Their primary mission is to develop and sustain nuclear weapons design, simulation, modeling, and experimental capabilities and competencies to ensure confidence in the stockpile without nuclear explosive testing. Additional core missions include plutonium research and development (R&D); tritium R&D; high explosives (HE) and energetic materials R&D; special nuclear material (SNM) accountability, storage, protection, handling, and disposition; pits, detonators, neutron generators, and other non-nuclear component production; research, development, test, and evaluation (RDT&E) efforts for stockpile stewardship; engineering, design, and technical systems integration for Secure Transportation Asset; and nonproliferation, counterterrorism and counterproliferation technologies and capabilities. In addition to the national security laboratories, NNSA also has ongoing work performed by other DOE national laboratories, supporting both Weapons Activity and the Defense Nuclear Nonproliferation programs. The laboratories also perform essential work for the broader national security enterprise, including the Departments of Defense, State, and Homeland Security, and the Intelligence community.
- **Nuclear Weapons Production Facilities.** The nuclear weapons production facilities include the Kansas City National Security Campus (KCNSC) in Kansas City, Missouri; Pantex Plant (Pantex) in Amarillo, Texas; Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee; and Savannah River Site (SRS) in Aiken, South Carolina. These facilities conduct a range of activities that include assembling, disassembling, rebuilding, repairing,

maintaining and surveilling stockpile weapons and weapon components; fabricating joint test assemblies; assembling and disassembling test beds; conducting interim staging and storing of nuclear components from dismantled weapons; performing pit requalification, surveillance, and packaging; producing and procuring non-nuclear weapons components; extracting and recycling tritium; loading tritium and deuterium into gas transfer system (GTS) reservoirs of nuclear weapons; performing surveillance of GTSs to support certification of the stockpile; manufacturing uranium components for nuclear weapons, cases, and other weapons components; evaluating and performing tests of these components for surveillance purposes; storing Category I/II quantities of highly enriched uranium (HEU); conducting dismantlement, storage, and disposition of HEU; and supplying HEU for use in naval reactors. In addition, the nuclear weapons production facilities process uranium and plutonium to meet DOE/NNSA's nonproliferation goals and counterterrorism activities.

- **National Security Site.** The Nevada National Security Site in Nye County, Nevada, outside of Las Vegas, provides facilities, infrastructure, and personnel to the national security laboratories and other organizations to conduct nuclear and nonnuclear experiments. It is the primary location where experiments using radiological and other high hazard materials are conducted and the primary location where HE-driven plutonium experiments can be conducted.

Recent Organization Accomplishments

Elements within the S5/NA-1 organization have achieved many important recent accomplishments. A few are described below, and additional highlights can be found in the overviews for NNSA's organizational elements.

Office of Policy and Strategic Planning (NA-1.1)

Through an enterprise-wide collaborative effort led by NA-1.1, in May 2019, the S5/NA-1 issued three strategic documents that set expectations across the NSE for what NNSA does and how it is done, including:

- The *NNSA Strategic Vision* identifies our values, principles, mission priorities, and goals.
- The *Governance & Management Framework* focuses on the NNSA team approach to mission integration and strategic planning and establishes roles and responsibilities across the enterprise. The G&M Framework describes four key governance expectations that sustain constant focus and alignment on NNSA's vital mission.
- The *Strategic Integrated Roadmap* projects NNSA's key programs of record out 25 years and informs the process of prioritizing programs and priorities. This strategic document is updated annually.

Office of Defense Programs (NA-10)

- **Annual Assessment:** The NNSA Laboratory Directors continue to certify the nuclear stockpile based on Defense Program activities. Cycle 24 was completed in FY 2020 and Cycle 25 will be completed in FY 2021.
- **Exascale:** On May 12, 2020 the NNSA completed the Exascale Class Computer Cooling Equipment (EC3E) Project at Los Alamos National Laboratory (LANL), 10 months ahead of schedule and \$20 million under budget.
- **Pit Production:** Successfully produced development (DEV) pits. Installed equipment to produce the first war reserve pit during 2023 in PF-4. The achievements support the DoD requirement of producing no fewer than 80 pits per year during 2030.
- **Life Extension Programs:** NNSA continues to make warhead deliveries to the Department of Defense and has sustained its weapons activities through the COVID-19 pandemic, achieving its programmatic milestones on time and on budget.

Office of Defense Nuclear Nonproliferation (NA-20)

- **Nuclear Material Removals:** Completed several multi-year nuclear material removal campaigns from a number of foreign locations, including over 1000 kg of highly enriched uranium.
- **Domestic Production of Mo-99: Partnered with commercial industry in the United States** to produce the critical medical radioisotope molybdenum-99 (Mo-99). This was the first domestic production of Mo-99 in nearly 30 years.

- **Material Disposition:** Achieved a 2020 Amended Record of Decision providing the pathway to downblend and disposition 7.1 MT of surplus Plutonium at the Waste Isolation Pilot Plant (WIPP).
- **Cesium Irradiator Replacement:** Completed 151 Cesium Irradiator Replacement Project (CIRP) removals from U.S. hospitals and universities. DNN is on pace to remove all cesium-based irradiators in the United States by 2027.
- **Warhead Measurement Campaign:** Completed the Warhead Measurement Campaign that collected high fidelity, archival, radiation signature measurements of the W76, B61 and B83 in support of future arms control treaty negotiations.
- **Nuclear Detonation Detection Payloads:** Delivered 10 nuclear detonation detection payloads to the USAF for integration into operational national systems to detect, locate, identify, and characterize nuclear explosions globally, 24/7.
- **IAEA safeguards agreements:** Expanded efforts to promote the highest standard of IAEA safeguards agreements with all non-nuclear weapons States Parties to the NPT.

Office of Naval Reactors (NA-30)

- **Columbia-Class Submarine.** Naval Reactors is on track to support the start of ship construction in FY 2021 and is committed to delivering the 40+ year life-of-ship reactor core and the electric drive propulsion system necessary for the COLUMBIA-Class program. This year, Naval Reactors continues supporting oversight of the lead ship propulsion plant design, reactor component manufacturing, and safety analysis work required to support lead ship reactor testing.
- **Refueling Land-Based Prototype Reactor.** The S8G Prototype, located at the Kesselring Site in West Milton, NY, was built in the late 1970s and serves as a critical operating nuclear reactor to train sailors and prototypically test reactor technologies. Its refueling overhaul began in September 2018, and is scheduled to complete in 2022 in order to return to training nuclear operators in 2023.
- **Spent Fuel Handling Recapitalization Project.** The Spent Fuel Handling Recapitalization Project is designing and constructing the Naval Spent

Fuel Handling Facility that will be located at the Naval Reactors Facility in Idaho. To date, the facility site location has been fully excavated, concrete placement to support the facility foundations has begun, and preparations for structural steel fabrication is underway.

Leadership Challenges

Important and challenging topics that are likely to benefit from ongoing attention by S5/NA-1 leadership include the following:

- Supporting DoD warhead Requirements. NNSA and DoD are currently in complete schedule alignment regarding warhead acquisitions synchronized with DoD platform developments. However, sustained funding and long-term support are critical to remain in alignment.
- COVID-19. Critical national security missions do not allow for temporary cessation or operational delays. Multiple mission-critical activities cannot be performed in virtual environments or with social distancing regulations. NNSA will continue to ensure workforce health and safety, continue to manage its workflow, and establish efforts to complete work without delay.
- Evolution of proliferation threat. The proliferation threat continues to evolve, including through advances in nuclear and dual-use technologies, and this evolution threatens to outpace our response.
- Supply chain challenges. Changes in supply chain drive the need to identify and mitigate program, budget, and security risks, especially for the United States Nuclear Detonation Detection System (USNDS).
- Human Resources. Staffing remains an ongoing challenge. Additional federal staff are required to provide the oversight for existing programs and to work with the National Laboratories to develop innovative approaches to new challenges.
- Aging Infrastructure. Many facilities and systems are well beyond useful life, and obsolescence limits maintenance and repair options. Excessive deferred maintenance increases the risk of building and building system outages, leads to substandard working conditions, and elevates operational and safety risks.

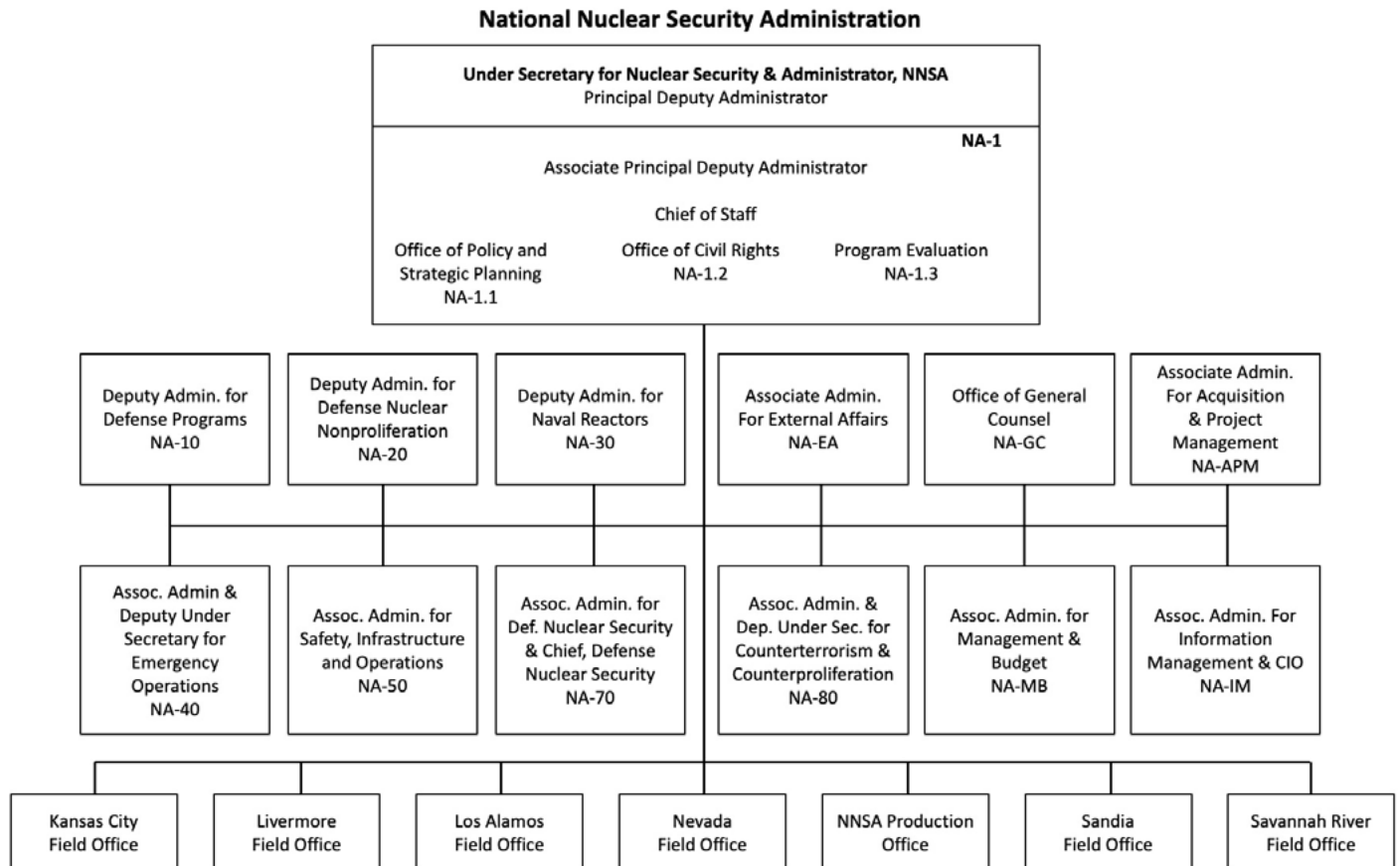
Critical Events and Action Items

Critical events or actions that will take place within the first 3 months of the next Presidential term include the following:

- **Multi-Domain Experiment:** On November 6, Los Alamos National Laboratory will detonate a 2,500 kg TNT-equivalent charge at the Big Explosive Experiment Facility at the Nevada National Security Site. Results from this test will inform future experiments at the Low Yield Nuclear Monitoring testbed, which is designed to improve U.S. capabilities to detect low-yield evasive underground nuclear explosions.
- **Oak Ridge Enhanced Technology and Training Center Groundbreaking Event:** On November 16, NA-1 will participate in the groundbreaking event for the Oak Ridge Enhanced Technology and Training Center (ORETTC) in Oak Ridge, TN.
- **U.S. Withdrawal from the Treaty on Open Skies:** Effective November 22, 2020 the United States will no longer be a party to the Treaty on Open Skies. In a press statement on May 21, Secretary of State Pompeo said that the United States may reconsider our withdrawal if the Russian Federation returns to full compliance with the Treaty.
- **Launch of next Global Burst Detector (GBD) III Payload in Support of Nuclear Test Monitoring:** The U.S. Air Force's plans to launch the next GPS Block III satellite have been rescheduled to November 2020. The GBD payloads are part of the constellation of sensors comprising the U.S. Nuclear Detonation Detection System.
- **Lovelace Biomedical Research Institute (LBRI) material movement:** During the week of December 7, TRIAD plans to perform Phase 3 of the removal of material from LBRI. This phase builds upon lessons learned in the earlier two phases. TRIAD personnel will package and transport the material to LANL.

Organizational Chart

The NNSA organization chart as of January 2020 is reproduced below.



NNSA Office of Policy and Strategic Planning

Supporting the DOE Mission

NNSA's Office of Policy and Strategic Planning (NA-1.1) supports NNSA leadership on policy, strategic planning, and governance and management activities and initiatives, helping NNSA to be proactive, flexible, and resilient, as the Agency meets its mission objectives in an evolving, and often uncertain, strategic climate. NA 1.1 is organized around three sets of inter-related, activities:

- Management of NNSA directives that guide policy implementation throughout the enterprise, ensuring that policy priorities for the enterprise are understood and adhered to universally.
- Development of enterprise-wide strategic planning documents, which help to define strategic objectives and mission priorities, as well as activities looking at evolving strategic and crosscutting risks and opportunities that may impact NNSA in the long term.
- Leadership of governance and management initiatives that provide a common blueprint for how NNSA effectively achieves its mission, with an emphasis on risk management, clearly defined roles and responsibilities, and the recruitment and retention of a world-class workforce.

Through these efforts, the Office of Policy and Strategic Planning plays an essential role in ensuring that best practices are shared widely and communicated consistently throughout the enterprise.

Mission Statement

The Office of Policy and Strategic Planning (NA-1.1) serves as a central resource to the Under Secretary of Nuclear Security and NNSA Administrator, as well as NNSA senior leadership, on strategic planning, governance and management, and crosscutting policy issues. NA-1.1 oversees NNSA's enterprise-wide strategic planning processes and supports the development and integration of long-term

strategic priorities for the enterprise. It leads the annual laboratory, plant, and site strategic planning process; the planning stage of the Planning, Programming, Budgeting, and Evaluation (PPBE) process; and other integrated NNSA strategic planning efforts. NA-1.1 also spearheads NNSA's governance and management initiatives, working in collaboration with NNSA program, functional, and field offices as well as NNSA's management and operating (M&O) partners. The Office acts as the lead integrator on crosscutting policy issues to facilitate the development of enterprise-wide solutions and strategies to advance NNSA positions and priorities. NA-1.1 also provides strategic oversight and management of the NNSA process for developing and codifying internal directives and establishing NNSA's official position on DOE directives.

Budget

NA-1.1 has no program funding.

Human Resources

FY 2021 Allocated Staffing Level: 11 FTEs

History

NA-1.1 was reconstituted in 2015 to serve as an internal "Think Tank" unencumbered by the crisis of the day or requirements to produce detailed reports or implementation plans. As envisioned, the Director for the Office would have direct access to the Administrator and the Principal Deputy Administrator and act in an advisory capacity for developing policies and strategies for solving difficult NNSA challenges and the plans for communicating these policies and strategies across the NSE.

Functions

NA-1.1 brings its expertise to bear on several areas that directly support the NNSA Administrator. For example, the Office generates high-level policies, strategies, technical advice, information products, and creative solutions to complex problems on behalf of the Administrator. It facilitates decision-making by providing timely expert advice and analysis of policy and program options to NNSA leadership on the full breadth of issues that may arise across the dynamic nuclear security enterprise. NA-1.1 is well positioned to lead cross-organizational teams in the integrated analysis and

resolution of complex, crosscutting, enterprise-wide, or department-wide issues.

Effective July 6, 2020, the NNSA directives team has moved under NA-1.1. This realignment enables a more strategic approach to the development of NNSA internal policy and directives, helping to guide consensus on NNSA and DOE policies with crosscutting impacts.

The Office has three focus areas: Policy, Strategic Planning, and Governance and Management.

Policy

Internal

Manage the process for developing and codifying internal NNSA directives. Manage the process for establishing NNSA's official position on DOE directives.

External

Facilitate the development of "one NNSA" position, strategies, and next steps, as appropriate, on crosscutting policy issues.

Strategic Planning

Oversee enterprise-wide strategic planning processes and support the development and integration of long-term strategic priorities for enterprise.

Lead the annual laboratory, plant, and site strategic planning process, the planning stage of the PPBE process, and other enterprise-wide strategic planning efforts.

Governance and Management

Work with NNSA program, functional, and field offices and M&O partners to identify challenges to NNSA's governance and management, develop solutions, track and measure progress, and communicate results.

Recent Organization Accomplishments

Through an enterprise-wide collaborative effort led by NA-1.1, in May 2019, the Administrator issued three strategic documents that set expectations across the NSE for what NNSA does and how it is done:

The NNSA Strategic Vision identifies our values, principles, mission priorities, and goals.

The Governance & Management (G&M) Framework focuses on the NNSA team approach to mission integration and strategic planning and establishes roles and responsibilities across the enterprise. The G&M Framework describes four key governance expectations that sustain constant focus and alignment on NNSA's vital mission.

The Strategic Integrated Roadmap projects NNSA's key programs of record out 25 years and informs the process of prioritizing programs and priorities. This strategic document is updated annually.

Policy

Internal

Updated Supplemental Directive 251.1, Directives Management, to reflect the realignment of the NNSA Directives Team under NA-1.1.

Launched the NNSA Directives Website, enabling all NNSA organizations, no matter their location, to access every current and archived NNSA directive for the first time.

Replaced NNSA's email-based directives coordination process with an automated, web-based review and comment tool, reducing work across the Enterprise.

Collected NNSA's delegation and designation memoranda and made them available to the entire enterprise on the Directives Website.

Replaced NNSA's unstructured directives numbering system with the DOE numbering system, enabling NNSA organizations to quickly and easily find DOE and NNSA directives on the same or related topics.

External

Established a cross-cutting Policy Touchpoint with NNSA program offices to provide better transparency on National Security Council (NSC) and interagency-led topics and international activities with crosscutting equities.

Served as the NNSA coordinator for a recent Administration review of all NNSA laboratories, plants, and sites that may hold chemicals or precursor materials that would be reportable under the Chemical Weapons Convention.

Provided a comprehensive review of the Administration's Nuclear Fuels Working Group study.

Strategic Planning

Stood up the Strategic Outlook Initiative to develop annual over-the-horizon studies that support NNSA's efforts to become a more agile, responsive, and proactive enterprise.

Designated as the lead for the planning phase under the PPBE process and drafted the FYNSP Planning Guidance for the FY 2022-2026 fiscal year nuclear security program.

Improved the way NNSA conducts the annual site-level strategic planning cycle to maximize participation, support transparency, and improve mission integration.

Governance and Management

Served as lead organization for engagement with the National Academies of Science, Engineering, and Medicine and the National Academy of Public Administration (NAS/NAPA) on their four-year implementation assessment panel on NNSA G&M reform. The final report was issued in September 2020.

Hosted a virtual G&M Town Hall for the NSE workforce to launch the NNSA strategic documents and engage in a continuing, open, and collaborative dialogue across the NSE on the topic of governance and management.

Conducted a series of focus groups with both federal and M&O partners at locations across the enterprise. These focus groups gathered information and generated ideas supporting NNSA's strategic effort to improve governance and management across the NSE.

Launched a series of G&M newsletters to provide enterprise-wide communication on governance topics.

Developed an enterprise-wide action plan that addresses the steps necessary to drive, track, and sustain culture change across the NSE, including metrics to measure success.

Built a comprehensive Online Resource Library that will include reports that have impacted NNSA and predecessor organizations over the past 40 years, and will be easily accessible to both the DOE and NNSA workforce through SharePoint.

Supported the Office of Management and Budget in the development of the next iteration of governance training for the enterprise.

Leadership Challenges

A small staff only allows of a limited number of activities to be worked on at one time.

Critical Events and Action Items

3-month events

Build out a comprehensive Online Resource Library.

Release next iteration of NSE governance training.

Complete FY 2023 Planning Guidance.

Complete NNSA Policy on Enterprise Wide Strategic Planning.

6-month events

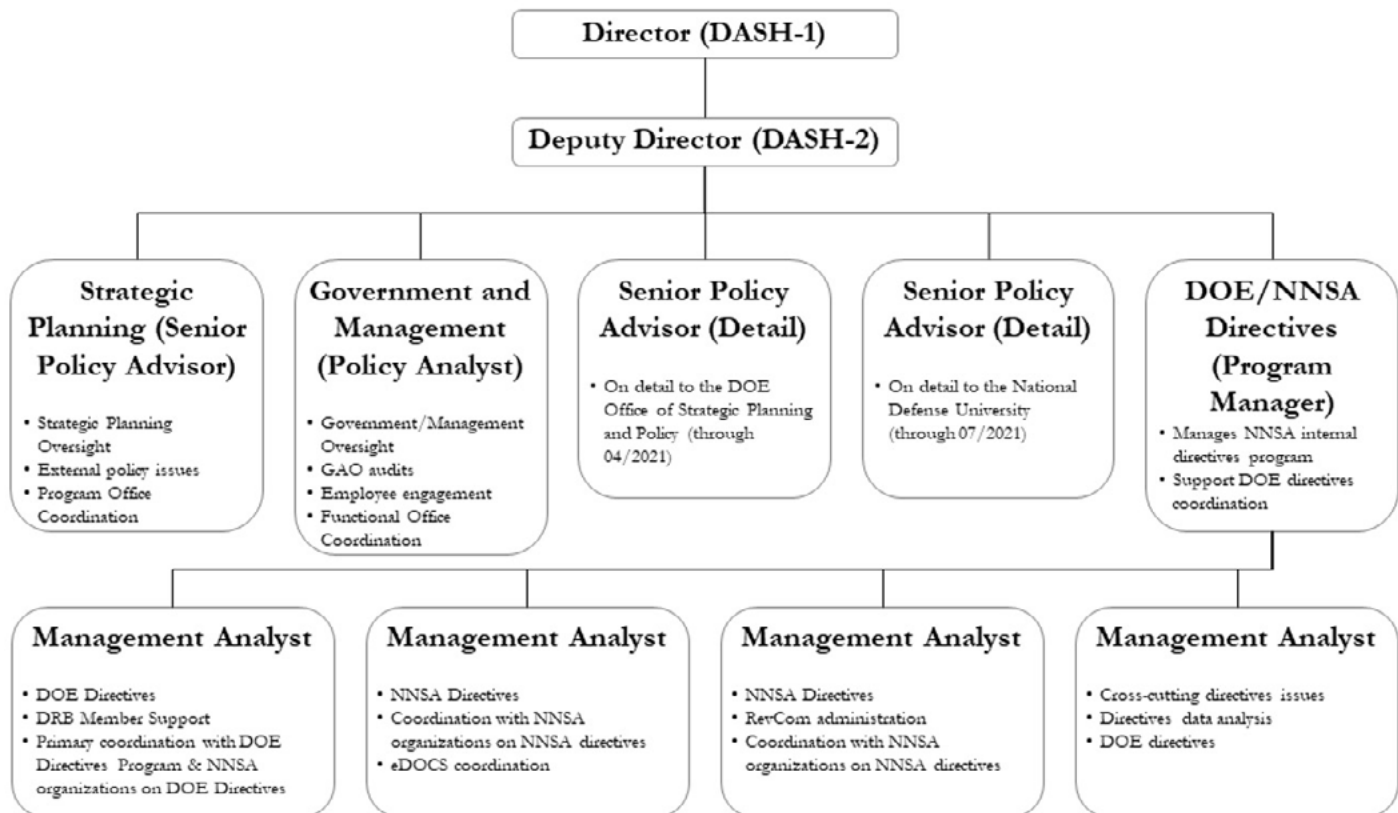
Complete annual update of the Strategic Integrated Roadmap.

Develop 2021 annual laboratory, plant, and site strategic planning guidance.

12-month events

Complete first over-the-horizon study under the Strategic Outlook Initiative.

Organizational Chart



NNSA Office of Cost Estimating and Program Evaluation

Supporting the DOE Mission

The Office of Cost Estimating and Program Evaluation was established by Congress in recognition of a gap in NNSA's capacity to independently determine the costs of projects and adequately budget for them, leading to poor mission performance.

CEPE is instrumental to meeting DOE's mission to ensure America's national security by accurately estimating costs, assessing alternatives, and evaluating NNSA's program performance, thereby ensuring responsible expenditure of taxpayer dollars and garnering credibility with Congress.

Mission Statement

The Office of Cost Estimating and Program Evaluation provides the administrator with independent, data-driven analysis on all aspects of the Nuclear Security Enterprise, leading to better mission planning and performance. Accurately estimating costs, assessing alternatives, and evaluating NNSA's program performance are vital to national security and the responsible expenditure of taxpayer dollars.

Our goal is to increase mission success through providing independent analysis to inform better planning, risk mitigation strategies, and program execution.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$2,600,000
FY 2020 enacted	\$2,600,000
FY 2021 request	\$2,200,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 19

History

The FY 2014 NDAA amended the NNSA Act to establish CEPE as the primary advisor to the Secretary and NNSA Administrator on cost estimating and program evaluation in the NNSA. The Director, CEPE is a direct report to the NNSA Administrator.

Functions

Independent Cost Estimates (ICEs) for nuclear warhead life extension programs (LEPs) and construction projects.

Cost estimating data collection and sharing.

Develop & manage submittal of Selected Acquisition Reports (SARs) for LEPs.

As part of the annual Planning, Programming, Budgeting, and Evaluation (PPBE) process, analyze the planning phase, advise on programmatic & fiscal guidance, and manage the annual program review.

Review the Future Years Nuclear Security Program to ensure it is accurate & thorough.

Independent review and & policy/procedures for Analysis of Alternatives (AoAs).

Review of Technology Readiness Assessments (TRAs).

Review cost and schedule baselines for projects/ programs and manage Congressional notification of overruns.

Recent Organization Accomplishments

In response to the FY 2019 NDAA granting CEPE authority to conduct ICEs on projects under DOE 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, four ICEs on capital asset construction projects were completed in FY 2020 (Surplus Plutonium Disposition; Digital Infrastructure Capacity Expansion; High Explosive Synthesis, Formulation, and Production; and U1A Complex Enhancement Project).

CEPE completed independent reviews of the AoA for three projects (LANL Electrical Power Capacity Upgrades; High Explosive Synthesis &

Formulation Plant; and Power Sources Capability) and is reviewing four projects (Domestic Uranium Enrichment, Combined Radiation Environments for Survivability Testing, Digital Infrastructure Capabilities Enhancement, and Energetic Materials Characterization).

During the FY22-26 Program Review, CEPE conducted an enterprise-wide review of unconstrained FTE requirements to meet NNSA's current program of record.

Leadership Challenges

Growing staff to meet increased requirements.

ICEs for construction projects.

Increased pace & number of LEPs.
In-depth review of AoAs to assess reasonableness of cost estimates, schedule analysis, and overall

analytical quality, technical soundness, and adherence to established process and policies.

Critical Events and Action Items

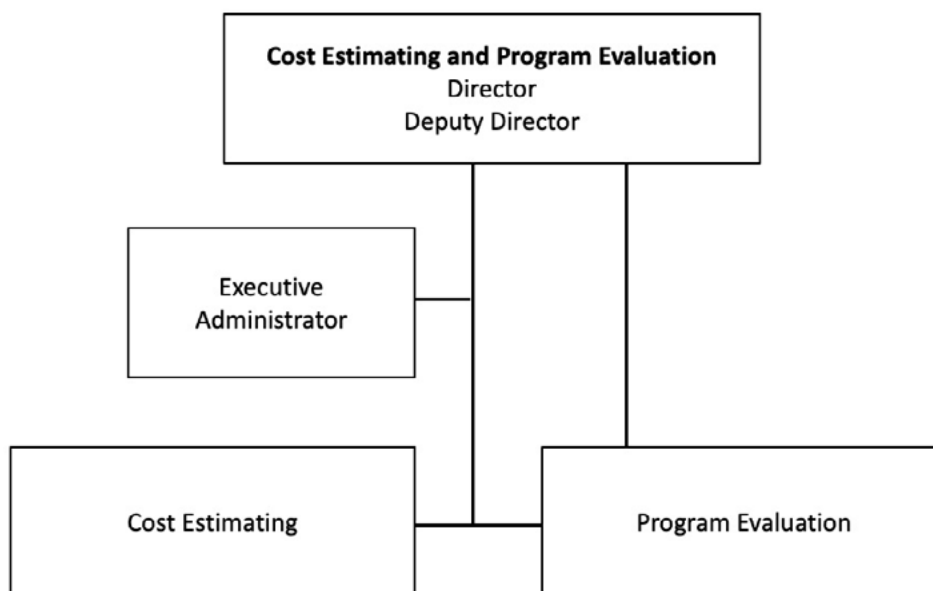
CEPE completed ICEs for the B61-12 LEP and the W88 Alt 370 prior to their Phase 6.5 entry by September 30, 2020. These ICEs will receive Congressional and public attention in early 2021.

ICEs on pit production at Los Alamos and Savannah River are ongoing and will be completed by the end of calendar year 2020. These ICEs will receive Congressional and public attention in early 2021.

The FY 2019 NDAA requires CEPE to review the plan to produce plutonium pits at LANL. CEPE plans to complete this review by September 30, 2020. This review will be sent to Congress by late 2020.

Organizational Chart

Office of Cost Estimating and Program Evaluation



NNSA Office of Defense Programs

Supporting the DOE Mission

Executing a National Nuclear Security Administration (NNSA) Mission. One of NNSA's three overarching missions is to ensure the safety, security, and effectiveness of the U. S. nuclear stockpile in support of the Nation's nuclear deterrent. This is carried out by NNSA's Office of Defense Programs (DP/NA-10) through the Stockpile Stewardship Program (SSP). The SSP was established to maintain the active stockpile; execute warhead acquisition programs [life extension programs (LEPs), Modification Programs (Mods) and Major Alterations (Alts)] as required to meet emerging Department of Defense (DoD) requirements; maintain and upgrade NNSA laboratory and production infrastructure; develop and maintain the underpinning science and engineering; and ensure a highly trained and skilled workforce. Since the inception of the SSP, these missions have been accomplished without requiring additional underground explosive nuclear testing through the application of specialized science, technology, engineering, and manufacturing.

The Nation has established the requirement to modernize the Nation's nuclear deterrent. This on-going effort includes both the DoD delivery platforms and the nuclear weapons incorporated on those platforms. In order to accomplish this mission, NNSA must maintain confidence in the state of the current stockpile, deliver on required warhead acquisitions, and ensure that NNSA has the laboratory and production capabilities required to design, develop, qualify, certify, and produce the warheads required by the DoD on their established timelines.

NNSA partners with the DoD to carry out this requirement to modernize the nuclear deterrent through coordination with the Navy, the Air Force, U.S. Strategic Command, and the Nuclear Weapons Council. To execute its mission, DP integrates activities across the NNSA weapons complex (eight sites), and with other NNSA support offices including the Office of Acquisition & Program Management; the Office of Safety, Infrastructure, and Operations; the Office of Defense Nuclear Security; and the

Office of Information Technology and Cybersecurity.

Mission Statement

Ensuring a safe, secure, and effective nuclear stockpile through the application of science, technology, engineering, and manufacturing.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$11,113,080,000
FY 2020 enacted	\$12,457,097,000
FY 2021 requested	\$15,602,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 210

History

The SSP was established to sustain the U.S. nuclear stockpile through assessing and certifying the safety, security, and effectiveness of the nuclear stockpile without reliance on additional underground explosive nuclear testing. To accomplish these goals, NNSA utilizes a suite of capabilities to include a spectrum of specialized experimental capabilities, high-performance computers, and production facilities.

Ensuring the safety, security, and effectiveness of the stockpile is accomplished through a rigorous assessment process that annually establishes the state of the currently deployed stockpile warheads and through warhead acquisitions programs when it is determined that existing stockpile systems must be changed to ensure they continue to meet DoD requirements. Warhead modernization activities include LEPs, Mods, and Alts and address issues ranging from material aging to adapting existing stockpile warheads to new DoD delivery platforms. Enhancements to warhead safety and security features are also undertaken as part of these warhead acquisition programs. Warhead acquisition programs are carried out by NNSA jointly with the DoD, and coordinated through the Nuclear Weapons Council, utilizing a NNSA-DoD acquisition process referred to as the Phase X or Phase 6.X process. With four warhead acquisitions currently underway, NNSA is executing a large variety of complex design, component development, and production work.

Production activities are carried out at several NNSA sites dedicated to the manufacture of specific components required to produce a warhead and a site responsible for integrating these components to produce the warhead. To a very large extent, NNSA is its own vendor base. Commercial suppliers are utilized for some materials and in particular for commercial-off-the-shelf electronics. Safe and secure transportation of warheads and special nuclear materials between NNSA sites and between NNSA and DoD sites is accomplished through DP's Secure Transportations Asset (STA) program.

Functions

Stockpile Management

DP directs and oversees all stockpile assessment, design, development, and production activities to ensure the U. S. nuclear weapon stockpile remains safe, secure, and effective. Stockpile management activities focus on warhead acquisition programs; annual maintenance, surveillance, and assessments; program development and planning; providing safe and secure dismantlement of nuclear weapons and components; and sustainment of needed manufacturing capabilities and capacities, including process improvements, quality assurance, and investments focused on increased efficiency of production operations.

Production Modernization

DP is responsible for maintaining and upgrading nuclear weapon production facilities and capabilities. These efforts enable the long-term viability of nuclear weapons production infrastructure by improving the infrastructure and ensuring the capacity to produce strategic materials such as tritium, high explosives, and depleted uranium, and the ability to use these materials to produce the strategic components that compose a U.S. stockpile warhead to include primaries, canned subassemblies, and non-nuclear components.

Stockpile Research, Technology, and Engineering

DP leverages leading-edge expertise in research and development to maintain the effectiveness of the nuclear weapons stockpile. These research, technology, and engineering activities utilization of a spectrum of experiments to acquire data needed to support and validate numerical modeling and simulations, and surveillance and flight tests

that help affirm the effectiveness of the nuclear weapons stockpile. Subcritical and hydrodynamic experiments, along with high energy density physics and advanced computing techniques, provide a technical basis for the annual assessment of the safety and reliability of the nuclear weapons stockpile and the certification of warheads produced through the warhead acquisition programs.

Secure Transportation

DP provides for the safe, secure transport of nuclear weapons, weapon components, and special nuclear materials to meet mission requirements. The program also provides for the specialized secure transportation workforce, including the Federal agents.

Recent Organization Accomplishments

Annual Assessment

The NNSA Laboratory Directors continue to certify the nuclear stockpile based on Defense Program activities. Cycle 24 was completed in FY 2020 and Cycle 25 will be completed in FY 2021.

Exascale

On May 12, 2020, the NNSA completed the Exascale Class Computer Cooling Equipment (EC3E) Project at Los Alamos National Laboratory (LANL), 10 months ahead of schedule and \$20 million under budget. The EC3E project nearly doubles the highly efficient warm-water cooling capability in LANL's Strategic Computing Complex (SCC), and enables facility operational support for multiple exascale-class supercomputers.

Pit Production

Successfully produced development (DEV) pits. Installed equipment to produce the first war reserve pit during 2023 in PF-4. The achievements support the DoD requirement of producing no fewer than 80 pits per year during 2030.

W76-2 Delivery

The NNSA modified and delivered the W76 sea-launched ballistic missile warhead, providing the US Navy with a lower-yield capability. The 2018 NPR outlined the need for this capability to support credible and capable nuclear deterrence.

B61-12 LEP

On August 25, 2020, Pantex completed the First Production Capability Unit (FPCU) for the B61-12, a non-nuclear explosive prototype that allows the program to exercise processes to ensure readiness for rate production. Received Phase 6.5, First Production and authorization.

W88 Alt 370

In April 2020, Pantex completed the W88 Alteration (Alt) 370 FPCU. Received Phase 6.5, First Production and authorization.

W80-4 Life Extension Program

Completed all Conceptual Design Reviews. Completed Phase II of the Integrated Baseline Review.

W87-1 Modification Program

Finalized and documented W87-1 surety architecture down-select.

Defense Programs Office of Secure Transportation

Defense Programs has continued to achieve safe and secure transport of nuclear materials and weapons.

Leadership Challenges

Supporting DoD warhead Requirements

NNSA and DoD are currently in complete schedule alignment regarding warhead acquisitions synchronized with DoD platform developments. However, sustained funding and long-term support are critical to remain in alignment. While the U.S. nuclear weapons stockpile and its supporting infrastructure are currently safe, secure, effective, and reliable, they are aging. Competing interests over the past thirty years postponed weapon and infrastructure modernization programs, which directly contributed to erosion of our critical capabilities, infrastructure, and capacity to ensure the deterrent's viability into the future. The need to modernize our nuclear weapons stockpile and recapitalize the supporting infrastructure needed to produce and maintain that stockpile has reached a tipping point. Sixty percent of NNSA's facilities are more than forty years old and nearly forty percent are in poor condition. Assessments of facilities

throughout the enterprise have identified numerous single-point failures. If not appropriately addressed, the age and condition of NNSA's infrastructure will put NNSA's deterrence mission, and the safety of its workforce, the public, and the environment, at risk. NNSA is undertaking a risk-informed, complicated, and time-constrained modernization and recapitalization effort. Delays in either the funding support needed to carry out this program or the execution by NNSA of this program will have impacts on the nuclear deterrent modernization program.

Covid-19

DP's critical national security missions does not allow for temporarily cessation or operational delays. Multiple mission-critical activities cannot be performed in virtual environments or with social distancing regulations. As certain tasks must be completed on-site, DP identified priorities, made decisions based on local situations, and is continuing to take action to protect the workforce. Consequently, NNSA has not missed any DoD deliverables or any major milestones due to COVID-19. Some deliverables were delayed to ensure workforce safety while meeting highest priority DoD deliverables. Until an effective vaccine is developed DP will continue ensure workforce health and safety; continue to manage its workflow; and establish effort to complete the work deferred during the initial and current stages of COVID-19.

Critical Events and Action Items

W88 Alt 370

First Production Unit (milestone) to be achieved July 2021.

B61-12 LEP

First Production Unit (milestone) to be achieved November 2021.

W80-4 Life Extension Program

Execute Phase 6.3 activities for the W80-4 LEP in support of the Air Force LRSO program.

W87-1 Modification Program

Complete W87-1 Modification Program Phase 6.2 activities, feasibility study, and design options, and enter Phase 6.2A, design definition and cost study in FY 2021.

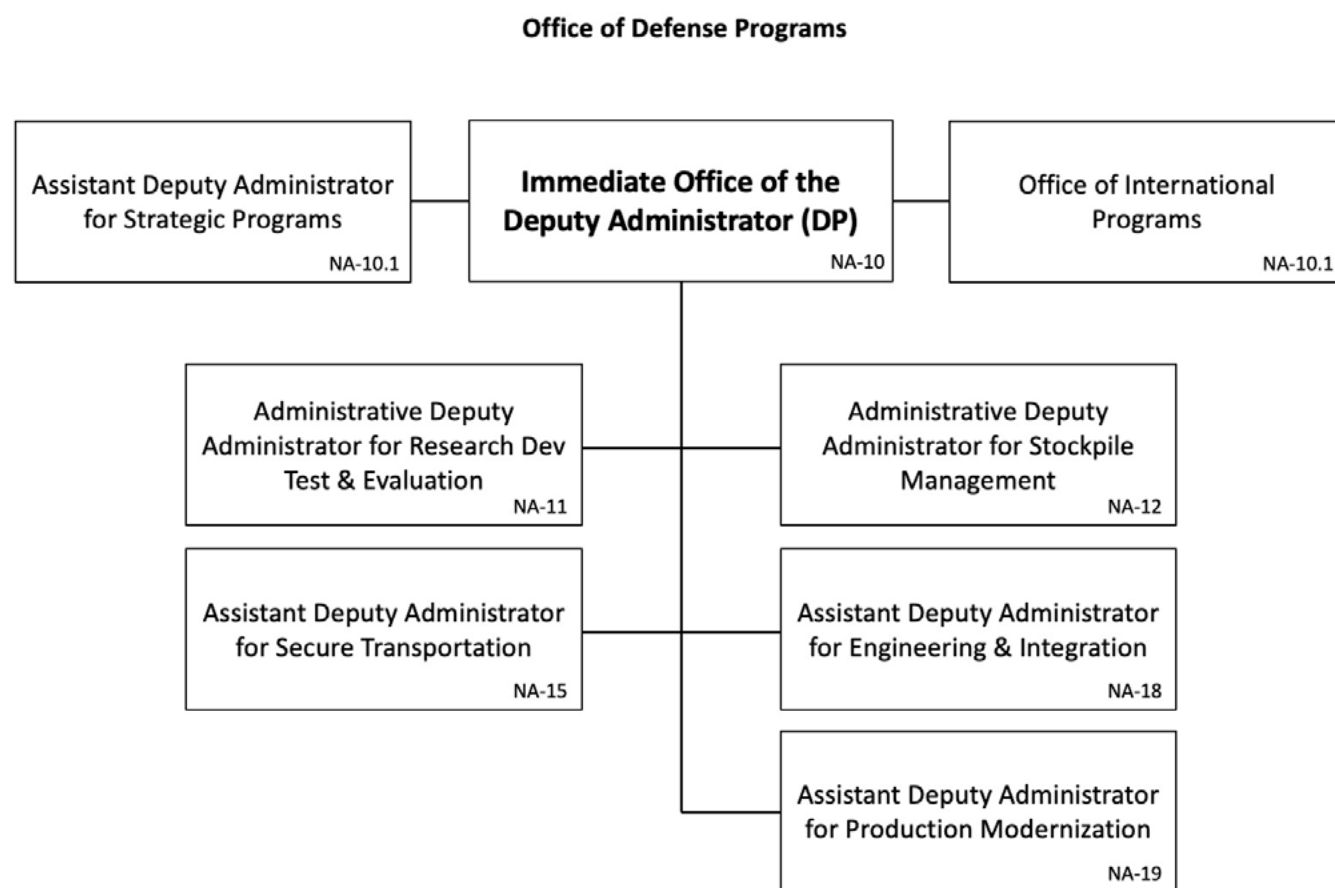
Plutonium Pit Production

The Savannah River Plutonium Processing Facility is on schedule to complete the Conceptual Design Report and cost/schedule range in 2020, and receive CD-1 Approval from NA-1 in FY 2021 as stated in the Nuclear Weapons Council letter to Congress. FY 2021 funds will be used to continue design, procure long lead materials, and plan and prepare for demolition and equipment removal.

Plutonium Pit Production Expansion

Produce pits for the Process Prove-in (PPI) phase of product realization at LANL.

Organizational Chart



NNSA Office of Defense Nuclear Nonproliferation

Supporting the DOE Mission

The Office of Defense Nuclear Nonproliferation (DNN) is at the forefront of global efforts to deter and combat nuclear proliferation, and prevent nuclear and radiological terrorism. DNN leads the execution of NNSA's "Mission Priority #2: Reduce global nuclear security threats and strengthen the nuclear enterprise," and supports "Mission Priority #4: Strengthen key science, technology, and engineering capabilities."

DNN develops and implements policy and technical solutions to prevent state and non-state actors from acquiring nuclear weapons or the proliferation sensitive materials, technology, and expertise necessary to develop nuclear and radiological weapons and programs. DNN achieves its mission by executing programs that:

- Eliminate or remove nuclear and radioactive materials no longer in use, and minimize the need for future use.
- Safeguard nuclear materials and secure nuclear and radioactive materials and facilities in use.
- Support forensics-based attribution of interdicted materials and devices, or of a nuclear/radiological attack, and respond to emerging nonproliferation and nuclear security threats.
- Control the further spread of materials, technology, and expertise.
- Detect and counter proliferation and verify that obligations are being met.

In pursuing these objectives, DNN has established a strong record of success. DNN has secured, removed, or eliminated nuclear and radioactive material from numerous countries around the globe; helped ensure the long-term sustainability of the Nuclear Non-Proliferation Treaty (NPT); supported a variety of interagency and other partners with cutting-edge technology to address

proliferation risks; and prioritized initiatives to ensure that the highest levels of nonproliferation norms are at the foundation of global civil nuclear commerce.

DNN is committed to being an organization that is innovative, adaptive, and anticipatory as it responds to current and evolving global nuclear risks.

Mission Statement

Develop and implement policy and technical solutions to eliminate proliferation-sensitive material and limit or prevent the spread of material, technology, and expertise related to nuclear and radiological weapons and programs around the world.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$1,626,175,000
FY 2020 enacted	\$1,778,605,000
FY 2021 request	\$1,660,139,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 190

History

DOE performs a unique and indispensable role in reducing global nuclear and radiological dangers, contributing to U.S. national security and global security writ large. The predecessor organization to today's DOE, the Atomic Energy Commission (AEC) was established under the Atomic Energy Act of 1954 and the AEC's—and now DOE's—role in nuclear nonproliferation dates back to its founding and the realization that without proper controls on nuclear technology and material, dozens of countries could acquire nuclear weapons, resulting in a dangerous and unstable world. In response, the United States led a global effort to prevent the spread of nuclear weapons to additional states. Many of those early efforts remain pillars of the global nonproliferation regime to this day including the Treaty on the Non-proliferation of Nuclear Weapons (NPT), export controls on sensitive technology, and international nuclear safeguards.

DOE's nuclear nonproliferation work is mainly performed by the National Nuclear Security Administration's Office of Defense Nuclear

Nonproliferation (DNN), which was established when NNSA was created in March 2000. Early on, DNN assumed responsibility for long-time DOE programs that fulfilled statutory responsibilities over the export control of nuclear technology, met U.S. obligations under the NPT by providing support to the International Atomic Energy Agency (IAEA), and provided technical support to the negotiation and implementation of strategic nuclear arms control treaties and other multilateral nuclear nonproliferation treaties and agreements. DNN also consolidated the work that DOE had started after the breakup of the Soviet Union aimed at addressing the proliferation risks involving nuclear weapons, weapon-usable nuclear materials, and their storage facilities in the newly independent Soviet states.

DNN's nonproliferation mission expanded in response to the terrorist attacks carried out on September 11, 2001. New areas of focus included expanding efforts to install radiation detection monitors; accelerating existing efforts to convert research reactors and medical isotope production facilities from highly enriched uranium (HEU) to low enriched uranium (LEU); improving security for and disposition of radioactive materials that could be used in dispersal devices (i.e., "dirty bombs"); and increasing research into new technologies, techniques, and materials to help prevent the spread of weapons of mass destruction (WMD) to hostile state and non-state actors.

DNN programs have implemented high-profile nuclear threat reduction initiatives, including:

- Securing 268 buildings with radioactive sources worldwide, installing Radiation Portal Monitors (RPM's) at 60 sites, and deploying 67 Mobile Detection System (MDS) vans internationally since 2017.
- Delivering 47 space-based sensors to maintain U.S. capabilities to globally monitor for surface, atmospheric, and outer space nuclear explosions.
- Converting or verifying the shutdown of 106 civilian research reactors and medical isotope production facilities using HEU; removing or confirming the disposition of more than 506 metric tons (MT) of HEU and plutonium (Pu) from 48 countries and Taiwan; and permanently eliminating more than 163.5 MT of HEU by downblending it into LEU.
- Monitoring the conversion of 418.6 MT of HEU from dismantled Russian nuclear weapons into LEU used to generate nearly 10% of U.S. electricity under the 1993 HEU Purchase Agreement.

Functions

Global Material Security

Works with partner countries to increase the security of nuclear and radioactive materials, and improve partner capabilities to detect, disrupt, and investigate illicit nuclear trafficking to prevent the use of these materials by terrorists.

Defense Nuclear Nonproliferation Research and Development

Drives innovative research that develops technologies and expertise to detect foreign nuclear proliferation activities and produces technologies for integration into operational systems by leveraging capabilities at the national laboratories, plants, and sites, as well as at universities and within private industry.

Material Management and Minimization

Eliminates the need for, and use or production of, weapon-usable nuclear materials such as HEU and Pu through conversion of facilities, removal of materials no longer in use, and downblending or otherwise disposing of materials.

Nonproliferation and Arms Control

Strengthens the nonproliferation and arms control regimes to prevent proliferation, ensure peaceful nuclear uses, and enable verifiable nuclear reductions.

U.S. Nuclear Forensics and Counterproliferation Capabilities

Deter and Disrupt nuclear proliferation and threats by advancing U.S. nuclear forensics and counterproliferation capabilities and expertise, and identifying and responding to emerging threats to global nuclear security through the rapid development and application of technical solutions.

Recent Organization Accomplishments

Nuclear Material Removals

Completed several multi-year nuclear material removal campaigns, including: the removal of nearly 700 kilograms of HEU from the United Kingdom; the removal of 367 kilograms of HEU from Canada; and the removal from Ghana and Nigeria of their remaining stocks of HEU, as part of a cooperative effort with the IAEA, China, Russia, and the Czech Republic.

Domestic Production of Mo-99

Partnered with commercial industry in the United States to produce the critical medical radioisotope molybdenum-99 (Mo-99). This was the first domestic production of Mo-99 in nearly 30 years.

Material Disposition

In 2018, the Department terminated the Mixed Oxide (MOX) facility that had been the planned pathway for the disposition of 34 MT of surplus Pu. The Department now plans to dispose of this material via downblending of the surplus Pu and emplacement at the Waste Isolation Pilot Plant (WIPP), while removing surplus plutonium from South Carolina. In support of this effort, a 2020 Amended Record of Decision provided the pathway to downblend and disposition 7.1 MT of surplus Pu.

Cesium Irradiator Replacement

Completed 151 Cesium Irradiator Replacement Project (CIRP) removals from U.S. hospitals and universities. By replacing these irradiators, DNN has eliminated the risk of their radioactive sources being used in an act of radiological terrorism. DNN is on pace to remove all cesium-based blood irradiators in the United States by 2027.

Early Detection

Achieved significant, measured progress in early detection of foreign weapons development activity and proliferation through a series of threat-based, operational testbeds, and advanced methods and modeling.

Warhead Measurement Campaign

Completed the Warhead Measurement Campaign that collected high fidelity, archival, radiation

signature measurements of the W76, B61 and B83 in support of future arms control treaty negotiations.

Source Physics Experiment

Successfully completed the Source Physics Experiment to improve our Nation's confidence in characterizing foreign underground nuclear tests.

Nuclear Detonation Detection Payloads

Delivered 10 nuclear detonation detection payloads to the USAF for integration into operational national systems to detect, locate, identify, and characterize nuclear explosions globally, 24/7.

Training and recruitment of Technical Experts

Established university pipeline to migrate top talent toward technical applications in national nuclear security, awarding over 440 degrees, including 169 PhDs, resulting in more than 115 new career placements in the DOE/NSA's national laboratories and 135 in the nuclear nonproliferation community.

IAEA safeguards agreements

Expanded efforts to promote the highest standard of IAEA safeguards agreements with all non-nuclear weapons States Parties to the NPT. Within one year of the organization's initial bilateral engagements with Liberia and Benin on IAEA safeguards agreements, both countries entered into force these agreements.

Civil nuclear licensing

Reduced processing times for applications to export unclassified U.S. civil nuclear technology by nearly 50 percent, while still maintaining strong nonproliferation controls on such transfers. The organization has also expanded outreach and assistance to U.S. exporters.

Leadership Challenges

Evolution of proliferation threat

The proliferation threat continues to evolve, including through advances in nuclear and dual-use technologies, and this evolution threatens to outpace our response. We are working to develop preventative measures in order to stay ahead of such threats, including through potential application of export controls.

Balancing of nonproliferation and civil nuclear goals

NNSA will continue to be challenged to develop strategies and approaches that advance U.S. nuclear nonproliferation norms in a manner that facilitates civil nuclear exports.

Supply chain challenges

Changes in supply chain drive the need to identify and mitigate program, budget, and security risks, especially for the United States Nuclear Detonation Detection System (USNDS).

Loss of technical expertise

Losing key expertise risks national capabilities for meeting future nonproliferation goals and success in high-priority nonproliferation and arms control applications.

Human Resources

Staffing remains an ongoing challenge for DNN. Additional federal staff, particularly mid-to-senior level officials, are required to provide the oversight for existing programs and to work with the National Laboratories to develop innovative approaches to new challenges.

Nuclear Forensics

Assuming U.S. Department of Homeland Security forensics roles and responsibilities.

Critical Events and Action Items

3-month events (December 2020-February 2021)

The New START Treaty will expire on 5 February 2021 if not extended.

NNSA will announce the selection of awards for Mo-99 cooperative agreements in response to a funding opportunity announcement to establish domestic supplies of Mo-99 by December 2023.

The NNSA Administrator is expected to sign a Notice of Intent (NOI) to begin an environmental analysis which will provide National Environmental Policy Act (NEPA) coverage to the 34 MT Pu disposition mission. This NEPA analysis will evaluate the dilute and dispose alternative, also known as Pu

downblending, and any other identified, reasonable alternatives for surplus plutonium disposition.

The 2021 Treaty on the Non-Proliferation of Nuclear Weapons (NPT) Review Conference (RevCon), originally scheduled for April 27-May 22, 2020, is tentatively scheduled to take place from January 4-29, 2021. A final decision on the new RevCon dates and format of the meeting is expected in October 2020.

As early as January 2021, DNN will announce the awardees for a new university consortium under the IUP. This five-year grant (\$25M total funding) will continue DNN's efforts to establish basic R&D capabilities at U.S. universities and enable a pipeline of students who have performed nuclear engineering and nuclear physics research into the national laboratory system.

6-month events (March 2021-May 2021)

Conversion of Kazakhstan's IVG.1M Reactor to LEU fuel.

Issuance of the final Analysis of Alternatives report for a pit disassembly and processing capability. Pit disassembly and processing provides Pu oxide feed for the Surplus Plutonium Disposition program at Savannah River Site and supports the 34 MT Pu disposition mission. This is critical in order to resolve potential mission conflicts in PF-4 at LANL between NNSA's Office of Defense Program's pit production mission and the 34 MT surplus plutonium disposition mission.

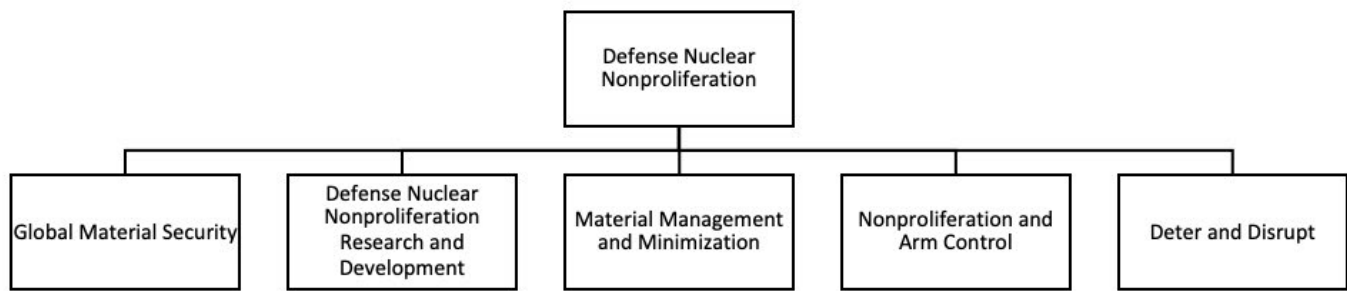
12 month events (June 2021-December 2021)

Sign a Secretarial Determination to certify the sufficiency of supply of Mo-99 produced without HEU that will subsequently enact a ban on exporting HEU for medical isotope production.

Renew and sign a Secretarial Determination for the sale, lease, and transfer of high assay LEU for medical isotope production.

Organizational Chart

Office of Defense Nuclear Nonproliferation



NNSA Office of Naval Reactors

Supporting the DOE Mission

Strategic Plan Goal 2: Nuclear Security

Strengthen national security by maintaining and modernizing the nuclear stockpile and nuclear security infrastructure; reducing global nuclear threats; providing for nuclear propulsion; improving physical and cybersecurity; and strengthening key science, technology, and engineering capabilities.

Strategic Objective 7

Provide safe and effective integrated nuclear propulsion systems for the U.S. Navy.

Mission Statement

Naval Reactors is a joint Department of Energy/Department of the Navy organization solely responsible for all naval nuclear propulsion work, beginning with reactor technology development, continuing through reactor operation, and ending with reactor plant disposal. Naval Reactors ensures the safe and reliable operation of reactor plants in nuclear-powered submarines and aircraft carriers (constituting over 40 percent of the Navy's major combatants), and fulfills the Navy's requirements for new and affordable nuclear propulsion plants that meet current and future national defense requirements, delivered on schedule and within budget.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$1,788,700,000
FY 2020 enacted	\$1,648,400,000
FY 2021 requested	\$1,684,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 246

History

In 1946, shortly after the end of World War II, Congress passed the Atomic Energy Act, which established the Atomic Energy Commission (AEC) to succeed the wartime Manhattan Project and gave it sole responsibility for developing atomic energy in the United States. At this time, Captain Hyman G. Rickover recognized the military implications of successfully harnessing atomic power for submarine propulsion and knew it would be necessary for the Navy to work with the AEC. By 1949, Captain Rickover had forged an agreement between the AEC and the Navy, and Rickover's new organization contracted with Westinghouse to develop a facility—the Bettis Atomic Power Laboratory—to develop a pressurized-water reactor design. In 1950, Rickover contracted with General Electric to determine whether a liquid-metal reactor design, which General Electric was developing at the AEC's Knolls Atomic Power Laboratory, could be applied to naval propulsion.

The USS NAUTILUS, using the pressurized-water design, and the USS SEAWOLF, using the liquid-metal design, were built, tested, commissioned, and put to sea in 1955 and 1957, respectively. The USS SEAWOLF successfully operated at sea until the first refueling; experience demonstrated that pressurized-water technology was preferable for naval applications. The USS NAUTILUS became the basis for all subsequent U.S. nuclear-powered warship designs. In less than seven years, Captain Rickover obtained Congressional support to develop an industrial base in a new technology; pioneered new materials; designed, built, and operated a prototype reactor; established a training program; and took a nuclear-powered submarine to sea. The success and speed of development revolutionized naval warfare and has ensured America undersea and nuclear propulsion superiority ever since.

For more than 34 years, Admiral Rickover headed the Naval Nuclear Propulsion Program (the Program). Upon retirement in 1982, he left behind a tradition of technical excellence and an organization staffed by experienced professionals dedicated to designing, building, and operating naval nuclear propulsion plants safely, and in a manner that protects people and the environment. The result is a fleet of nuclear-powered warships unparalleled in capability, and a mature, highly disciplined infrastructure of Government and private organizations that continue to build on Admiral Rickover's legacy.

In the 1970s, Government restructuring moved the Naval Nuclear Propulsion Program from the AEC to what became the Department of Energy. In 2000, the Program became a part of the newly formed NNSA within DOE. During these transitions, the Program retained its dual DOE/Navy responsibility, and has maintained its basic organization, responsibilities, and technical discipline.

A strong Navy is crucial to the security of the United States, a nation with world-wide interests that receives the vast majority of its trade and energy via trans-oceanic shipment. Navy warships are deployed around the world every day to provide a credible “forward presence,” ready to respond wherever America’s interests are threatened. Nuclear propulsion plays an essential role in this, providing the mobility, flexibility, and endurance that today’s smaller Navy requires to meet a growing number of missions. Over 40 percent of the Navy’s major combatants are nuclear-powered, including 70 submarines and 11 aircraft carriers.

Presidential Executive Order 12344 and Public Laws 98-525 and 106-65 set forth the total responsibility of Naval Reactors for all aspects of the Navy’s nuclear propulsion, including research, design, construction, testing, operation, maintenance, and ultimate disposition of Naval nuclear propulsion plants. Naval Reactors’ responsibility includes all related facilities, radiological controls, and environmental, safety, and health matters; as well as selection, training, and assignment of personnel. All of this work is accomplished by a lean network of dedicated research laboratories; nuclear-capable shipyards; equipment contractors and suppliers; and training facilities, which are centrally controlled by a small headquarters staff. The Director of Naval Reactors, Admiral James F. Caldwell, Jr., also serves as a Deputy Administrator in the National Nuclear Security Administration.

Naval Reactors maintains an outstanding record of over 167 million miles safely steamed on nuclear power. The Program currently operates 97 reactors and has accumulated over 7,200 reactor-years of operations. A leader in environmental protection, the Program has published annual environmental reports since the 1960s, which show that the Program has not had an adverse effect on human health or the quality of the environment. Because of the Program’s demonstrated reliability, U.S. nuclear-powered warships are welcome in more

than 150 ports of call in over 50 foreign countries and dependencies.

Since USS NAUTILUS (SSN 571) first signaled “Underway on nuclear power” in 1955, U.S. nuclear-powered ships have demonstrated their superiority in defending the country, from the start of the Cold War, to today’s unconventional threats, and beyond to future advances that will ensure the dominance of American sea power well into the future.

Functions

By employing a small but high-performing technical base, the teams at Naval Reactors’ four Program sites—the Bettis Atomic Power Laboratory in Pittsburgh; the Knolls Atomic Power Laboratory and Kesselring Site in upstate New York; and spent nuclear fuel facilities in Idaho—can perform the research and development, analysis, engineering, and testing needed to support today’s fleet at sea and develop future nuclear-powered warships. Importantly, Naval Reactors’ labs perform the technical evaluations that enable thorough assessment of emergent issues and delivery of timely responses that ensure nuclear safety and maximize operational flexibility. This technical base supports the nuclear-trained Navy sailors, who safely maintain and operate the 97 nuclear propulsion plants in the fleet around the globe. Industry-specific business conditions, external technological developments, and Department of Navy decisions all impact the performance of naval nuclear propulsion work. Naval nuclear propulsion work is an integrated effort involving the DOE and the Navy, which are full partners in the Program. Functions include:

Emergent Needs and Challenges of our Nuclear Fleet

Naval Reactors’ first priority is support of today’s fleet. Naval Reactors labs perform the technical evaluations that enable thorough assessment of approximately 4,000 emergent issues annually and deliver timely responses that ensure nuclear safety and maximize operational flexibility.

Design, Development, and Operational Oversight of Nuclear Propulsion Plants for Naval Vessels

Naval Reactors’ Government-owned, contractor-operated laboratories, the Bettis Atomic Power

Laboratory and the Knolls Atomic Power Laboratory, are predominately involved with the design, development, and operational oversight of nuclear propulsion plants for naval vessels. Through these laboratories, and through testing conducted at the Advanced Test Reactor located on the Idaho National Laboratory, the Program performs the following:

- Design, analysis, and testing of reactor plant components and systems.
- Development, testing, examination, and evaluation of nuclear fuel systems, materials, and manufacturing; and inspection methods necessary to ensure the continued safety and reliability of reactor plants in Navy warships.
- Testing, maintenance, and servicing at land-based prototype nuclear propulsion plants.
- Execute planned inactivations of shut down, land-based reactor plants in support of environmental cleanup goals.
- Radiological, environmental, and safety monitoring and ongoing cleanup of facilities necessary to protect people, minimize release of hazardous effluents to the environment, and comply with all applicable regulations.

Decontaminating and Decommissioning

Naval Reactors continues efforts to decontaminate and decommission (D&D) older facilities that have been in existence since the start of the Program in the early 1950s in an environmentally responsible and cost-effective manner.

Internal and External Reviews and Audits

Naval Reactors evaluates the effectiveness, relevance, and progress towards achieving its goals, objectives, and targets by conducting various internal and external reviews and audits. Naval Reactors Headquarters provides continuous oversight and direction for all elements of Program work. A dedicated Government Headquarters professional staff, expert in nuclear technology, makes all major technical decisions regarding design, procurement, operations, maintenance, training, and logistics. Headquarters engineers set standards and specifications for all Program work, while on-site Headquarters representatives monitor the work at the laboratories, prototypes, shipyards, and prime contractors.

Recent Organization Accomplishments

The Office of Naval Reactors recent significant organization accomplishments include:

Columbia-Class Submarine

The COLUMBIA-Class ballistic missile submarine is the Navy's number one acquisition priority. Naval Reactors is on track to support the start of ship construction in FY 2021 and is committed to delivering the 40+ year life-of-ship reactor core and the electric drive propulsion system necessary for the COLUMBIA-Class program. After extensive efforts, Naval Reactors witnessed completion of prototype manufacturing and integration of its electric drive system at Naval Surface Warfare Center - Philadelphia. Last year, the Navy began procuring long-lead material for the propulsion plant and manufacturing the life-of-ship reactor core. This year, Naval Reactors continues supporting oversight of the lead ship propulsion plant design, reactor component manufacturing, and safety analysis work required to support lead ship reactor testing.

Refueling Land-Based Prototype Reactor

The S8G Prototype, located at the Kesselring Site in West Milton, NY, was built in the late 1970s and serves as a critical operating nuclear reactor to train sailors and prototypically test reactor technologies. Its refueling overhaul began in September 2018, and will recapitalize the prototype for an additional 20 years of service to maintain vital research and testing capabilities and continue to train nuclear operators for the Navy's nuclear-powered fleet. The new reactor core for the prototype contains fuel assemblies built with COLUMBIA-Class technology, proving out production scale manufacturing for the COLUMBIA-Class reactor core. Newport News Shipbuilding, working with teams from other naval shipyards and local on-site trades, is the lead organization for completing the refueling overhaul of the S8G Prototype. The refueling overhaul is scheduled to complete in 2022 in order to return to training nuclear operators in 2023.

Spent Fuel Handling Recapitalization Project

The Spent Fuel Handling Recapitalization Project is designing and constructing the Naval Spent Fuel Handling Facility that will be located at the Naval Reactors Facility in Idaho. The facility is critical

to the Program's mission to manage U.S. Navy spent nuclear fuel and support aircraft carrier and submarine fleet refueling and defueling requirements. This project will recapitalize the naval spent nuclear fuel handling capabilities (i.e., receipt, preparation, and packaging of naval spent nuclear fuel) of the more than 60-year old Expended Core Facility (ECF) and its support facilities. To date, the facility site location has been fully excavated, concrete placement to support the facility foundations has begun, and preparations for structural steel fabrication is underway.

Leadership Challenges

None.

Critical Events and Action Items

None.

Organizational Chart

DEPUTY ADMINISTRATOR FOR NAVAL REACTORS

**Deputy Administrator
(U.S. Navy Flag Officer)**

**Principal Assistant Deputy Administrator
(SES Position)**

NNSA Office of Emergency Operations

Supporting the DOE Mission

Currently, the National Nuclear Security Administration (NNSA) bears principal responsibility for executing the Emergency Operations (NA-40) mission for itself and for the Department of Energy as a whole. The framework for discharging this responsibility comprises traditional emergency management functions within a framework that also incorporates Continuity of Operations/Continuity of Government (COOP/COG) functions and operations. The emergency management functions include those that allow the Department and NNSA to prevent, prepare for, respond to, recover from, and mitigate the impacts of threats to life, property, and the environment, regardless of the cause. This is known as an all-hazards approach to address the concerns of a whole of community, both of which are considered fundamental in contemporary emergency management organizations. The COOP/COG perspective provides the framework for assessing, distributing, and sustaining organizational resilience that ensures uninterrupted performance and delivery of the Department's Essential Functions under any circumstance.

Mission Statement

The Office of Emergency Operations NA-40 will administer and direct the implementation and integration of emergency management programs across the Department.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$35,574,000
FY 2020 enacted	\$35,545,000
FY 2021 requested	\$36,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 50

History

The Department of Energy has had an office dedicated to emergency management since 1987. Although the office has been reorganized in a number of different Departmental elements since then, the fundamental missions and functions have remained unchanged—a comprehensive, consistent approach to planning, preparing, and responding to any emergency involving or affecting the Department or requiring assistance to other Federal, state, or local agencies. The Office of Emergency Operations became an NNSA program element with the establishment of the Administration via the NNSA Establishment Act in 2000. Effective emergency management requires seamless integration of a broad range of disparate professions and organizations to ensure effective and efficient preparation for and response to any large or catastrophic emergency. NA-40, the Office of Emergency Operations, is now guided by DOE Order 151.1D, *Comprehensive Emergency Management System*, approved in August 2016; and a significant number of additional orders and requirements, both external and internal to the Department, to provide the Department of Energy, including NNSA, policy for the development, management, and administration of DOE's Comprehensive Emergency Management System.

Functions

Pursuant to the recent realignment of the Office of Emergency Operations approved on December 3, 2019, the structure and function are as follows:

NA-41 Office of Policy

Develop, coordinate, issue, and administer all DOE and NNSA emergency management policy, technical guidance, and support.

NA-42 Office of Emergency Management Programs

Implement, manage, and coordinate readiness assurance, training, and exercise programs to ensure the Department is prepared to respond and recover from all-hazards emergencies.

NA-43 Office of Continuity Programs

Execute DOE and NNSA Continuity of Operations, Continuity of Government, and Enduring Constitutional Government programs to advance the National Continuity Policy.

NA-44 Office of the Consolidated Emergency Operations Center (CEOC)

Provide 24/7/365 operations and communications support for the NNSA Emergency Management Enterprise and Senior Leadership.

Recent Organization Accomplishments

NA-40's accomplishments are driven in large part by COVID-19. From the earliest recognition of the emergence and significance of the coronavirus, NA-40 has led the Department's response. NA-40 was out ahead in preparing the Department for the COVID-19 threat. More specifically:

- Six months prior to the World Health Organization's (WHO's) declaration of a global pandemic, NA-40 worked with the Department of Health and Human Services (HHS) to execute an interagency Crimson Contagion pandemic exercise. Engaging DOE's three PMEF partners (NA-10, NA-80, and DOE-OE) and DOE-AU, this exercise ensured the Department's readiness to accomplish its vital national security missions in the event of a global pandemic.
- Early January, NA-40 briefed the DOE Biological Event Monitoring Team.
- Mid-February, NA-40 activated the DOE UCS.
- Mid-February, NA-40 briefed the DOE Threat Working Group.
- Late February, NA-40 activated DOE's Unified Coordination Group (UCG) to bring DOE PMEF/MEF partners together to communicate, coordinate, and take immediate actions to prepare for the COVID-19 impacts. During the preparations for the meeting, NA-40 discovered the Department lacked a formal Pandemic Plan. Accordingly, NA-40 led the effort to recommend and assist DOE-AU in drafting the DOE Pandemic Plan and formally coordinate it throughout DOE/NNSA to ensure Departmental awareness, buy-in, and Secretary's approval.
- During the February UCG meeting, NA-40 hosted HHS leadership to brief DOE/NNSA leadership on the Government's plan to

mitigate and respond to COVID-19. During that meeting, NA-40 unveiled the Senior Leadership Briefing (SLB), a product leveraged from the National Response Framework to provide daily situational awareness updates to DOE/NNSA leadership. This daily SLB provided the critical need for a Common Operating Picture across all headquarters elements, and is inclusive of labs, plants, and sites, their surrounding communities, and the interagency. Furthermore, during the mitigation and response phases of the crises, leadership trusted NA-40's EO judgement to protect worker safety and health, while ensuring national security missions endured.

Transitioning from response to recovery, NA-40 established and led the NNSA Recovery Working Group to ensure activities across NNSA program, functional, and field offices were coordinated and aligned with the White House's Guidelines for Reopening America. NA-40 engaged all NNSA elements in drafting NNSA's Recovery Plan, coordinated the plan throughout NNSA to ensure awareness and buy in and achieved NA-1's approval. Additionally, as there was no national standard for measuring a department's progress through the phases outlined in the national criteria, NA-40 worked closely with DOE's COVID-19 Response Lead and led the Team to develop methods to mine data and conduct the analysis for the Reopening Reporting Criteria "Stoplight Chart" for the Department. Throughout this crisis, the Stoplight Chart provided a standard methodology for DOE/NNSA leadership to measure where the Department is relative to the national criteria for reopening and significantly improved leadership decision-making for the safe return of our vital workforce.

In parallel with providing the leadership and crisis management expertise for DOE/NNSA, NA-40 worked closely with the National Security Council to develop/write and evolve the current PPD-40 COOP/COG/ECG concept of operations into the new Federal Mission Resilience Strategy of Assess, Distribute, and Sustain.

NA-40 has recently initiated its required biennial Business Process Analysis—an integral underpinning of any organization's COOP/COG responsibilities—and is contributing to the administration's ongoing efforts to update the Presidential Policy Directive (PPD-40) responsible

for government-wide COOP/COG efforts, to be known as FMRS, the Federal Mission Resilience Strategy. NA-40 has also initiated a robust, ongoing Continuous Improvement Program to capture lessons learned and areas for improvement in the COVID-19 response, the longest sustained emergency operation in the organization's history.

Throughout the maximal telework environment necessitated by coronavirus, NA-40 continues to meet its steady state mission, to include several additional reporting requirements resulting from COVID-19, and has undertaken an invigorated effort to ensure the morale and welfare of its workforce is maintained. This includes increased communication between leadership and the workforce and the effective use of technology to ensure tasks are assigned, tracked, and completed in a decentralized environment.

Leadership Challenges

Based upon pandemic response lessons learned to date, workforce analysis, and imminent risk of an extended National Emergency lasting 18 months or longer, an urgent need for increased NA-40 staffing has been identified. In order to implement comprehensive and consistent Emergency Operations in accordance with PPD-8, HSPD-5, and DOE O 150.1D, NA-40 requires increasing capacity and capability of the NA-40 federal workforce by authorizing hiring of the following new FTEs series: Program Management, Management Analysis, and Supervisory Plans & Operations.

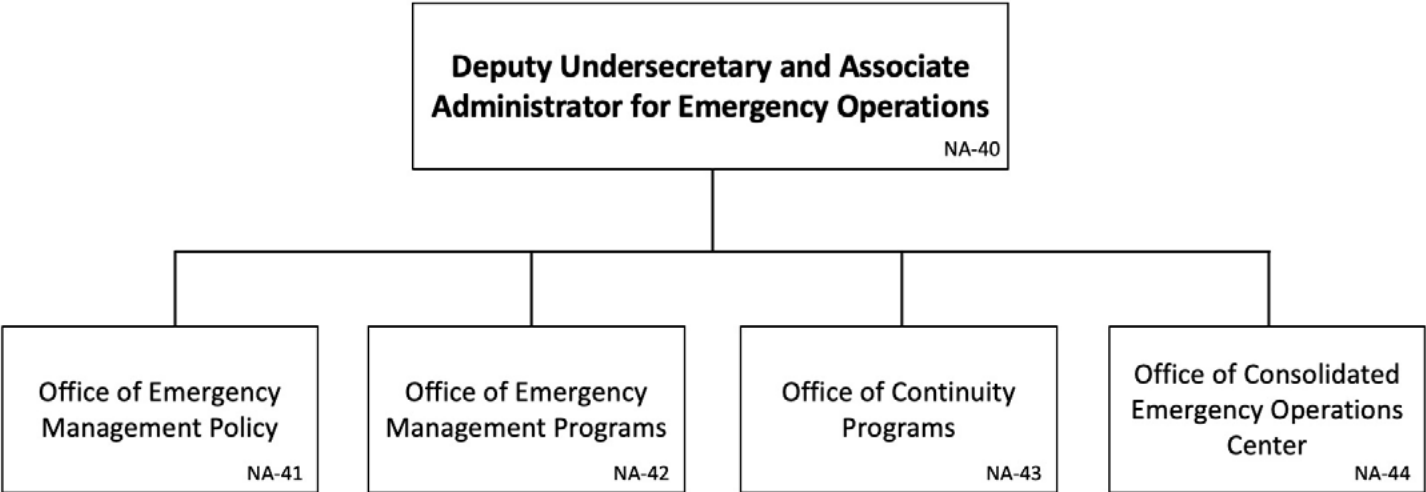
When the National Defense Authorization Act for Fiscal Year 2000 created the NNSA, language within the Act necessitated the movement of Emergency Operations into NNSA because of its Counterterrorism and Incident Response responsibilities. The Act failed to address or reassign emergency operations responsibilities elsewhere within the Department, leaving the Office of Emergency Operations as the sole emergency operations entity. Over time this structure has created confusion regarding NA-40's authority for the Emergency Management Enterprise at DOE and its labs, plants, and sites. Efforts to address the issue have recently been undertaken but as yet remain unresolved.

Critical Events and Action Items

The most critical actions undertaken by NA-40 during any transition are to ensure essential functions continue uninterrupted. This is accomplished by a well-trained workforce equipped with sufficient knowledge, skills, abilities, and resources to plan, prepare, and respond to a spectrum of all hazards emergencies. NA-40 provides the critical coordination element in the planning actions and support for National Security Special Events (e.g., Inauguration) in close collaboration with Departmental and Interagency mission partners.

Organizational Chart

Office of Emergency Operations



NNSA Office of Safety, Infrastructure, and Operations

Supporting the DOE Mission

NNSA requires specialized and mission-enabling infrastructure to support all of its national security missions. The NNSA Office of Safety, Infrastructure and Operations (NA-50) is the programmatic owner for operating, maintaining, and recapitalizing infrastructure that is the backbone of the NNSA laboratories, plants, and sites.

NNSA's missions require safe, reliable, resilient, and modern infrastructure to meet immediate and long-term needs. The Associate Administrator for Safety, Infrastructure and Operations provides support to the NNSA Administrator and Principal Deputy Administrator for all functions and operations related to safety, infrastructure, and enterprise stewardship. The Associate Administrator serves as the principal strategy driver and coordinator for safety infrastructure and enterprise stewardship, and is responsible for operational safety across the NNSA enterprise.

Mission Statement

Enable safe operations, ensure effective infrastructure, and provide enterprise services to meet the 21st Century Nuclear Security Enterprise (NSE) needs. To carry out this mission, this office has responsibility for the programs, policies, processes, and procedures for assuring effective integration of activities and implementation of programs across the NNSA's NSE and with other programs and staff offices in the NNSA, including the Office of the NNSA Administrator.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$2,012,179,000
FY 2020 enacted	\$1,949,627,000
FY 2021 requested	\$ 2,763,354,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 117

History

NNSA established NA-50 in January 2015. The Office was created from three existing organizations whose principal functions related to safety policy, oversight, and line management execution; infrastructure planning and execution; and nuclear materials management. While NNSA Field Office management focuses on the local contractor oversight, NNSA centralizes certain managerial functions at its corporate level in NA-50, including those for safety; infrastructure; nuclear materials transportation; environment and sustainability; and nuclear materials management. This includes managing the responses to operational nuclear safety issues identified by the Defense Nuclear Facilities Safety Board; Office of Health, Safety, and Security; or other organizations.

Safe, reliable, resilient, and modern infrastructure at NNSA's national laboratories and production plants is absolutely essential for vital national security missions and the well-being of the workforce. NNSA's infrastructure is extensive, complex, and, in many critical areas, several decades old. Sixty percent of NNSA's facilities are beyond their life expectancy and nearly forty percent are in poor condition. Many of the enterprise's critical utility, safety, and support systems are failing.

Given competing priorities, the resources available to maintain NNSA's infrastructure have historically not kept pace with growing needs. NNSA's total deferred maintenance on fixed assets (real property) stood at \$4.8 billion at the end of Fiscal Year (FY) 2019. In the FY 2018, Congress directed NA-50 to establish the Infrastructure Modernization Initiative to reduce deferred maintenance by 30 percent by 2025, implement a new, increased, minor construction limit of \$20 million, dispose of process-contaminated facilities under \$50 million, and streamline execution of non-nuclear construction under \$100 million.

In addition to addressing deferred maintenance, NA-50 is also focused on reducing the risk aging infrastructure poses to our workers, the environment, and the mission. Accordingly, we are deploying a new, science-based infrastructure stewardship approach that focuses on data-driven,

risk-informed decision-making using innovative infrastructure tools and metrics to better assess conditions and prioritize investments. NA-50 requested a higher percentage of funding for Recapitalization and Maintenance projects between FY 2015 and FY 2020. These funding increases have been essential to decreasing deferred maintenance, arresting the declining state of infrastructure, increasing productivity, improving safety, eliminating costly compensatory measures, and shrinking the NNSA footprint through the disposition of unneeded facilities.

NA-50 is the steward of the Nuclear Materials Management and Safeguards System (NMMSS), the Nation's official nuclear materials accounting and tracking system. Operated in partnership with the Nuclear Regulatory Commission, NMMSS inventories, tracks, and accounts for all uranium, plutonium, and lesser accountable nuclear materials across government and commercial entities. NMMSS records, tracks, and reconciles peaceful use obligations placed on nuclear materials under nuclear cooperation agreements with trading partners. NMMSS also tracks and ensures compliance with presidential declarations removing nuclear materials from military use. NMMSS is also responsible for international safeguards reporting to the International Atomic Energy Agency (IAEA) for U.S. facilities selected for monitoring.

Functions

Safety

Supports the effective development and consistent implementation of safety programs and requirements across the nuclear security enterprise, to include federal nuclear safety responsibilities and execution of worker safety and health programs. The Office supports the NNSA Chief of Defense Nuclear Safety (CDNS), the Cognizant Secretarial Office for Safety, and the Central Technical Authority in executing their functions assigned by NNSA and DOE directives. Safety functions include supporting senior NNSA leadership on issues involving nuclear safety policy, requirements, guidance, and expectations; concurring on relief from requirements; and reviewing nuclear safety matters.

Infrastructure

Maintains, operates, and modernizes the NNSA infrastructure in a safe, secure, and cost-effective manner to support program results while maximizing return on investment and reducing enterprise risk. The program also plans, prioritizes, and constructs state-of-the-art facilities, infrastructure, and scientific tools. Furthermore, the program will reduce deferred maintenance; execute recapitalization projects to improve the condition and extend the design life of structures, capabilities, and systems to meet program demands; decrease operating costs for old, inefficient facilities by replacing them with new, more efficient facilities.

Enterprise Stewardship

Provides nuclear and hazardous materials packaging, nuclear material, and environmental stewardship services; and integrates nuclear material management activities across DOE/NNSA programs. The Office manages NNSA's environmental, sustainability, and waste management activities to meet or exceed environmental and waste management compliance and sustainability requirements. The Office also provides corporate support to the management of utilities (i.e., electricity, water, and natural gas) at NNSA sites to enable reliable, resilient, efficient, and secure energy and water to meet current and future mission requirements. Provides programmatic management and regulatory compliance oversight for packaging and transportation of materials of national security interest and other radioactive materials owned and/or controlled by NNSA to ensure the safety and protection of the workers, the public, and the environment.

Structured Problem Solving

NA-50 is continuously improving by adopting and integrating Structured Problem Solving into our business practices. Also known as "A3 problem solving," this technique is famous for fitting an entire problem, analysis, and all related materials onto one 11x17 sheet of paper. This approach is a comprehensive, user-driven approach to solving problems. By improving individual problem solving capability, this tool promotes collaboration and allows NA-50 to attain the ultimate goal of creating an organization capable of solving problems in a way that is sustainable and long-lasting.

Recent Organization Accomplishments

Supported NNSA and DOE in the tracking and logistic support to meet PPE needs across the Enterprise during Covid-19 Pandemic response through the establishment of a PPE Coordination Team.

Working with other HQ Offices and Field Offices, NA-50 led the effort which resulted in the Deputy Secretary approving the Accreditation of NNSA Technical Qualification Program across the NNSA Enterprise on September 17, 2020.

Review and approval of 8 safety basis submittals via the Safety Basis Review Team program since FY 2018.

Developed and implemented the Safety Roadmap for the NNSA, enhancing the safety posture of the enterprise and fostering continuous improvement. This Roadmap includes processes and tools supporting risk informed decision making including an initiative to employ data analytics as well as a corporate program to support field offices in the review of safety basis documents.

Completed over 288 recapitalization projects since fiscal year 2015.

Executed 33 construction projects greater than \$10 million using our new congressionally approved \$20 million minor construction threshold.

Since receiving new process-contaminated disposition authority, NA-50 demolished six additional process contaminated facilities and one large-scale process-contaminated disposition at Los Alamos National Laboratory Building 46-001.

Completed a study of over 31,000 items of nuclear material with no identified disposition pathway. Defined plausible dispositioning options based on existing capabilities and identified a timeline for development of replacement or new capabilities to ensure complete lifecycle management of materials in accordance with DOE/NNSA missions.

Issued first ever NNSA Radioactive Waste Management program plan that defines NA-50's vision, goals, and identifies the principle and framework under which NNSA manages its radioactive waste management activities across the

Enterprise to ensure that work is conducted in a safe, secure, and cost effective manner.

Through successful collaborations with DOE Office of Environmental Management and the Carlsbad Field Office, significant progress made in reducing Transuranic (TRU) waste inventories at Los Alamos National Laboratory within the constraints of COVID-19 safety requirements. During 2020, a total of 42 offsite shipments were successfully completed to Waste Isolation Pilot Plant—the Nation's only deep geologic long-lived radioactive waste repository.

Released draft NNSA Long-Term Stewardship Program Strategic Plan, which is a high-level Plan for lasting environmental stewardship of NNSA sites across the nuclear security enterprise. The draft Plan was briefed to key NNSA constituents, including Tribal Nations and state regulators, and is currently undergoing external review.

Leadership Challenges

COVID-19 Pandemic Response

The full extent of COVID's impact on our mission work is currently unknown, but impacts are being realized. There have been some positive impacts, including completion of some projects ahead of schedule. NA-50 leadership is preparing a safe return of our workforce to full pre-pandemic physical capacity in a phased approach while maintaining remote work capabilities where it makes sense to do so.

Aging Infrastructure

The NNSA infrastructure is large, old, and in poor condition. Many facilities and systems are well beyond useful life, and obsolescence limits maintenance and repair options. Sixty percent of NNSA's facilities are beyond their life expectancy and nearly forty percent are in poor condition. Further, excess facilities pose safety and programmatic risks. Excessive deferred maintenance increases the risk of building and building system outages; leads to substandard working conditions; and elevates operational and safety risks. Much of the supporting and general purpose infrastructure such as utilities, safety systems, laboratory spaces, manufacturing shops, and office space is in need of greater attention.

Environmental Compliance and Long-Term Stewardship

Sustained investments are needed to maintain safe and environmentally compliant operations. The DOE cleanup experience has made clear that complete restoration to levels acceptable for residential or unrestricted use cannot be accomplished at many of the sites across the nuclear security enterprise. Many of the residual hazards at NNSA sites are likely to persist for many generations. Consequently, long-term stewardship (LTS) activities are needed at these sites to ensure that the selected remedies remain protective for current and future generations.

Waste Isolation Pilot Plant (WIPP)

NNSA continues to reduce its existing and newly-generated radioactive waste inventory at its sites by focusing on expedited characterization and certification of the waste, as well as regular off-site shipments of the waste to the WIPP other disposal sites across the nation. It estimated that by 2041, NNSA will be largest generator of TRU waste within the DOE. Several challenges exist in the de-inventory and shipment of waste to the WIPP, including:

1. Competition with the Office of Environmental Management and other stakeholders for shipment of waste to WIPP.
2. Ensuring there are sufficient resources and equipment necessary to support NNSA's plutonium pit production mission.
3. Los Alamos National Laboratory and the Savannah River Site must develop storage and staging contingency plans for any long-term shutdown at WIPP.
4. Ensuring the continued availability of WIPP to dispose of TRU waste for the next 50+ years.
5. The new WIPP requirements, established after the 2014 WIPP shutdown, have lengthened the time to certify containers.
6. Prioritizing the long-overdue infrastructure upgrades at WIPP against the planned shipping scope and schedule.

Contractor Oversight

NNSA recently updated Supplemental Directive (SD) 226.1C, *Site Governance Systems*, which emphasizes strategic partnering and alignment between functional, program and site office within NNSA and

the M&O partners. It adjusts the paradigm by which NNSA administers its contractor oversight functions. This SD establishes the NNSA Site Governance Model as the framework that the Federal Government and NNSA's contractor partners work within to help ensure effective mission performance and operational excellence.

Safety Oversight

As NNSA's work continues to increase in scope and complexity, the information and requirements it manages are a coupled and multipart system, where cause and effect are difficult to foresee. At the same time, its sum total of experience of safety professionals is decreasing. In fact, 40 percent of NNSA's workforce is eligible to retire within the next five years. With the expanding complexities of a 21st Century Nuclear Security Enterprise, NNSA needs to equip its current and future workforce with modern safety tools that add value and efficiencies. The Safety Analytics, Forecasting & Evaluation Reporting (SAFER) project is key tool that will help provide new insights in information gathering to ensure we are measuring what matters for future workforce. The SAFER project is a software solution that is developing enhanced data capabilities to help data sharing, management, trending, and analysis. SAFER promotes NNSA's move from data owners to highly effective data users and consumers. In the short term, SAFER will help us maximize the use of operational data to improve situational awareness and allow for efficient, risk-focused oversight activities. NNSA safety professionals, both in the field and the safety functional office, will increasingly have more transparent access to data, putting them in the best position to make decisions to improve safety performance. The long-term outcome of SAFER is a decision-making support tool that will provide the specified decision makers with data which, when considered alongside the input of safety professionals, will best leverage NNSA safety oversight resources and support safety oversight decisions.

Critical Events and Action Items

3-month events (January – March 2021)

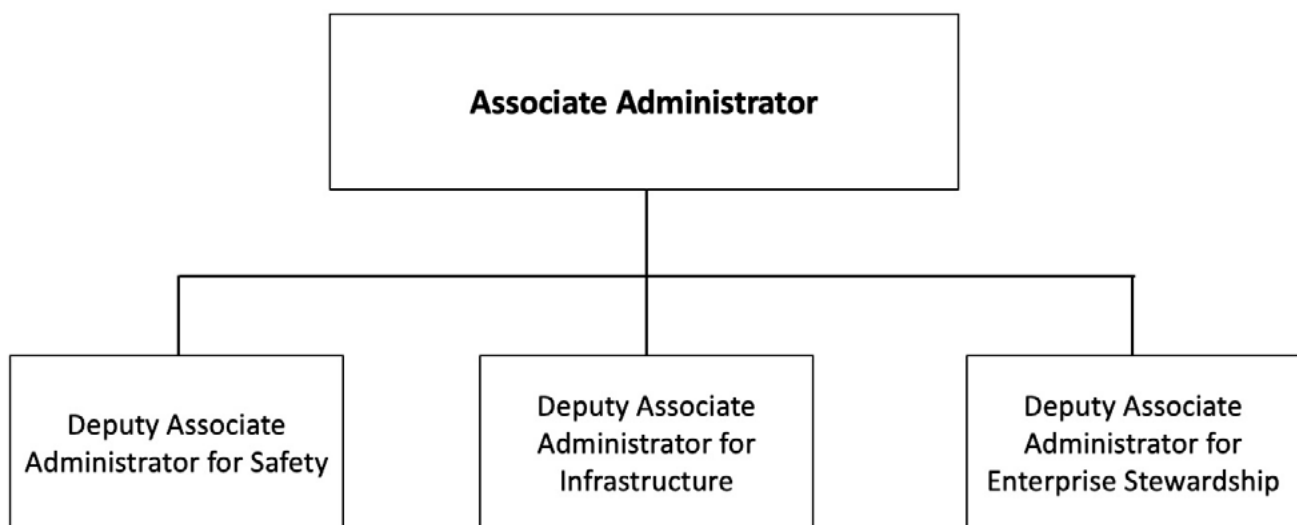
Develop a Congressional Report on Operational Efficiencies, specifically for lessons learned during COVID-19 that can be applied permanently across NNSA to improve the efficiency and resiliency of the NNSA for the long-term.

Execute our first ever “option to purchase” a facility for Y-12 National Security Complex’s production development mission work.

Finalize a contract for the Safety Analytics, Forecasting & Evaluation Reporting project platform, which will be used to procure innovative software that integrates departmental operational databases to allow managers and front line personnel to holistically manage safety risks and plan and deploy resources to support accomplishment of NNSA’s mission.

Organizational Chart

Associate Administrator for Safety, Infrastructure, and Operations



NNSA Office of Defense Nuclear Security

Supporting the DOE Mission

The Office of Defense Nuclear Security (NA-70) is responsible for the development and implementation of the National Nuclear Security Administration's (NNSA) security program to enable NNSA's nuclear security enterprise (NSE) missions. NA-70, in conjunction with field office and contract partner partners, provides protection for NNSA personnel, facilities, nuclear weapons, and materials from a full spectrum of threats—ranging from minor security incidents to acts of terrorism—at its national laboratories, production plants, processing facilities, and the Nevada National Security Site (NNSS).

Mission Statement

NA-70 leads, develops, and implements the NNSA's security program to enable the NSE missions by protecting materials, information, and people.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$2,012,179,000
FY 2020 enacted	\$1,949,627,000
FY 2021 requested	\$ 2,763,354,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 92

History

The Office of Defense Nuclear Security was established by the 1999 NNSA Act (Sec 3232 [50 U.S.C. 2422]), and is headed by the Chief, Defense Nuclear Security (CDNS), who is appointed by the Secretary from among candidates recommended by the Administrator. The CDNS reports to the Administrator and is responsible for the development and implementation of security programs for NNSA—including the protection, control, and accounting of materials—and for

physical and cyber security for all NNSA facilities. NA-70 has undergone several organizational alignment changes since its creation. Cyber security authority was delegated by the CDNS to the NNSA Office of Information Management and Chief Information Officer (NA-IM), and is funded and managed by that office. To augment the office of the CDNS, NNSA established an Office of Associate Administrator for Defense Nuclear Security. This was initially a separate office, though under the policy direction of the CDNS. Eventually, the CDNS came to serve simultaneously as the Associate Administrator for Defense Nuclear Security. The CDNS is also designated as the Chief Security Officer (CSO) for NNSA, under a Secretarial security reform initiative that has established CSOs for each of the Under Secretaries, and a forum in which the CSOs routinely collaborate on common issues.

Functions

Security Operations and Programmatic Planning (NA-71)

Establishes the operational direction of the NNSA security program, evaluates the execution of the field security programs, and ensures line management evaluation programs are rigorous and provide high confidence that contractor security programs are operating in an effective manner. Develops implementing guidance that clarifies or elaborates on Departmental security requirements, specifically: establishes training requirements; assessment and implementation standards; and criteria for security programs. Coordinates the Planning, Programming, Budgeting, and Evaluation process for NA-70 with the Office of Management and Budget (NA-MB); coordinates the development and issuance of the NA-70 Strategic Plan; Multi-year Program Plan; Programmatic Goals and Objective; and similar overarching programmatic guidance. Manages the full spectrum of security functions to successfully execute specific operational security matters within the NNSA Headquarters (HQ) office.

Personnel and Facilities Clearance and Classification (NA-74)

Implements the personnel security access authorization (security clearance) program for NNSA field sites. Manages the Facility Clearance Program for NNSA sites and NNSA HQ (Washington, DC, and Germantown, MD, offices). Oversees the NSE-wide Classification and Controlled Information Program

(CCIP), which includes the management, oversight, and assessment of the CCIP; and classification, declassification, and trans-classification of NNSA information. Manages Homeland Security Presidential Directive 12 (HSPD-12) sponsorship for non-Management and Operating NNSA support service contractors, as well as adjudication for all HSPD-12 cards.

Recent Organization Accomplishments

Security Management Improvement Program

The Security Management Improvement Program (SMIP) was designed to help NNSA security leadership assess HQ- and field-level performance in an effort to help drive continuous improvement across all elements of NA-70. Phase I of SMIP was completed in December 2018 and consisted of an inwardly focused review of federal program management, with emphasis on improving the integration of the federal team's program management and oversight of the Safeguards and Security program by improving processes and practices and ensuring alignment with Department of Energy (DOE) and NNSA governance requirements. Phase II of SMIP, which included a successful proof of concept pilot at the Nevada Field Office, began in January 2019. In Phase II, the focus shifted to collecting field-oriented performance data and engaging Field and HQ federal staff to identify and address barriers to more effective oversight.

Device Assembly Facility Argus Installation Project at the NNS

The Device Assembly Facility (DAF) Argus project was completed under budget and on schedule. DAF Argus works in conjunction with the Entry Guard Station Expansion and other legacy completed projects. The Argus security system replaced the aging Process Equipment Control Operating System in the DAF. Argus is the NNSA standard security system to integrate access control, intrusion detection, and video assessment of alarms for protection of high-consequence assets. Installation of Argus was necessary to support the DAF complex, which is a critical facility within the NNSA NSE designed for the staging of special nuclear material (SNM). Completion of this project provided the security required to protect SNM.

Counter Unmanned Aircraft System Implementation

Among the National Nuclear Security Administration's (NNSA) top security priorities, NA-70 is focused on addressing the threat posed by unmanned aircraft systems (UASs) and the need for effective countermeasures. NNSA's first counter unmanned aircraft system (CUAS) platform, the first within the DOE, was deployed at the Los Alamos National Laboratory (LANL) in December 2017. Operational testing was completed on September 30, 2018, and full operational capability was achieved on October 31, 2018. Remaining Category I facilities are actively working to implement the CUAS platform. NA-70 continues to work closely with Departmental security counterparts and interagency partners, including the Department of Homeland Security, the Federal Aviation Administration (FAA), the Department of Defense (DOD), the Department of Justice, and appropriate Congressional stakeholders to maintain an effective CUAS capability. In August 2018, the FAA declared NNSA's CUAS Concept of Operations, deployment plan, and integrated project team approach the "gold standard," to be emulated by the interagency.

Center for Security Technology, Analysis, Response, and Testing Portal

The Center for Security Technology, Analysis, Response, and Testing (CSTART) has developed a comprehensive online portal to help NNSA significantly improve its ability to share critical information across the spectrum of the physical security program. Some of the topical areas included within the portal are protective forces training/exercises, information protection, security systems/technology, emerging threats, and human reliability programs. The information-sharing will focus on lessons learned/best practices, self-assessment guides, "how-to" videos, training curriculum, and a wealth of other day-to-day practical information vital to the goal of focusing the NNSA security community on continuous improvement. CSTART staff are also working with DOD nuclear security personnel to identify opportunities for the portal to contribute to ongoing and future security program collaboration and harmonization initiatives.

Personnel and Facility Clearances and Classification

This office provided oversight of a classification program that reviewed 30,000 documents for public release and more than 500,000 documents to support litigation. Additionally, NA-74 successfully trained approximately 1,000 federal and contractor HQ staff who have access to classified email the procedures to portion mark email to ensure compliance with Executive Orders and federal requirements. The office also implemented a Department-wide clearance adjudication and processing tracking system, reducing risk, building resiliency, and creating a common operating environment for all of the adjudication offices.

Leadership Challenges

Caerus

NA-70 is pursuing replacement command control and display equipment, project name Caerus, to address issues including cyber security, future extensibility, and ease of sustainment of the Argus system. NA-70 is viewing the requirements from three angles (formal policy, users, leadership). NA-70 is actively working to complete the final requirements document by Q1 FY 2021.

Design Basis Threat Implementation

The Design Basis Threat (DBT) policy establishes the baseline threat characterization against which the NA-70 security program is developed and implemented. The DBT draws on information from a variety of sources, including the intelligence community's Nuclear Security Threat Capabilities Assessment. The 2016 update to the DBT required NA-70 to assess its security posture and make appropriate adjustments. NA-70, in coordination with NNSA Management and Operating contractors, developed an implementation plan, to include scheduled completion of the analysis by December 2020. Risk is managed by making decisions regarding priorities and consequences. NA-70 must balance alignment of implementation schedules with current NNSA mission priorities to ensure the mission is not hindered and any required changes are appropriately resourced.

Security Infrastructure Revitalization Program

The Security Infrastructure Revitalization Program (SIRP) addresses the security systems across the

NNSA and is a primary driver to support NSE physical security system upgrades and life cycle management at each NNSA site, plant, and lab. SIRP project requirements were derived from the data obtained during development of the 10-year Refresh Plan, a detailed condition assessment completed at each NNSA facility. The condition assessment identified the oldest systems and systems with the highest risk for failure, and assessed these systems' contributions to the overall security posture. The risk values derived during the condition assessment surveys were used to establish a baseline, and then to show reduction in risk as a result of proposed upgrades. This provided a method for comparing various upgrade options, which supports cost-effective implementation decisions across the enterprise.

Responding and Adapting to Trusted Workforce Initiatives

NA-74 worked with DOE to develop policy and implementation plans for the constantly changing investigative and adjudicative landscape. As the government moves to a more real-time vetting and adjudication model, NA-74 and the Department will continue to adapt in response to the changing landscape.

Critical Events and Action Items

Three-month events

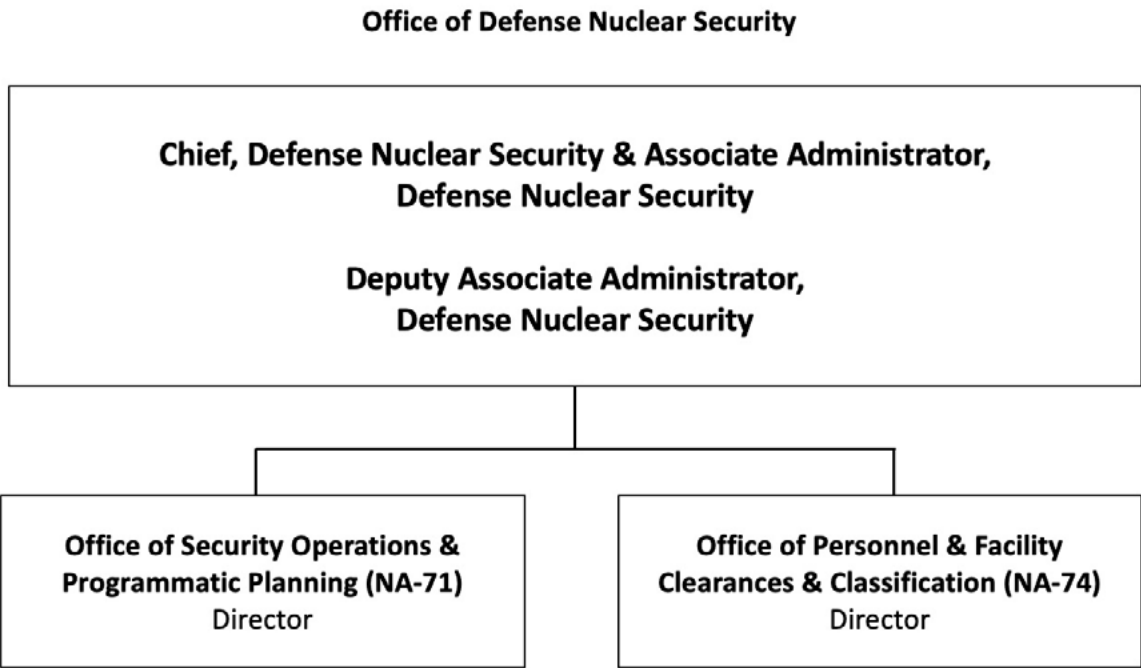
NA-70 expects that the Y-12 National Security Complex West End Protected Area Reduction project will reach Critical Decision 2/3.

The CSTART online portal will become operational. This portal will help NNSA significantly improve its ability to share critical information across the spectrum of the physical security program.

NA-70 is leveraging a multi-year contract that the Marine Corps previously established with Heckler & Koch (H&K) to centrally procure M27 Infantry Automatic Rifles. The first order was received by the Pantex Plant in September and the remaining four sites will receive M27s by end of CY 2020.

DBT analysis is on schedule to be completed in December 2020.

Organizational Chart



NNSA Office of Counterterrorism and Counterproliferation

Supporting the DOE Mission

Among the three Mission Priorities identified in the NNSA Strategic Vision, the Office of Counterterrorism and Counterproliferation (CTCP/NA-80) contributes directly to Mission Priority #2: Reduce global nuclear security threats and strengthen the nuclear enterprise. Additionally, CTCP is responsible for executing the Department's Primary Mission Essential Function (PMEF) #2, Respond to Nuclear Incidents, as well as Mission Essential Function (MEF) #1, Nuclear Incident Response; MEF #6, Nuclear Counterterrorism; and MEF #11, Nuclear Forensics (shared with the Office of Defense Nuclear Nonproliferation [DNN]).

Mission Statement

CTCP is responsible for countering nuclear terrorism and nuclear proliferation and responding to nuclear incidents and accidents domestically and internationally. CTCP missions include both national security and public health and safety disciplines. Specific CTCP mission pillars include providing scientific understanding of nuclear threat devices and potential terrorist and proliferant state nuclear capabilities; informing U.S. policies, regulations, and interagency and international partners on terrorist and proliferant state nuclear threats; sustaining Nuclear Emergency Support Team (NEST) readiness to respond to nuclear and radiological incidents and accidents at home and overseas; and providing targeted training to domestic and international partners to improve capabilities to respond effectively to nuclear and radiological events and threats.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$283,611,000
FY 2020 enacted	\$336,550,000
FY 2021 requested	\$341,513,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 58

History

The Office of the Deputy Under Secretary for Counterterrorism was established in 2003 to coordinate counterterrorism activities within NNSA and to be the Department's principal point of contact with other U.S. Government agencies and foreign governments on counterterrorism matters. Through two reorganizations since then, the CTCP mission has expanded to include the Department's nuclear incident response capabilities, broader international engagements, and technical advisors to the U.S. interagency, including Department of Defense (DoD) combatant commands. CTCP was solely responsible for nuclear forensics and counterproliferation until these portfolios were realigned to DNN in FY 2021.

NNSA's core expertise in nuclear science is central to the national effort to deter, detect, defeat, and attribute a terrorist nuclear or radiological attack. NNSA's counterterrorism programs play a crucial role in homeland security. DOE and other agencies rely on the national laboratories' knowledge of nuclear weapon design to identify novel and unconventional nuclear threats; support the design and testing of radiation detection systems; field capabilities to characterize and defeat terrorist nuclear devices; and evaluate the safeguards and security of nuclear facilities globally. NEST teams provide the nation's last line of defense to locate, identify, and defeat a nuclear device, as well as provide consequence management support in the event of a radiological release.

NNSA works with foreign governments to develop emergency management programs and infrastructure to reduce the risk of radiological and nuclear threats and to mitigate the consequences of a nuclear accident or incident. In collaboration with other agencies, NNSA is expanding the overseas capacity to detect and interdict nuclear materials

in transit. CTCP makes diverse contributions to U.S. and global nuclear security, including:

- Protecting access to nuclear weapons expertise and design information.
- Ensuring U.S. interagency awareness of the technical aspects of the improvised nuclear device (IND) threat.
- Building an integrated radiation detection and interdiction capability with law enforcement partners.
- Maintaining counter-weapons of mass destruction (C-WMD), radiological/nuclear consequence management, and operational nuclear forensics capabilities.
- Supporting nuclear incident response capacity-building with state, local, and international partners.
- Supporting a nuclear security enterprise that provides unparalleled scientific expertise across the homeland and national security spectrum.

Functions

The following CTCP responsibilities derive from a body of legal statutes, presidential policies, and international agreements.

Nuclear Incident Policy and Cooperation

Assist international and domestic partners through training, exercises, and workshops to develop robust emergency preparedness and response capacity to respond to nuclear and radiological incidents.

Advance USG nuclear-related strategic objectives for nuclear and radiological emergency preparedness and response.

Nuclear Threat Science

Protect sensitive nuclear weapon design information from unauthorized disclosure and discovery by adversaries.

Provide NNSA's specialized technical knowledge concerning nuclear threat devices and proliferant state capabilities to interagency partners and members of the National Security Council (NSC) staff to inform U.S. nuclear counterterrorism priorities, requirements, and activities. Conduct nuclear threat reduction activities with key

international allies, including classified technical and policy exchanges.

Nuclear Incident Response

Ensure NEST readiness to respond to nuclear and radiological incidents and accidents domestically and internationally by fulfilling all personnel, equipment, and training requirements.

Maintain NEST capabilities to respond to accidents involving U.S. nuclear weapons and to incidents involving a lost or stolen U.S. nuclear weapon.

Deliver timely, technically sound decision support to incident management partners across the continuum of nuclear and radiological incident response.

Harness existing technologies, develop new capabilities, and prepare for future innovations to continuously improve NEST response operations and expand applicability of NEST expertise to all C-WMD, nuclear weapon accident response, and public health and safety missions.

Sustain specialized capabilities, which are strategically prepositioned throughout the United States, to rapidly search for, characterize, and defeat WMD devices.

Protect major public events (e.g., Presidential Inauguration, Super Bowl, etc.) and support C-WMD activities.

Supplement NNSA's capacity to characterize the radiation environment following a nuclear incident by working with federal, state, and local partners.

Recent Organization Accomplishments

Despite constraints imposed by COVID-19, CTCP accomplished the following over the preceding several years:

- Three new Aerial Measuring System (AMS) fixed-wing aircraft were integrated into NEST operations and training in December 2019. Additionally, COVID-related event cancellations allowed the recapitalization of an additional \$1.7M worth of NEST equipment.

- NEST supported real-world deployment requirements while continuing to hone operational readiness through participation in exercises and joint drills, as well as execution of numerous small-footprint and virtual training venues. CTCP supported 25 scheduled operations, 18 unscheduled responses, and 23 drills and exercises. Operational highlights include NEST support to the Republican National Convention and NEST's Accident Response Group's (ARG) support of DoD and the NNSA Office of Stockpile Management.
- In July 2020, NEST provided support to NASA for the launch of the Mars 2020 Perseverance Rover to ensure the protection of public health and safety in the event of a launch anomaly. NEST supported NASA with 25 personnel at the Radiological Controls Center and with field monitoring teams to rapidly respond in case of a launch area accident. Finally, NEST provided additional remote technical support from the national laboratories.
- NEST continued to test and field new tools for Federal Bureau of Investigation (FBI) regional teams as part of the NNSA-FBI "Capability Forward" initiative.
- Since 2016, CTCP has conducted 122 WMD-related trainings and table top exercises on emergency preparedness and response to radiological and nuclear emergencies worldwide. These trainings were attended by 6,072 participants, including both domestic and international partners.
- Since the inception of the International Atomic Energy Agency's Emergency Preparedness and Response Standards Committee in September 2015, CTCP has served as the chair, guiding policy, standards, and developments in emergency preparedness and response for implementation by Member States worldwide.
- In 2020 CTCP continued work on a Joint Urban Radiological Dispersal Device (RDD) Experiment in partnership with Israel, Canada, and the United Kingdom. These tests will establish the baseline data needed to define the design parameters for the tests at Israel's urban setting facility.
- Disposition and Forensic Evidence Analysis Team (DFEAT) and DOE Forensics Operations (DFO) procedures and capabilities originally designed to characterize interdicted nuclear devices and debris were rapidly modified to support a wide range of contingency planning efforts for an NSC-led denuclearization initiative.

- In cooperation with the United Kingdom and France, CTCP supported the execution of an operational nuclear counterterrorism exercise hosted in France in September 2019, and hosted a trilateral exchange with senior leaders in the United States in December 2018, improving each government's understanding of information security policies and process improvements.
- Completed three technical assessments for the NSC's Integrated Nuclear Security Strategy to inform USG engagements with foreign partners on nuclear security.
- In support of the C-WMD mission, CTCP increased confidence and accuracy in predictive modeling capabilities through completion of experimental validation campaigns and ongoing characterization of new energetic disablement tools.

Leadership Challenges

CTCP faces the following high-level challenges:

Secure Office Space and Classified Communications

CTCP activities are hampered by the insufficiency of both secure office space and secure mobile communications capabilities.

Current Part-Time/Volunteer Staffing Model

The limited availability of technical experts for training, drills, exercises, and operational response is straining the current part-time/volunteer staffing model used throughout the nuclear security enterprise to sustain deployable NEST teams and Home Teams.

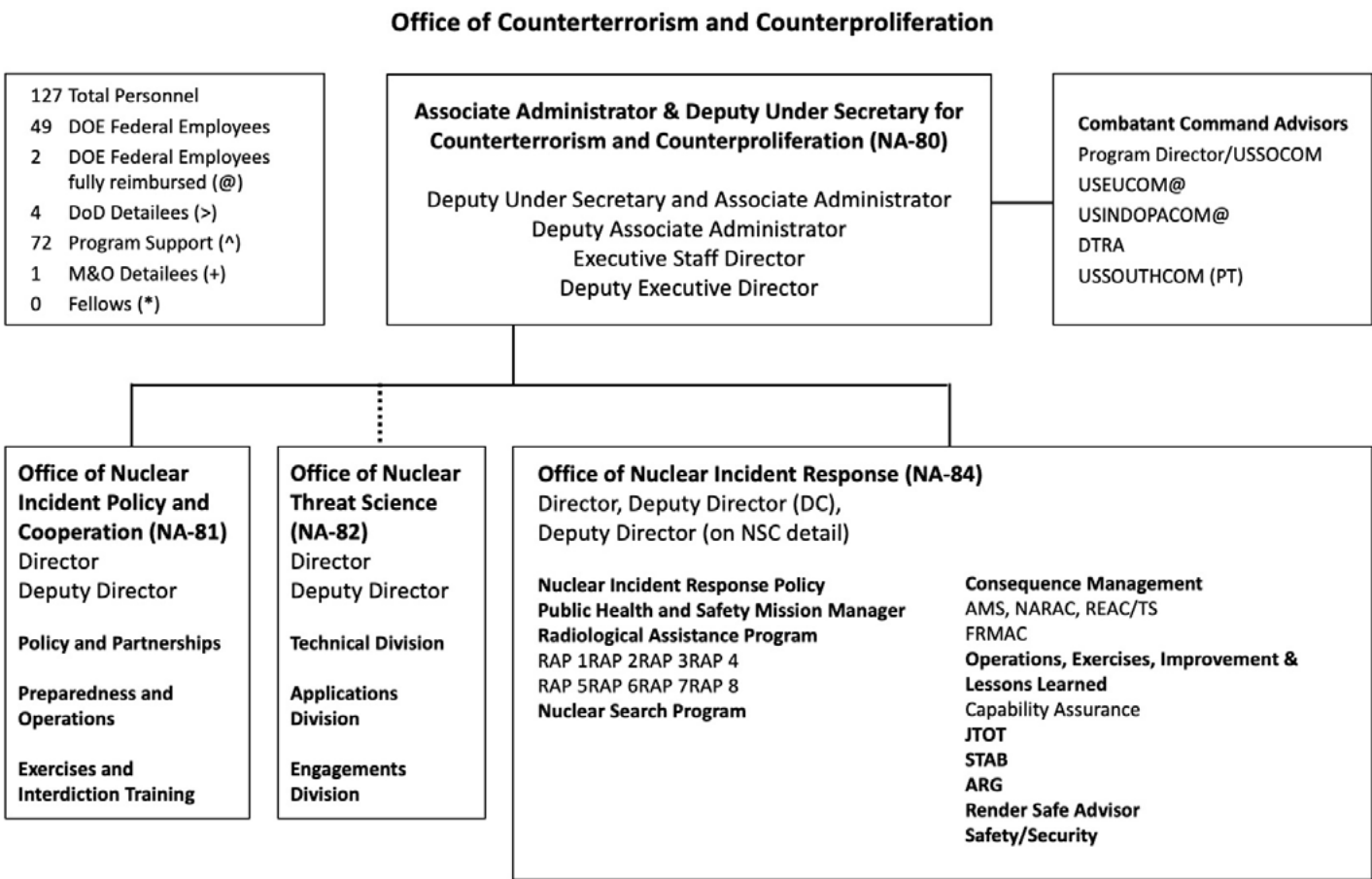
Critical Events and Action Items

Critical events or actions that will take place within the first 3 months of the next Presidential term:

Nuclear Weapon Accident/Incident Exercise (NUWAIX)-21 Senior Leader Seminar—February 17, 2021.

In partnership with the IAEA, conduct training for Member States on nuclear safety for major public events and on medical response to nuclear emergencies.

Organizational Chart



NNSA Office of External Affairs

Supporting the DOE Mission

The NNSA Office of External Affairs consists of teams of highly trained, security cleared, congressional affairs, intergovernmental affairs, and public affairs specialists who work to effectively communicate, promote, and defend NNSA's mission, goals, and budget. By building sustainable relationships with federal, state, tribal, and local stakeholders, and promoting strong engagement with the public through the media and social networks, NNSA's Office of External Affairs supports NNSA's entire nuclear security enterprise and promotes the President's nuclear security agenda.

Mission Statement

To effectively communicate, promote, and defend the mission, goals, and budget of NNSA through proactive outreach and sustainable relationship building with federal, state, tribal, and local stakeholders, and with the public through the media.

Budget

The NNSA Office of External Affairs budget is funded through the NNSA Federal Salaries and Expenses account. The budget below reflects the amount that was allotted to the office from the NNSA Office of Management and Budget.

Fiscal Year	Budget
FY 2019 enacted	\$4,312,000
FY 2020 enacted	\$3,492,000
FY 2021 requested	\$3,535,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 21

History

The NNSA Office of External Affairs was created in 2011 as part of an NNSA reorganization. This brought key external communications

offices together into one agency-level, associate administrator-led office.

Functions

NNSA's Office of External Affairs has three distinct offices and one program: the Offices of Congressional Affairs, Public Affairs, and Intergovernmental Affairs; and the Nuclear Emergency Communications Program, which handles external and strategic communications on behalf of NNSA.

Office of Congressional Affairs (NA-EA-10, CA)

The Office of Congressional Affairs provides oversight, management, and direction of legislative strategies in connection with NNSA's policy and program initiatives, and ensures that NNSA's positions are properly communicated with Congress. CA provides advice and guidance to NNSA leadership on policy issues and Members' interests and concerns, and facilitates accurate and timely responses to Congress.

Office of Public Affairs (NA-EA-20, PA)

The Office of Public Affairs is the principal point of contact for NNSA with the news media and the general public. It is responsible for ensuring that the public is informed about NNSA's activities. Its functions include communicating NNSA messaging, policies, initiatives, and information to the news media and the general public; managing and coordinating public affairs activities for NNSA headquarters, field offices and sites, including NNSA laboratories; serving as the primary spokesperson for NNSA; responding to requests for information from the public and the news media; arranging interviews with the news media; preparing written press releases about NNSA activities and sharing NNSA highlights with the news media and the general public; managing NNSA's public-facing digital presence on Energy.gov and social media; and producing multimedia content that tells the story of NNSA to a general public audience.

Office of Intergovernmental Affairs (NA-EA-30, IGA)

The Office of Intergovernmental Affairs maintains ongoing communications with governors, state legislators, tribal officials, and local officials across

the country. IGA proactively engages stakeholders to ensure that their views are considered as part of NNSA's decision-making process. IGA also communicates routinely with all relevant stakeholders on NNSA announcements, initiatives, proposals, and grants, and assures appropriate follow-up.

Nuclear Emergency Communications Program

This program was established within NNSA's Office of External Affairs in September 2019 as a result of a realignment of functions from the NNSA Office of Emergency Operations. It is aligned to the NNSA Office of External Affairs front office. This program helps to ensure that NNSA provides effective communications in the event of a radiological or nuclear emergency. It does so by executing readiness and training programs that provide response officials (e.g., public information officers) with the necessary background and experience to operate in an emergency environment.

Recent Organization Accomplishments

Defended NNSA's FY2021 President's Budget Request during three budget hearings in FY 2020 (HASC-SF, HEWD, SASC)

Received key authorizations called for in the 2018 Nuclear Posture Review.

Developed an outreach communications plan that included media advisories, news releases, social media campaigns, and pitching to media, which included garnering earned media interviews and coverage leading up to two NNSA virtual job fairs.

Pitched and secured two Associated Press articles garnering wide/extensive nationwide coverage for NNSA:

- NNSA Administrator Summer Tour: visits to the nuclear security enterprise.
- NNSA hosting of Special Presidential Envoy for Arms Control (SPEAC), Ambassador Billingslea.

Pitched and secured CBS TV exclusive one-on-one media interview with the NNSA Administrator, yielding primetime TV coverage while she visited the National Security Site and the National Atomic Testing Museum.

Contained negative media coverage as a result of cesium release event where NNSA deployed an ongoing rotation of public information officers over a period of many months.

Leadership Challenges

Balancing proactive outreach strategy with workload related to increasing interest and requests for information (i.e., due principally to the modernization efforts that are ongoing) from congressional, state, tribal, and local stakeholders.

Ensuring proper involvement of NNSA Office of External Affairs in activities that have external communications requirements led by other NNSA offices.

Critical Events and Action Items

Ensuring enactment of FY 2021 appropriations or budget anomalies for a potential long-term continuing resolution.

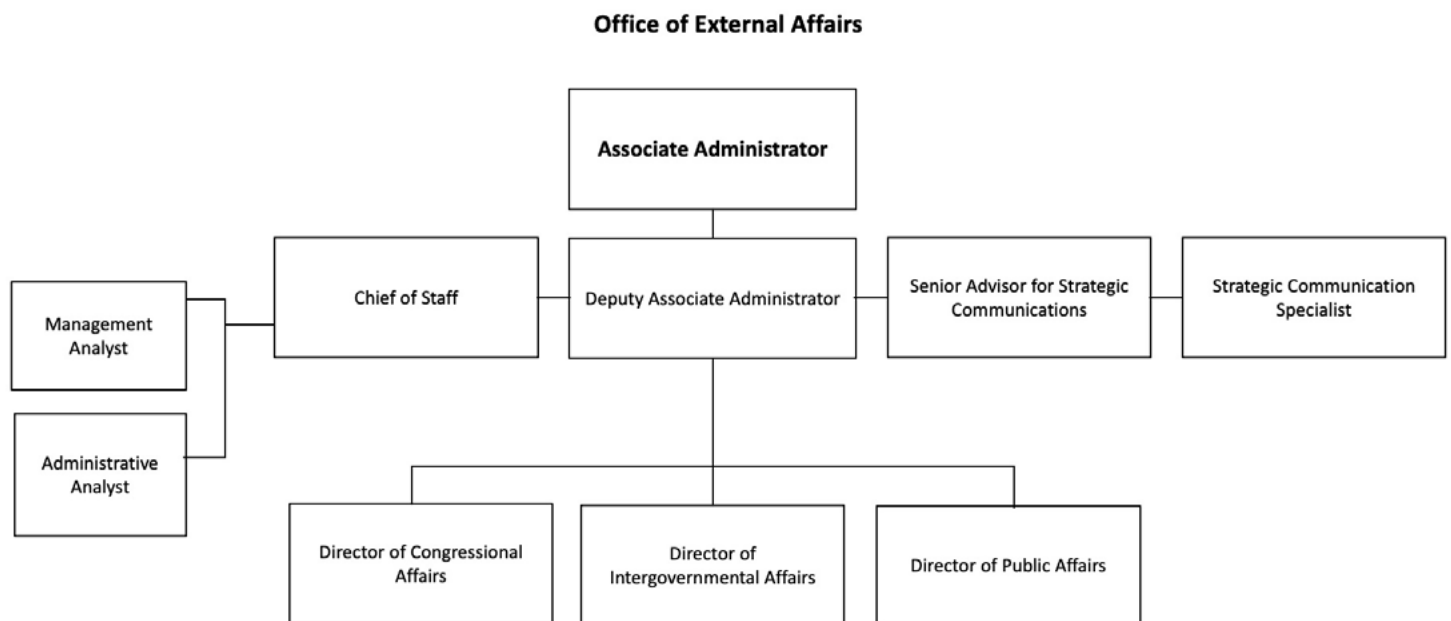
Preparing for the roll-out of FY 2022 President's Budget Request.

Supporting leadership engagements with congressional stakeholders.

Assisting with NNSA virtual job fairs: January 27 and March 30, 2021.

Supporting the Nuclear Deterrence Summit: February 9-11, 2021.

Organizational Chart



NNSA Office of Management and Budget

Supporting the DOE Mission

NNSA's Management and Budget (NA-MB) supports DOE's mission by resourcing the Nuclear Security Enterprise.

Mission Statement

Management and Budget provides timely, cost-effective, and efficient administrative and financial support for the NNSA federal staff, including federal salaries and expenses (FSE).

Budget

Fiscal Year	Budget
FY 2019 enacted	\$410,000,000
FY 2020 enacted	\$434,700,000
FY 2021 requested	\$454,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 240 FTEs and 22 overseas attachés representing the Department.

History

The position of Associate Administrator for Management and Administration was established with the creation of NNSA in 2000. In 2011, the functions of acquisitions and project management, plus information technology and cybersecurity, moved to separate NNSA organizations. At that time, the office name was changed to Management and Budget.

Functions

Audits and Internal Affairs

Provides effective NNSA-wide coordination for all Inspector General (IG) and Government Accountability Office (GAO) audit activities. Coordinates responses to IG and GAO recommendations and coordinates NNSA's activities

to track corrective actions. Coordinates actions to address IG Management Referrals and provides an audit/investigative capability for fact finding, validation, and program evaluation services related to areas of management concern.

Human Resources

Works as a strategic partner with senior leaders to deliver human resources policies, procedures, practices, and workforce planning strategies that facilitate effective program management, foster sound human capital management, and provide for an accountability system that adheres to merit system principles.

Business Services

Manages, coordinates, and provides acquisition planning and support; office space and logistics; employee concern program contact; and quality management consultation at Headquarters. Provides travel policy and administration and implements Quality Management Systems Assessments throughout the NNSA complex. The Office serves as the primary interface between NNSA and the DOE Headquarters offices regarding NNSA administrative services for the National Capital Region.

Learning and Career Management (LCM)

Works as a strategic partner across NNSA to advance the development of talent, leadership, employee training, career development, and succession planning policies and programs. Cultivates a healthy work culture that empowers employees, strengthens employee engagement, leverages diversity, and promotes inclusion through corporate strategic initiatives. Builds educational partnerships to recruit, train, and retain a world-class workforce for the 21st century, and builds a cadre of professionals to lead America's Nuclear Security Enterprise.

International Operations

Oversees the management, administration, and implementation of NNSA and Departmental policies, procedures, and systems pertaining to the agencies' overseas offices at U.S. Embassies. Serves as the NNSA point of contact to the Department of State Office of Overseas Employment, and represents DOE and NNSA interests in intra- and inter-agency overseas issues.

Resource and Matrix

Provides direct support to program and field offices to implement all aspects of the corporate Planning, Programming, Budgeting, and Evaluation (PPBE) system by ensuring that offices are staffed with experts to implement standardized PPBE processes. Manages requests and communicates with the programs and field offices for prioritization of tasking and staffing work requests. Coordinates with other NA-MB staff to successfully integrate PPBE products and ensure availability of support for financial integration, budget, and cost estimating activities.

Corporate Budget

Manages, directs, supports, and oversees activities to assure integrity, quality, and compliance of products associated with NNSA's PPBE processes; works closely with Resource and Matrix Teams to assure consistent financial practices throughout NNSA; and works with other MB Teams throughout the PPBE cycle in either a lead or supporting role to facilitate integration of NNSA information and products.

Business Systems and Integration

Uses information technology and business processes to improve PPBE capabilities of NNSA. This includes improving the financial integration of NNSA data by developing a common data reporting framework, a common work breakdown structure, and common cost elements. The team also leverages information technology and financial standardization to support the planning and programming parts of PPBE.

Financial Performance

Manages, directs, and supports activities to assure the effective financial management stewardship and financial integrity of the programs, activities, and resources at NNSA. Serves by developing and implementing NNSA policies and systems in the areas of accounting and financial management; financial and accounting systems; and other financial performance activities.

Programming, Analysis, and Evaluation (PA&E)

PA&E leads the NNSA programming process to develop the Administrators Preliminary Decision Memo documenting NNSA resource request to the

DOE Secretary for the Future Years Nuclear Security Program (FYNSP). PA&E also provides decision support to Program Offices, including DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, analyses of alternatives, and other studies, including business case analysis.

NNSA Executive Secretariat

Manages correspondence for the NNSA Administrator and reports to Congress. The Executive Secretariat also serves as the NNSA Headquarters Classified Document Control Station, coordinates conference management, and manages internal NNSA communications to employees.

Recent Organization Accomplishments

FY 2022 Budget Build

Successful, on-time delivery of a draft FY 2022-2026 Programming budget that has been transmitted to the Office of Management and Budget (OMB) through DOE-CFO. NNSA also implemented a new Nuclear Weapons Council interagency planning process in building this budget.

Helped NNSA Achieve Highest Staffing Levels since 2013

NNSA's core weapons and non-proliferation budget has increased 84 percent from 2009-2020, while federal staffing levels have decreased 10 percent over that same time period. NNSA is working to increase its staffing numbers after many years of decline. NNSA will end FY 2020 with about 1,747 employees on board, excluding Naval Reactors and the Office of Secure Transportation. This will be the highest end of year on-board strength since 2013.

PPBE Realignment

Successfully implemented the realignment of NNSA's PPBE functions and products to be co-located within NA-MB. The resultant synergy across the newly realigned teams has reduced stovepipes in knowledge and communication; enhanced timeliness and consistency of budget products; increased responsiveness to internal and external requests; and achieved budget all major budget milestones.

Overseas Presence Advisory Board (OPAB) New Charter

Successfully executed a new OPAB Charter in FY 2020 that created a Board comprised of DOE and NNSA senior leadership to manage DOE's overseas program, including selection of attachés and whether NNSA or DOE International Affairs is lead responsibility for a specific country. NA-MB is responsible for all operational issues for both DOE and NNSA attachés in 18 countries.

In the 2019 Best Places to Work in Government report, NNSA's training and development ranked in the top 15 percent of all Federal Government agencies

In FY 2020, LCM processed over 1,075 training requests. Established the Nuclear Security Enterprise Educational Partnership Consortium and expanded the Minority Servicing Institutions Partnership Program to include 33 minority servicing institutions, 11 laboratory and plant partners, 2 non-profits, and 13 consortia.

Developed Common Work Breakdown Structure (WBS)

Implemented a common WBS for all NNSA Management and Operating (M&O) partners and programs with data collection to begin at the start of FY 2021.

Leadership Challenges

Support the federal workforce in a continued COVID-19 environment and prepare for the return of federal staff when conditions allow

Recruit, train, and retain Federal employees.

Manage the logistics for a new transition team.

Critical Events and Action Items

3-month events

Operate under a budget continuing resolution impeding NNSA's modernization programs.

Prepare budget materials or adjustments to align with new Administration priorities.

Hire and deploy overseas attaches to priority countries by end of first quarter FY 2021.

Monitor COVID-19 costs, budget impacts, and return of federal work force.

6-month events

Plan and support execution of M&O contract transitions.

Delivery of the FY 2022-2026 Budget to Congress on February 1, 2021.

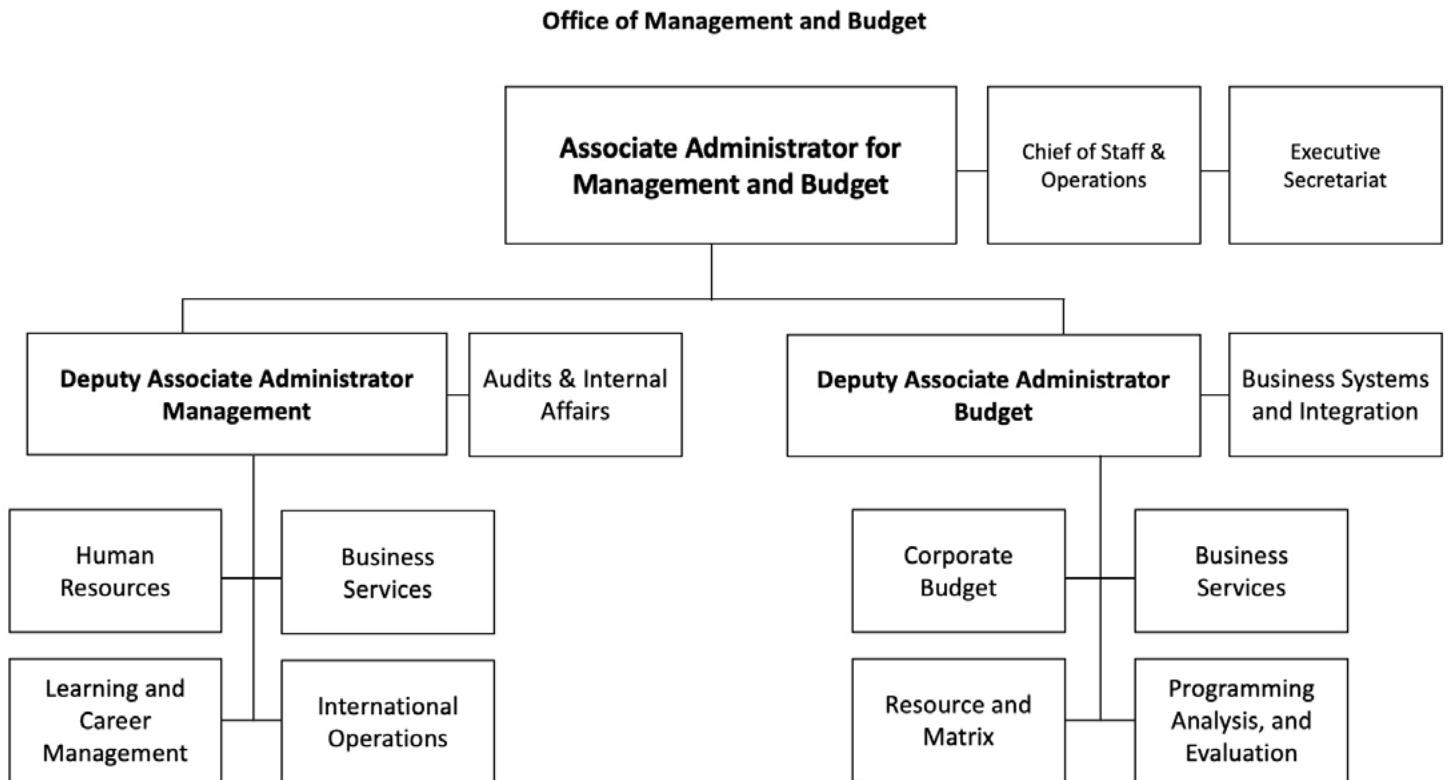
12-month events

Increase NNSA Federal staff to 1,943 FTEs by September 30, 2021.

Maintain clean opinion on financial statement audit.

Complete renovation of approximately 22,000 square feet of secure space to increase occupancy and modernize office environment.

Organizational Chart



NNSA Office of Acquisition and Project Management

Supporting the DOE Mission

The Office of Acquisition and Project Management (NA-APM) enables NNSA to accomplish defense, nonproliferation and counterterrorism, emergency operations, and security missions at the best value to the taxpayer through contract placement, and administration and capital construction project management. NA-APM awards all contracts, financial assistance instruments, and Inter-Agency Agreements on behalf of NNSA. The majority of NNSA's procurement funds are obligated on Management and Operating (M&O) contracts at seven major sites on DOE/NNSA's behalf. Over 90% of NNSA's budget is spent via contract.

NA-APM oversees all construction projects over the minor construction limit (currently \$20 million) and ensures disciplined, upfront project planning to establish objective performance measures that demonstrate achievement of program objectives within approved cost, schedule, and performance parameters. Projects include complex, first-of-a-kind nuclear facilities that are of profound importance to national security. NA-APM's work spans the entirety of NNSA's national security mission and saves taxpayer funds by providing Federal oversight and contractor accountability while delivering mission-critical projects on schedule and on budget.

Mission Statement

Safe, Quality Construction on Budget. Timely, Best Value Acquisition Solutions.

Budget

NA-APM funding is included in the Office of the NNSA Administrator.

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 187

History

NNSA created NA-APM in 2011 to bring discipline to NNSA acquisition and project management and address the longstanding project management challenges identified by internal and external stakeholders. Establishing an independent, integrated acquisition and project management organization, separate from the requirements owner and resource sponsor, is in line with practices in other federal agencies and the private sector. It allows for the systemic implementation of policies, practices, and procedures for delivering best value acquisition and capital asset project solutions, while maximizing available resources. NA-APM was designed to ensure that best value acquisition plans are developed, and to perform the necessary critical evaluation of a project's cost estimating; design and technical maturity; requirements definition; and change control for the Under Secretary for Nuclear Security (Administrator) and associated Program Offices. NA-APM provides independent dedicated acquisition, project management, and oversight that aligns contract incentives with taxpayer interests; provides clear lines of authority and accountability for federal and contractor personnel; manages assigned projects within the original scope and cost baselines, ensuring completed projects meet mission requirements; improves cost and schedule performance; and strengthens cost estimating, and alternative assessments and evaluation.

Functions

NNSA's missions require an industrial and laboratory infrastructure that is secure and able to meet immediate and long-term operational needs. NA-APM provides the corporate integration for the development and execution of NNSA's facilities management policies and programs and project management systems. Similar to the roles and responsibilities of integrated acquisition and project management organizations in other federal agencies, NA-APM ensures NNSA implements federal acquisition and project management policies and regulations. NNSA, as a semi-autonomous agency, has its own procurement authority through the Administrator to the Senior Procurement Executive (SPE) in NA-APM. NA-APM works closely with the DOE SPE to ensure consistency across the Department. NA-APM's Federal Project Directors (FPDs) lead all capital asset line item projects from completion of Analysis of

Alternatives (AoA) through Critical Decision (CD)-4, *Approve Project Completion*.

Recent Organization Accomplishments

Delivered \$2.0B of projects 3.5% under budget through improvement in staff capability; firm requirements documentation before setting baseline; refined tracking and project oversight; clear lines of authority and responsibility; rigorous change order discipline, and independent oversight and review.

The \$6.5B Uranium Processing Facility (UPF) has remained on budget and schedule for seven consecutive years. Three of the seven subprojects have completed, all on or under budget and schedule (\$150M combined value). Over 1,000 construction workers are continuously on-site in Oak Ridge, TN, with the workforce expected to peak at near 2,000.

Tracking \$1.03B baselined scope on Chemistry & Metallurgy Replacement Project under budget/ ahead of schedule for four years.

MOX Contract (\$5B+) was terminated, laid-up, and a settlement reached within 13 months.

The Exascale Class Computing Cooling (E3CE) project at Los Alamos obtained CD-4, *Approve Project Completion*, 10 months ahead of schedule and \$20M under budget.

The Expand Electrical Distribution System (EEDS) project at LLNL reached CD-4, *Approve Project Completion*, five months early and \$1M under budget. The project provides redundant underground power between Western's Livermore Substation (WLS), Lawrence Livermore National Laboratory, and Sandia-California.

Device Assembly Facility (DAF) Argus Installation – Interior Protection Project obtained CD-4, *Approve Project Completion*, 5 months ahead of the schedule and \$4M under budget. The project replaced the PECOS in the DAF with Argus components, including Argus Field Panels and Remote Access Panels, reducing fire loading and facilitating future DAF maintenance.

The Digital Infrastructure Capability Expansion (DICE) project at Los Alamos achieved CD-0, *Mission Need Approval*. With the expansion of networking

and communications capabilities on the campus, the DICE project will play a critical role in meeting new digital infrastructure demands.

The Small Business Administration (SBA) awarded the DOE an "A" grade for its Fiscal Year (FY) 2019 small business and socio-economic contracting achievement. The Agency substantially exceeded its goals in prime small business procurement and subcontracting, while also surpassing its goals for graded socio-economic contracting.

Leadership Challenges

Staffing

Insufficient staffing remains the priority issue. Authorized billets have grown from 175 in 2016 to 187 in 2020, while the project portfolio has grown from \$5B to \$22B over the same period. The success in delivering projects on time and on budget has contributed to the growth of funding appropriated for NNSA's infrastructure recapitalization. To continue this positive trend, NA-APM must increase quality federal staffing to meet the growth in construction.

Acquisition Strategy

NA-APM is diversifying NNSA's contracting methods to accomplish capital asset line item projects, which requires adoption and creation of new policies, processes, people, and culture. Rather than defaulting to cost reimbursement efforts via M&O contracts, alternative contracting agencies, including the U.S. Army Corps of Engineers and the Tennessee Valley Authority, are being used. Firm-fixed price, design-build contracts have been let, and independent contract line items within the broader M&O contract have also been established. Additionally, cost-savings incentives have been added to M&O contracts. Identifying the proper, non-nuclear projects that would benefit from an alternate approach and ensuring that all stakeholders understand the benefits and new processes takes leadership engagement and education.

Requirements Development

The early and definitive statement of requirements for capital line item projects is essential to project success. To improve the probability of success, NA-APM now leads projects from conceptual

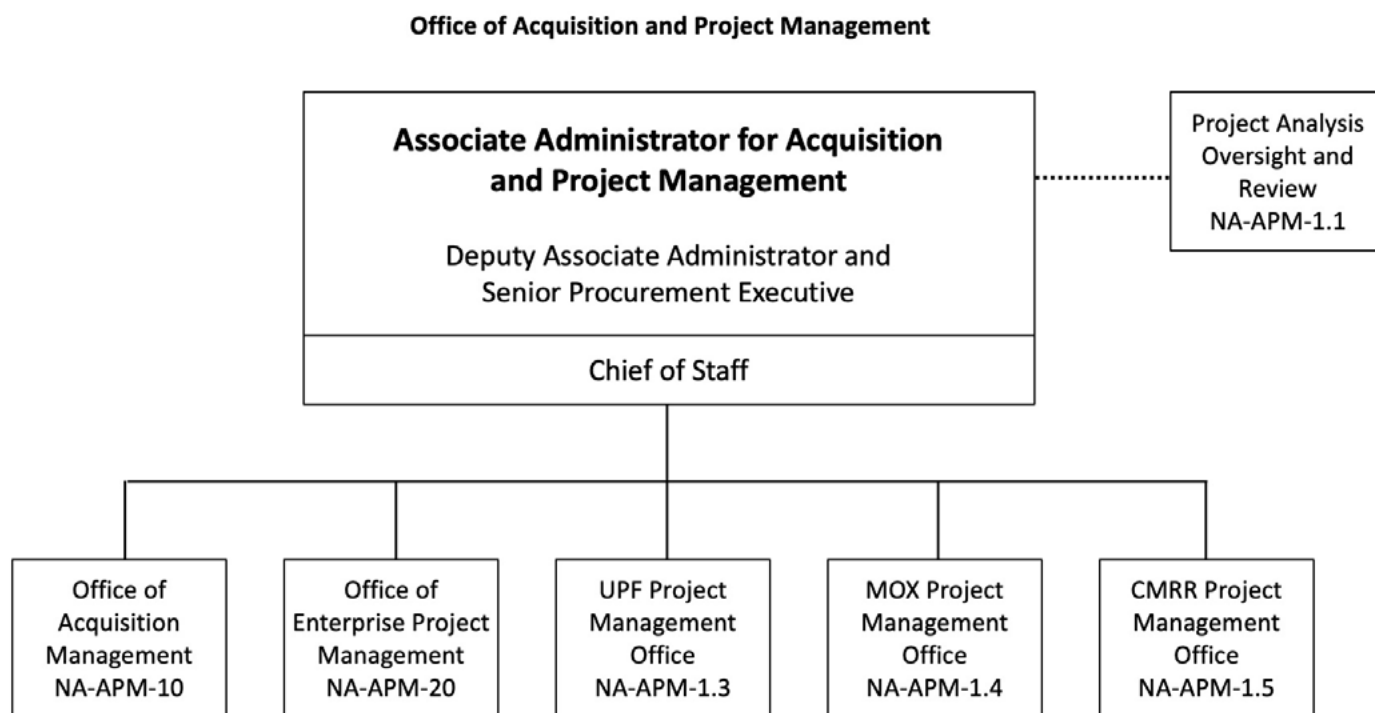
design forward, but establishing firm technical requirements for unique projects; requiring multi-year technology development and maturation; and having a stable and predictable budget remains a critical risk factor to on-time/on-budget delivery.

Critical Events and Action Items

As a capital asset (construction or major item of equipment) progresses through the various Critical Decision (CD) phases, NNSA's program managers are responsible for the mission need, requirements, alternative selection, and budgeting, while NA-APM develops the acquisition plan and executes the project decision, construction, or assembly in accordance with the terms and conditions of the contract. The following major events are expected in early 2021:

- Los Alamos Plutonium Pit Production Project (LAP4) – Approve Analysis of Alternatives and Cost Range (CD-1)
- Pantex High Explosive Synthesis, Formulation, and Production (HESFP) – Approve Analysis of Alternatives and Cost Range (CD-1)
- Savannah River Plutonium Processing Facility (SRPPF) – Approve Analysis of Alternatives and Cost Range (CD-1)
- Y-12 West End Protected Area Reduction (WEPAR) – Approve Performance Baseline and Approve Start of Construction (CD-2/3)
- Y-12/Pantex Management and Operations (M&O) Contract – Receive proposals

Organizational Chart



NNSA Office of the General Counsel

Supporting the DOE Mission

The NNSA Office of the General Counsel (NA-GC) is responsible for providing legal advice to all NNSA elements worldwide, and is responsible for providing legal program direction, policy, and oversight to NNSA's legal offices throughout the United States.

Mission Statement

NA-GC attorneys are responsible for providing legal advice on a wide variety of complex issues to facilitate achievement of the NNSA's national security mission, in compliance with all pertinent laws and regulations. The office also jointly manages the Freedom of Information Act (FOIA) and Privacy Act (PA) programs for NNSA, and ensures that NNSA fulfills its obligations under the National Environmental Policy Act (NEPA) by providing NEPA Compliance Officers and policy for NNSA. The NNSA Procurement Legal Team (PLT) has been organized to attain a single legal voice for NNSA on procurement legal matters and establish single points of contact (POCs) on procurement legal issues for our NNSA clients. The PLT provides legal advice and counsel to clients throughout the NNSA procurement community regarding contracts, financial assistance agreements, interagency agreements, and other business transactions.

Budget

NA-GC funding is included in the Federal Salaries and Expenses budget line.

Fiscal Year	Budget
FY 2019 enacted	\$856,529
FY 2020 enacted	\$648,971
FY 2021 requested	Not yet provided to NA-GC.

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 40

History

The NNSA Office of the General Counsel was reorganized in 2012, incorporating the Office of Chief Counsel at the former Albuquerque Operations Complex, and creating a unified Headquarters Office with staff located both in the National Capital Region and Albuquerque. An additional reorganization, involving the FOIA/PA program and the NEPA program, was accomplished in 2014.

Functions

The General Counsel is the chief legal officer of the National Nuclear Security Administration [Section 3217 of the National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65, as amended (50 U.S.C. 2407)]. As Chief Legal Officer, the General Counsel advises the Administrator on various legalities attendant to the Administrator's program decisions and on a variety of legal matters, including the implications of proposed legislation and relevant laws, executive orders, and court decisions, and the binding decisions of third-party judicial and administrative appellate bodies. The General Counsel is the chief promulgator of NNSA's legal program policies.

Recent Organization Accomplishments

Pit Production NEPA strategy.

Settlement of MOX lawsuits.

Strategy for the settlement of plutonium removal lawsuit with South Carolina.

Award of the Management and Operations Contract for the Los Alamos National Laboratory without protest.

Leadership Challenges

Leadership transition.

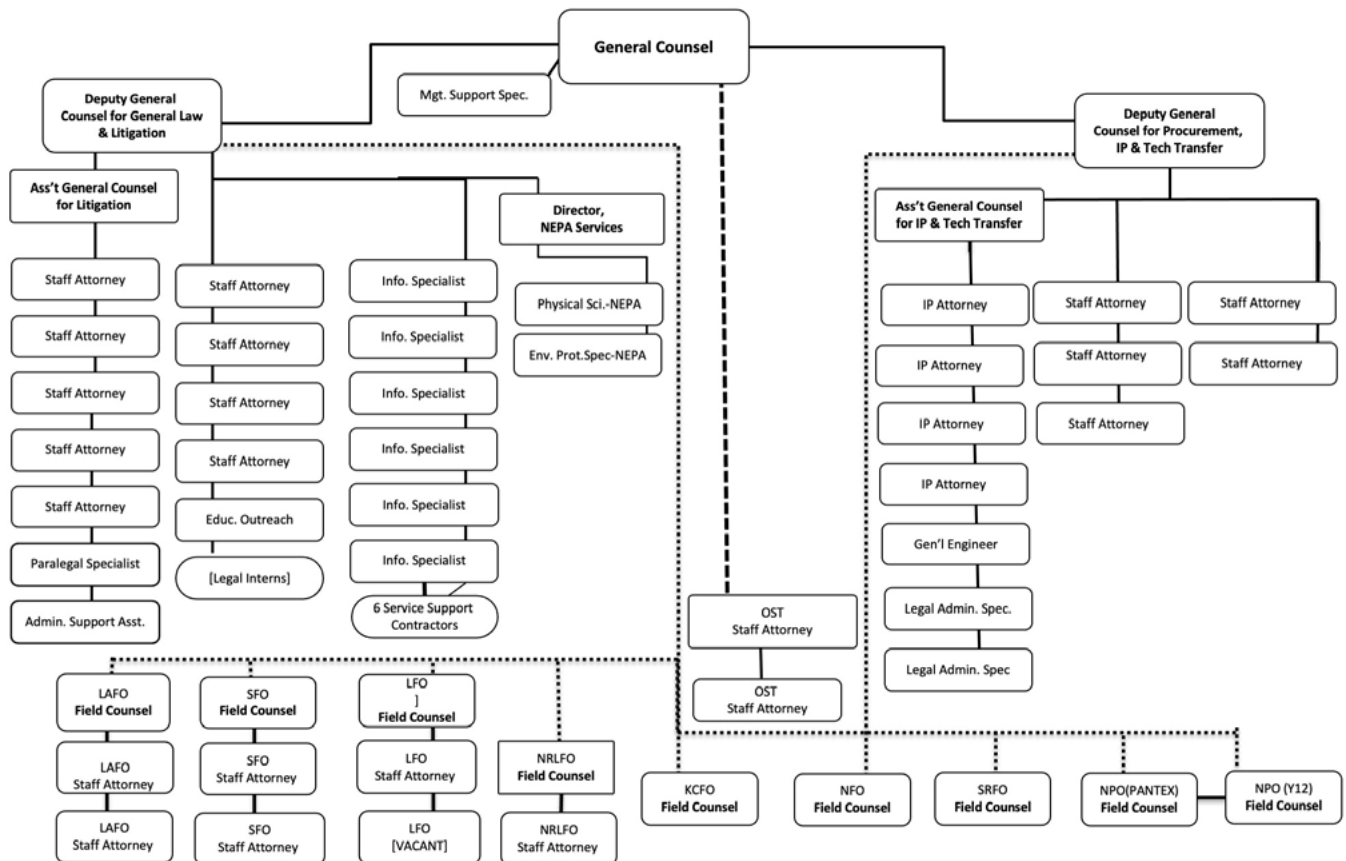
Defense of the Pit Production NEPA strategy.

Critical Events and Action Items

Expected: Appointment of new General Counsel (NA-GC-1)

ORGANIZATION OVERVIEWS | *Office of the Under Secretary for Nuclear Security*

222



NNSA Office of the Associate Administrator for Information Management and Chief Information Officer

Supporting the DOE Mission

The Office of the Associate Administrator for Information Management and Chief Information Officer (NA-IM) leverages new and existing technologies to assist and protect the DOE/NNSA nuclear mission in an increasingly complex and hostile cyber environment. NA-IM provides cybersecurity for all DOE Classified systems as well as the NNSA mission unclassified environments and provides the enterprise Secret level networks for all of NNSA.

Due to NNSA's vital mission, NA-IM implemented a risk management approach to developing IT applications and networks to ensure that cybersecurity is an integral component of the IT fabric of the agency. NA-IM enhances the information management of the nuclear security enterprise through an effective mix of technology, policy, and risk management practices.

Mission Statement

NA-IM strives to be a mission partner that enables the NNSA to accomplish its strategic goals and objectives through the delivery of secure, agile, and risk-informed information technology (IT) and cybersecurity solutions.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$221,200,000
FY 2020 enacted	\$300,000,000
FY 2021 requested	\$375,500,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 35

History

As the principal IT advisory organization to the NNSA Administrator, NA-IM is charged with operating across the NNSA nuclear weapons complex to create, communicate, and execute an integrated IT vision as well as provide cybersecurity not contained within the physical boundary of nuclear weapons developed by Defense Programs.

NA-IM ensures and enables the availability of a secure infrastructure for mission activities and information sharing for the NNSA and its partners. NA-IM orchestrates, provides, and directs cybersecurity across the NNSA enterprise, and to its mission partners. The Office manages the IT portfolio, federal IT investments, services, and projects in alignment with the Administration and Departmental strategies, as well as other national policy drivers. NA-IM is guided by statutes and federal guidance and is responsible for developing and governing appropriate policy for NNSA IT and Cybersecurity.

Functions

NA-IM is the principal organization for federal information management, IT, and complex-wide cybersecurity for the NNSA. NA-IM has the responsibility to ensure the availability of a secure infrastructure for mission support, the data contained in the networks, and information sharing for the nuclear security enterprise. The Office manages federal IT investments, services, and projects, and oversees NNSA's IT portfolio in accordance with the Office of Management and Budget. NA-IM is responsible for all aspects of cybersecurity across NNSA, including, but not limited to: policy, planning, and budgeting; assessment of performance; federal and congressional reporting; continuous monitoring; risk management; instilling the next generation

of cybersecurity and technology tradecraft; and the daily operations of classified and unclassified networks and systems. The Office coordinates with the DOE Office of the Chief Information Officer (DOE OCIO) on IT and cybersecurity solutions providing protection for DOE information and information assets. The Office also connects agency efforts and ensures close collaboration with the Intelligence Community and Department of Defense on technology and mission integration issues to ensure service delivery continually meets the dynamic requirements of NNSA's mission programs.

Recent Organization Accomplishments

Completed the Phase I implementation of Classified Infrastructure Improvement Project.

Implemented Phase I of the IT Modernization Project working closely with the Department and element CIOs and IT Managers.

Developed and implemented services and solutions to provide operational connectivity during the COVID-19 pandemic.

Leadership Challenges

Ensuring that NA-IM is involved in IT and Cybersecurity matters across the NNSA Enterprise. When NA-IM is not included in early planning activities, NA-IM loses the ability to apply broad risk management methodologies to harden the cyber posture of the Department as a whole.

Recruiting and retaining qualified IT cybersecurity talent remains a top concern for NA-IM. The competitive, growing field and length of the hiring process, as well as the current pay band structure, is increasing difficult. NA-IM must foster a culture that prioritizes an adaptive, agile workforce in order to meet mission requirements in the rapidly evolving IT and Cybersecurity environment.

Cybersecurity and Information assurance on mission software, hardware, and networks is constantly challenged by numerous malicious actors.

Ensuring coordination and alignment of agency priorities together with Administration and NNSA goals and mission requirements.

Critical Events and Action Items

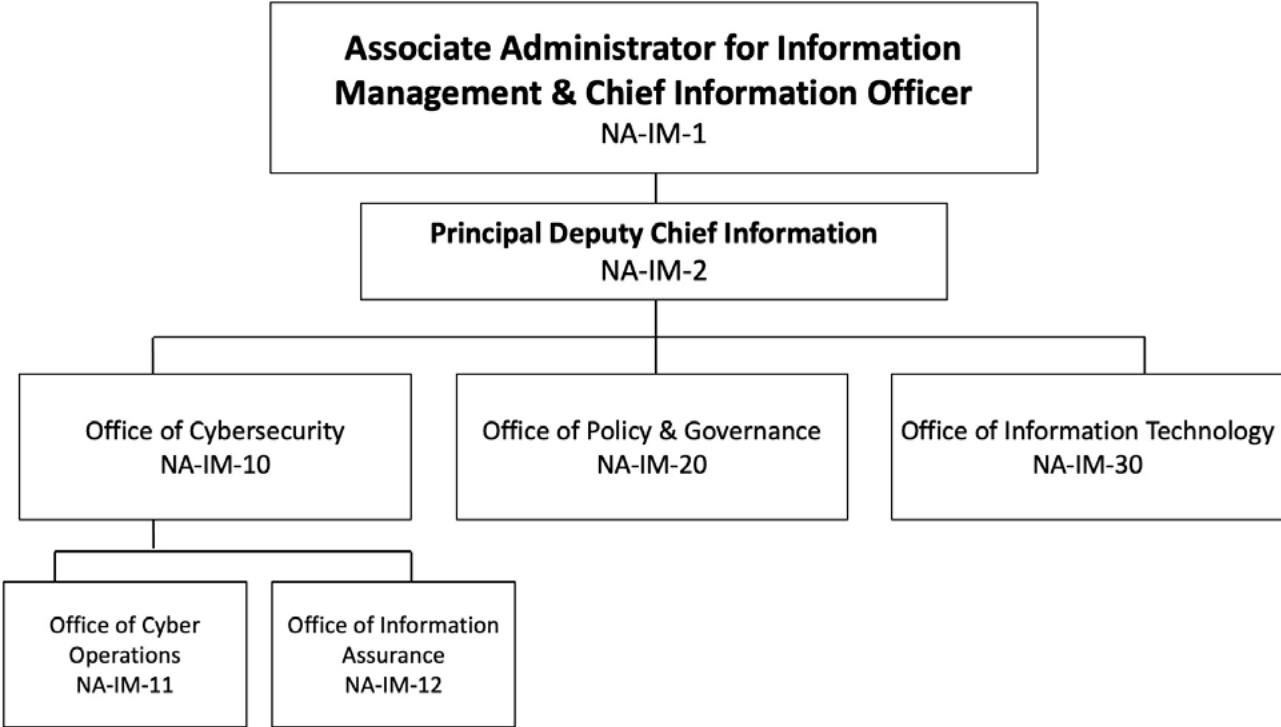
Procurements. Forward planning of future procurements of M&O support services contracts that will impact cyber and IT across the enterprise.

Classified Infrastructure. Continuing modernization plans and activities for NNSA classified infrastructure and enhancements.

Classified Networks. Operations, maintenance, and modernization of classified collateral networks, including supporting exercises and engagement activity with external partner organizations.

Organizational Chart

Office of the Associate Administrator for Information Management and Chief Information Officer



NNSA Kansas City Field Office

Supporting the DOE Mission

The Kansas City Field Office (KCFO) oversees a multi-billion dollar contract at the state-of-the-art Kansas City National Security Campus (KCNSC) in Kansas City, MO. The KCNSC, managed and operated by Honeywell FM&T, manufactures and procures about 80 percent of non-nuclear weapon components of the nuclear stockpile, including electronic, mechanical and engineered materials. The KCNSC also develops field-ready engineering solutions for other governments' national security missions; supports Secure Transportation and emergency response activities in New Mexico; and manages the Supply Chain Management Center (SCMC), which was created to more effectively manage about \$4 billion of annual purchasing across NNSA and many DOE sites. The KCFO provides day-to-day oversight for contractor operations to ensure mission success. Honeywell Federal Manufacturing & Technologies now has more than 5,000 employees in Kansas City and Albuquerque, New Mexico.

Mission Statement

The Kansas City Field Office, in cooperation with our stakeholders, is entrusted by the NNSA and the public to manage the resources of the KCNSC in an effective and efficient manner that will: accomplish the mission of the NNSA; comply with laws and regulations; value our employees and their contributions; minimize risk to the public and the environment while providing a safe and secure working environment; protect NNSA facilities and resources; identify, document, and measure processes to assure the quality of products and services to fulfill customer requirements; continually improve all processes, products, and services; and maintain the public trust and foster positive relations with our neighbors and the community.

The Kansas City Field Office, the onsite federal presence, executes the NNSA and other customer missions and provides day-to-day oversight for contractor operations to ensure mission success. The Field Office ensures compliance with laws and regulations and works closely with the M&O contractor to ensure safe, secure, and cost effective

performance. KCFO oversees the contractor's budget process and funding priorities. In the public arena, KCFO staff interacts with federal, state and local governments and remains responsible and accountable to stakeholders. The Kansas City Field Office uses a unique system of oversight called the Kansas City Governance Model. This model, developed by Honeywell and NNSA, applies best-in-class commercial standards in managing operations, transforming business functions, and delivering mission results. It is a mutual operating model that maximizes trust, cooperation, and opportunity.

Budget

Kansas City Field Office Budget.

Fiscal Year	Budget
FY 2019 enacted	\$7,600,000
FY 2020 enacted	\$7,580,000
FY 2021 requested	\$7,630,000

Kansas City National Security Campus Budget.

Fiscal Year	Budget
FY 2019 enacted	\$753,950,000
FY 2020 enacted	\$1,013,000,000
FY 2021 requested	\$1,199,000,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 38

History

The KCFO began in 1949, along with the Kansas City Plant, when the Atomic Energy Commission selected the Bendix Corporation to manufacture parts. The first part produced at the Kansas City Plant was an ordinary machined bushing and was a forerunner to the highly sophisticated and complicated components built in the years that followed. James Stowers was the first manager of the Kansas City Field Office. In the mid-1960s, the KCFO grew to almost 150 employees and the Kansas City Plant had about 8,300 employees. Over time, both numbers have considerably lowered to the 38 federal and the more than 5,000 contractor employees working today at the LEED Gold facility and three leased office spaces in Kansas and Missouri.

Functions

The KCFO is responsible for many functional areas that support the NNSA's mission. In addition to overseeing the various weapons missions that include performing inspections and audits, the functional areas also include communicating with internal and external stakeholders; administering the M&O contract; providing financial administration support; ensuring federal employees receive human resources support; and working with regulators on permits and compliance. The unique public/private partnership governance model changed the focus of the KCFO from transaction-based oversight to system-based oversight, resulting in more effective use of resources. Specific KCFO functions include the following:

Security (physical and cyber)

Includes management oversight of security risks, physical security information, personnel security, and protective force.

Information technology

Includes planning and executing effective processes for IT project management and service delivery.

Environment, Safety and Health

Includes regulatory permits and compliance as well as industrial hygiene, radiation protection, and emergency preparedness.

Facilities Management

Includes the Roof Asset Management Program, utilities, and leased office spaces.

Weapon Quality Assurance

Includes Quality Index of M&O contractor's performance, Quality Improvement initiatives and Quality Assurance surveys.

Weapons Programs/Nuclear Nonproliferation

Includes Performance Evaluation Measurement Plan (PEMP), Performance Evaluation Report (PER), and M&O Oversight.

Strategic Partnership Project

Includes ensuring work complies with DOE Order 481.1, offsets operational/overhead costs for Work for Others customers and NNSA, and helps maintain critical NNSA capabilities.

KCNSC New Mexico Operations

Includes PEMP and PER, support cost validations, QA support of KCNSC New Mexico Operations, and support of NA-20 and NA-80 missions.

Contract Administration/Procurement

Includes Supply Chain Management Center, contract administration, M&O purchasing oversight, and PEMP/PER schedules.

Human Capital Management

Includes site strategic activities, performance management, technical training programs, Individual Development Plans, employee development, Employee Concerns Program, and equal employment and diversity.

Finance and Business Administration

Field Office program direction budget execution, review of M&O internal controls oversight, IG/GAO audit coordination, M&O financial assessments and validations, and M&O budget development and planning oversight.

Public and congressional affairs

Includes internal/external communications, oversight of M&O communications activities, liaison with Headquarters External Affairs.

Records Management and Disposition

Includes physical records, electronic records, Vital Records, and FOIA research and support.

Legal

Includes contractor litigation support.

Recent Organization Accomplishments

M&O Contract

The NNSA recently approved the first one-year option of the multi-billion dollar M&O contract

for Honeywell FM&T which began Oct. 1, 2020. In 2015, NNSA awarded a multi-billion dollar five-year contract with five one-year options valued at \$4.584 billion.

SCMC Cost Savings

Under KCFO leadership, the KCNSC has led the Nuclear Security Enterprise to save money by consolidating contracts through the SCMC to buy commodities for multiple sites. Cost savings generated by SCMC strategic sourcing tools surpassed the \$1 billion mark in August 2020. The SCMC, managed by Honeywell Federal Manufacturing & Technologies (FM&T), was created in 2006 to more effectively manage \$4 billion of annual purchasing across National Nuclear Security Administration (NNSA) and later DOE Environmental Management and Office of Science sites. The SCMC works with DOE contractors to combine their purchasing power to award multi-site commodity agreements for operating supplies; information technology; transportation and logistics; and services. The most visible savings have been generated through one of SCMC's eSourcing, a proposal portal where requirements are placed online for a reverse auction that drives down the purchase price.

Bannister Federal Complex Disposition

Construction on private industrial buildings began in late 2020 for the former Bannister Federal Complex site, which the DOE/NNSA successfully transferred in November 2017 to a private developer for demolition, remediation, and redevelopment. This 227-acre transfer saved the federal government \$500 million in estimated remediation and demolition costs and contributed to the continued resurgence of the economically depressed south Kansas City area, and served as a template for future property disposition challenges. While initial cost projections and indicators from normal property disposition tools led to a conclusion that the Bannister property would remain undeveloped after departure of its Government occupants, the Bannister Disposition Team's efforts overcame these obstacles and secured a future for the site with substantial cost savings to the Government. In 2013, the DOE/NNSA moved its Kansas City operations from the World War II era Bannister Federal Complex to the newly built Kansas City National Security Campus.

ISO Certification

This year, the KCFO successfully completed another annual ISO audit to maintain ISO certification, the only NNSA field office to have this distinction. The certification is one of the contributing factors to KCNSC operating like a commercial facility.

Modern, State-of-the Art Campus

The KCNSC is an award-winning, state-of-the-art LEED (Leadership in Energy and Environmental Design) Gold manufacturing and engineering facility. The modern campus reduces our footprint by 50 percent and reduces costs by \$150 million annually. The building was part of a strategy that included a unique lease agreement for the facility. The GSA, acting as the government's broker, signed the lease agreement with CenterPoint Zimmer LLC, for the \$687 million campus in June 2010. Construction was completed in 2012 and the largest industrial move in the United States completed in 2014. The new campus exemplifies NNSA's mission to transform into a more cost-effective, energy-efficient, adaptive, and sustainable model while supporting the nuclear deterrent.

Leadership Challenges

Managing Change

Managing change is the biggest challenge at the Kansas City Field Office. KCFO leadership works with KCNSC leadership to develop solutions to the ever-evolving landscape which includes dealing with workforce challenges; managing infrastructure needs; responding to unforeseen situations such as COVID-19; handling new and emerging life extension programs through different development phases; and addressing key stakeholders. Here are just a few challenges related to change:

- Doubled workforce in 4 years; 63 percent of employees with less than 5 years of service at KCNSC.
- Facility designed for smaller workload scope; executing short-term plans but need long-term solution.
- Partnership with Design Agencies critical to producing manufacturable designs and maintaining scope/schedule.
- Supply chain management critical to success with 70 percent of products outsourced; suppliers have similar growing pains.

- Technology maturation has dramatically reduced the time, cost, risk, required infrastructure, and hazard of the processes to develop, produce, and test the next generation of deterrent capabilities.
- Showcased agility throughout COVID-19 response by successfully accomplishing Mission Critical scope, partnered with industry for COVID solutions, and maintained safe operations.

Response to the COVID-19 pandemic

The most significant leadership challenge in 2020 has been our response to the COVID-19 pandemic. In a short period of time, KCNSC went from fully operational to mission critical, which meant a continual series of meetings, planning sessions, and communications with Headquarters, KCNSC, KCFO leadership, other NSE sites, suppliers, other government agencies, and our defense customers to ensure a safe and orderly transition through the different stages. Key mission activities related to stockpile stewardship and modernization, and key infrastructure and reestablishment of production capabilities were identified based on national security needs. We also maintained all processes, systems, and facilities in safe and secure configurations. We continued to perform required checks, inspections, surveillances, and time-critical mission-essential work while securing the site and maintaining mission capabilities. As of June 15, 2020, the site is in limited operations with an estimated return to full operational status in mid-summer.

At KCFO, meetings with federal staff were held daily throughout the height of the pandemic to manage accountability and transmit important information about changing operations and health and safety guidelines. All federal staff teleworked during the height of the pandemic. On June 1, 2020, KCFO federal employees began an A and B schedule for employees.

Meeting Commitments

Most of the work done at KCNSC has been on schedule and without issues, but some areas need special focus to keep roadblocks from developing. Those areas include our long-term infrastructure needs, our negative trends in weapon quality metric performance, and meeting post FPU production requirements.

Infrastructure Needs

Our KCFO team is working with KCNSC on our infrastructure needs. When KCNSC was designed in the 2008-2010 timeframe, workload forecasts included only one program in production and one program in development. Today KCNSC has three programs in production and two programs in development. Current mitigation efforts should help the site meet increased workload and capacity demands. For example, KCNSC is now using three work shifts to support capacity. Long-term planning includes the recent issuance of a Request for Information to better understand what opportunities lie in the Kansas City area for a potential campus consolidation. A Strategic Infrastructure for Non-nuclear Components Planning study stemming from NNSA Headquarter is expected to identify and analyze strategies for meeting the long-term infrastructure requirements at Kansas City to support the weapons mission. We have leased three office spaces, two in Missouri and one in Kansas. Tenant improvements recently began at Building 23 at the newly leased 275,000 square foot light manufacturing facility as the first effort to expand manufacturing space and capabilities.

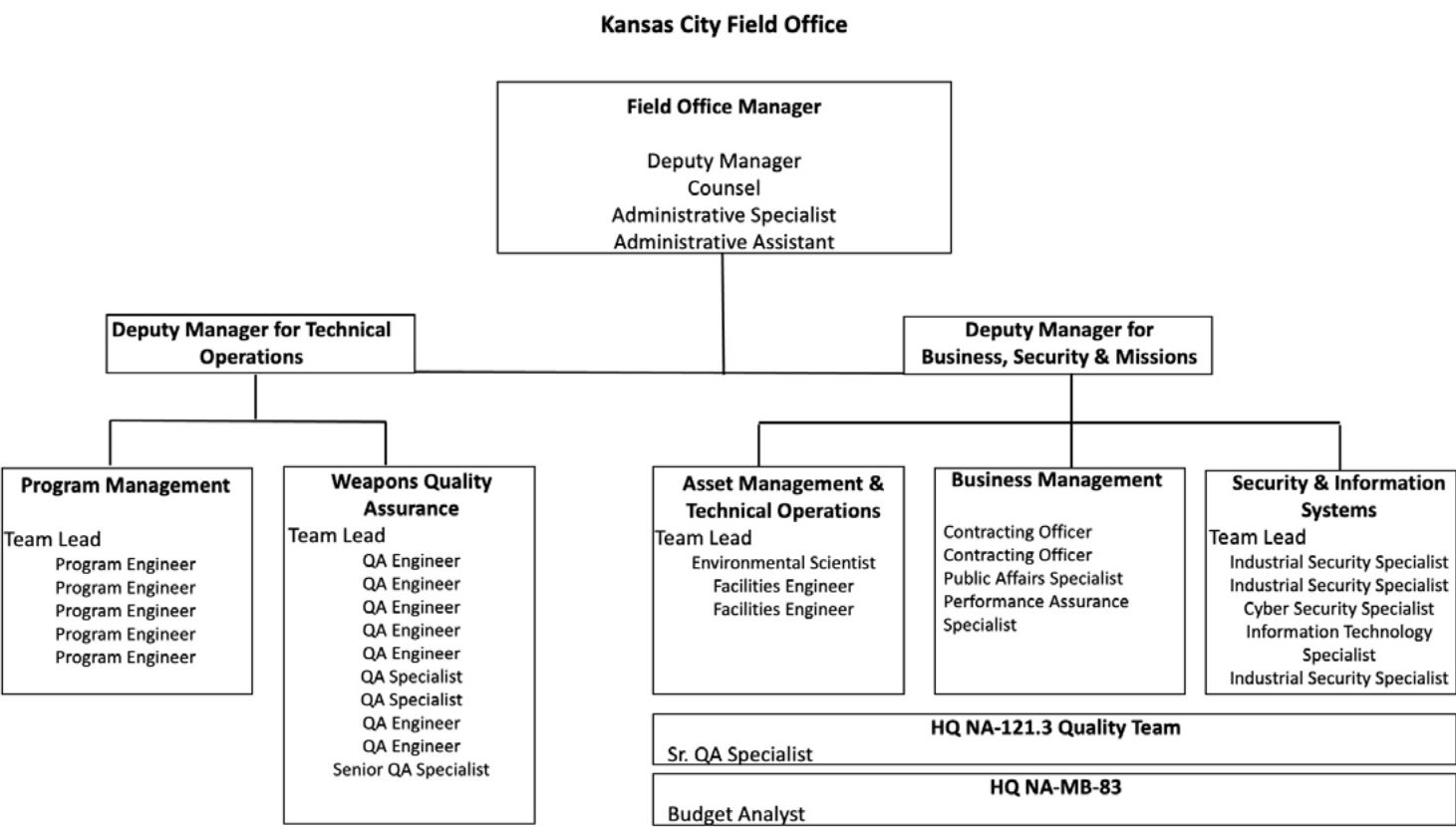
Communications with Stakeholders

The KCFO leadership asked KCNSC to establish a customer engagement group to ensure that we are communicating with all of our stakeholders in a timely, accurate manner. This has resulted in significantly increased attention to keeping stakeholders informed about our progress and any delays in order to improve output. KCNSC and KCFO leadership have been holding Partnership meetings, which have resulted in a better understanding of what is going well and what is not. In addition to the customer engagement group, we also have been looking at how to better implement the governance framework outlined in the Strategic Vision, Strategic Integrated Roadmap, and our Governance and Management (G&M) Framework. We are moving forward with training and other ideas to ensure all employees understand their roles and responsibilities; ensure a culture of risk management is incorporated; and determine how we can work with the entire Enterprise as a team rather than operating separately.

Critical Events and Action Items

None.

Organizational Chart



NNSA Los Alamos Field Office

Supporting the DOE Mission

The Los Alamos Field Office (NA-LA) oversees operations at Los Alamos National Laboratory and manages the contract with Triad National Security, LLC (Triad). Los Alamos National Laboratory (LANL) is a National Nuclear Security Administration (NNSA) laboratory within the Department of Energy (DOE), supporting each element of DOE's missions in nuclear, energy, and environmental challenges through transformative science and technology.

Mission Statement

LANL is a government-owned, contractor-operated federally funded research and development center. LANL solves national security challenges through simultaneous excellence in nuclear security; mission-focused science, technology, and engineering; operations and community relations.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$2,752M
FY 2020 enacted	\$3,003M
FY 2021 requested	\$3,400M

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 9,600 FTEs

Overview

Los Alamos National Laboratory (LANL) is a premier national security science laboratory whose primary mission is supporting the strategic nuclear deterrent. This mission includes ensuring the safety and reliability of the U.S. deterrent, and providing nonproliferation and counterproliferation solutions.

LANL supports national priorities for ensuring the safety, security, and reliability of the stockpile, and relies on the unique science capabilities developed through the Stockpile Stewardship Program. LANL is the

designer of and is responsible for the majority of the nation's nuclear weapons stockpile. It also serves as NNSA's Center of Excellence for plutonium, and provides essential uranium research and development, while providing NNSA's plutonium and detonator manufacturing capability.

LANL also supports NNSA's nonproliferation and counterproliferation missions and emerging threats to national security. LANL is a primary source of technical intelligence on foreign nuclear programs, supports reducing the threat from weapons of mass destruction (including unconventional weapons and Emergency Response), and supports international efforts in nonproliferation. LANL provides space surveillance capabilities; operates the nation's only criticality experimental facility; works on emerging threats, including the strengthening of the national infrastructure against attack via cyber, surveillance, and security countermeasures; and supports war fighter needs.

LANL serves the nation, conducting long-term, national security-inspired innovation, enabling transformational mission impacts and breakthrough scientific discoveries. LANL contributes to DOE's energy security mission, with particular strength in sustainable nuclear energy, efforts to mitigate impacts of energy demand growth, and materials and concepts for clean energy.

Functions

NA-LA is responsible for:

- Program Direction & Contract Management
- Oversight
- Assessment and Approvals
- Project Management
- Integrated Safety Management
- Employee Concerns
- Fire Protection
- Criticality Safety
- Nuclear Safety
- Worker Safety & Health

This enables LANL to excel in the following areas:

- National Security Science
- Weapons Design and Engineering

- Plutonium Research, Development and Manufacturing
- Research-Driven Supercomputing
- Broader National Security Missions

Recent Organization Accomplishments

A new contractor, Triad National Security, LLC, was awarded the contract to run LANL in November 2018. Triad is less than two years into the contract and consists of a partnership between three main non-profit institutions: Battelle Memorial Institute, the University of California, and the Texas A&M University System. In this time, accomplishments include:

- Through the contract transition, Triad maintained the ongoing modernization of the stockpile and continuous support to the active stockpile with no interruption and no loss of capability or expertise.
- Delivering a comprehensive, executable plan to the NNSA to establish the capability to build 30 plutonium pits per year at LANL.
- Beginning to execute the above plan, to include nuclear operations infrastructure, human capital, technology, and procurement & installation of equipment.
- Establishing a regular cadence of safe shipment of nuclear waste to WIPP.
- Beginning to reverse the organization's imperfect record on safety, and evolving the organization's safety culture into one of continuous learning and improvement.
- Beginning to modernize the site's aging infrastructure through use of modular building, repurposing of space, new construction, and working with NNSA and local entities to propose new solutions, including teleworking and offsite leases.
- Triad has leveraged its parent companies, which includes two top university systems: the University of California and the Texas A&M University System to maintain and strengthen its expertise in all aspects of science and engineering which underpin its role as a national security laboratory. Notable scientific contributions outside the weapons program range from powering the new Mars Perseverance rover for NASA to developing a potential HIV vaccine.

- Establishing close working relationships to align with federal customers, and developing trust with the local entities to build support for hiring pipelines, partnering on environmental challenges, and infrastructure needs.

- **Restoring national capability to produce plutonium pits for the nuclear deterrent.**

This capability was originally met by the Rocky Flats facility in Colorado, which closed in the early 1990's. Subsequently, a limited production of pits was executed at LANL in the 2000's. In 2018, the NNSA made a decision to enable the manufacturing of at least 30 pits per year at LANL's PF-4 Plutonium Facility and another 50 pits per year at the Savannah River Site (SRS) using the partially constructed MOX Facility. LANL is in the process of re-establishing a reliable production capability for the desired weapons system in repurposed space in PF-4. This is a multi-year effort, relying on a highly-trained workforce, dedicated facilities as well as technical expertise. In parallel with this effort, LANL is also responsible for assisting SRS in standing up its own capability.

An associated challenge is the disposal of the nuclear waste that is generated by this mission. Currently, the waste is shipped to the Waste Isolation Pilot Plant (WIPP) in Carlsbad, NM. Nuclear waste disposal continues to be a fragile system, reliant on regulatory and environmental permitting frameworks across both federal and state agencies.

- **Ensuring the United States' nuclear stockpile continues to be safe, secure, and reliable without nuclear testing.** This is LANL's solemn responsibility to the nation: to assess, using the most advanced scientific expertise, the safety, security and reliability of our stockpile. This is a continuing challenge, and one that LANL has met every year, but one that cannot rely on complacency or outdated scientific tools. This expertise in turn also allows the USA to combat the global threat to our security and works closely with other agencies to leverage our nuclear weapons expertise in assessing the threat from other entities.
- **Maintaining the deep, foundational scientific and engineering base on which national security depends:** LANL must ensure it can attract and retain the best and brightest minds to dedicate their careers to world-class science

in support of national security. This includes maintaining our competitiveness in fields such as high-performance computing and computational science, accelerator science and technology, nuclear physics and radiochemistry, materials science, and high explosives. Without continued planning and investment in world-class scientific tools, often requiring multi-decadal strategies, the USA cannot maintain its pre-eminence.

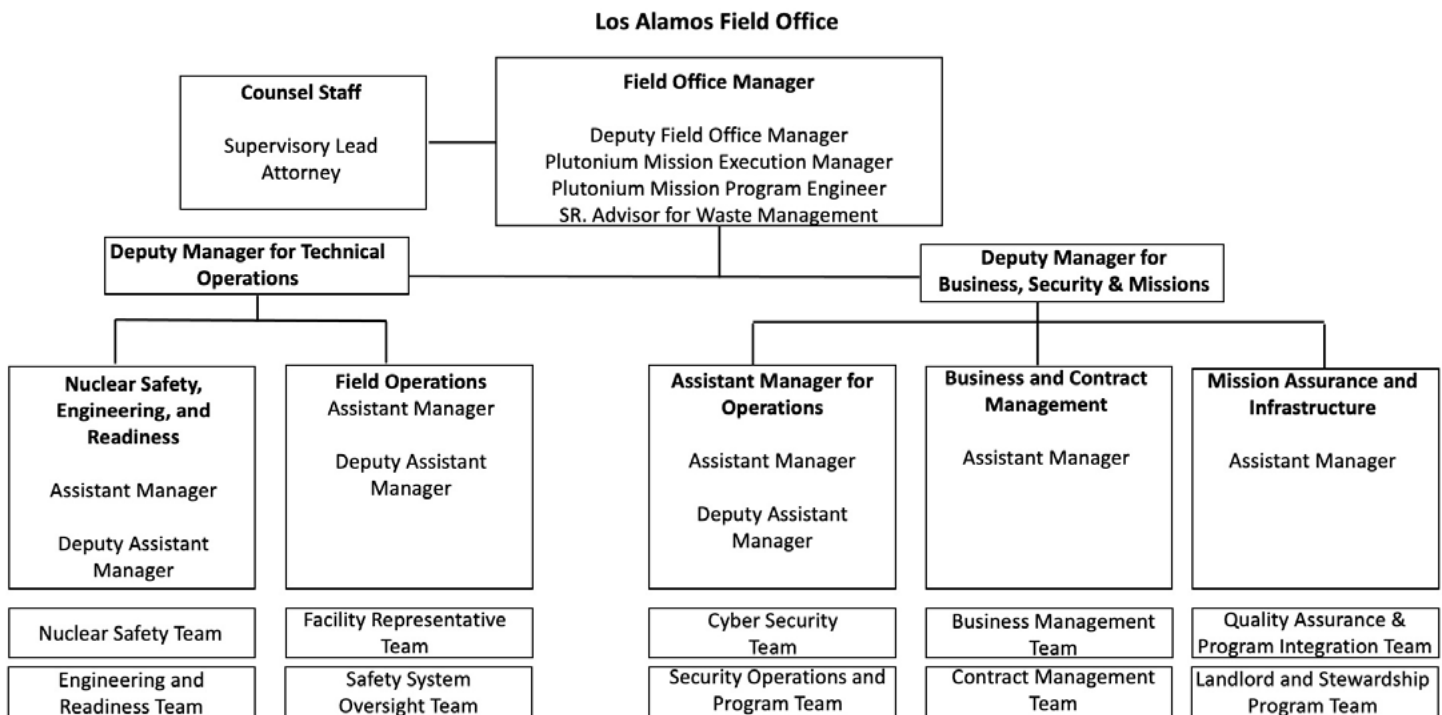
- **Revitalizing the aging nuclear enterprise infrastructure:** LANL has begun this effort, but this will take many years to complete. In previous decades, there has been very little in the way of resources to fund the Decontamination and Decommissioning (D&D) of aging, often contaminated buildings. As an example, at the heart of LANL's campus is the 1950's era Chemistry and Metallurgy Research facility, largely vacated because of the discovery of

a seismic fault line under its foundation, and contaminated from many years of nuclear research during the cold war years. At half a million square feet, safely demolishing this building, along with others, will be a challenge. LANL is encouraged by efforts in recent years to address this aging infrastructure problem, but it will take a serious investment to reverse course.

Critical Events and Action Items

LANL needs full support in the FY21 President's Budget Request to stay on schedule for the activities and projects associated with re-establishing the capability to produce plutonium pits.

Organizational Chart



NNSA Livermore Field Office

Supporting the DOE Mission

The DOE's NNSA core mission pillars are to maintain a safe, secure, and effective nuclear deterrent; reduce global nuclear security threats and strengthen the nuclear enterprise; provide safe and effective integrated nuclear propulsion systems to the Navy; strengthen key science, technology, and engineering capabilities; and to modernize the national security infrastructure. To accomplish this mission, the Livermore Field Office (LFO) must maintain crosscutting capabilities that enable each mission pillar including advancing world-class science, technology, and engineering (ST&E); supporting our people; and developing a management culture that operates a safe and secure enterprise in an efficient manner.

Mission Statement

In support of the overall NNSA mission, LFO has been tasked with providing management and oversight of the operations at Lawrence Livermore National Laboratory (LLNL). Our role includes responsibilities within the following four broad areas:

Program Enablement and Integration

Program enablement and integration works to ensure laboratory facilities, site operations, and people are positioned to successfully execute the variety of DOE/NNSA and other agency programs and projects conducted at the site.

Core Federal Oversight

Core federal oversight focuses on risk-based, required activities associated with nuclear, radiological, and other high hazard operations; site/cyber security; worker safety and health; environmental planning and protection (e.g. National Environmental Policy Act compliance); and radioactive waste management.

Contract Management and Contractor Evaluation

Contract management and contractor evaluation includes day-to-day administration of the management and operations (M&O) contract, as well as periodic evaluation of contractor performance.

Site Stewardship

As the site owner, LFO ensures the effective stewardship of site facilities, infrastructure, land, and intellectual capital, in addition to coordination of site activities with external agencies, local governments, and neighboring communities.

Budget

The LFO program direction budget includes travel, training, support services, space and occupancy, and other related expenses.

Fiscal Year	Budget
FY 2019 enacted	\$2,585,248
FY 2020 enacted	\$5,169,770*
FY 2021 requested	\$1,958,043

* In FY20, a new DP secure workspace construction project (\$2M) was initiated for LFO (Building 311) as well as a "class 3" estimate for a new LFO federal building (\$350K).

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 80

History

LLNL was established in 1952. Under the Atomic Energy Commission, federal oversight was managed by the San Francisco Operations Office, which later became known as the Oakland Operations Office under DOE. By 1995, this office had a staff of over 400 federal employees and managed all four DOE facilities in California: LLNL, Lawrence Berkeley National Laboratory, Stanford Linear Accelerator Center, and the Energy Technology Engineering Center in southern California. The Oakland Operations Office maintained a small federal staff on the LLNL site, including weapons program managers, security specialists, project managers, and environmental managers. This core staff was transferred into the new NNSA organization in 2000, along with key staff supporting contract

management, legal, business, and administrative functions. Initially, this NNSA office consisted of over 110 federal employees and was called the Livermore Site Office; the name was changed to the Livermore Field Office in 2013.

Functions

The LFO is responsible for providing management and oversight of the operations at LLNL. The partnership governance model changed the focus from transaction-based oversight to system-based oversight, resulting in a more effective use of resources. Specific LFO functions include the following:

Security (physical and cyber)

Includes oversight of contractor security programs to assure that security risks to personnel, property, and information and materials including special nuclear materials are adequately managed based on compliance with requirements and contractual performance expectations.

Environment, Safety and Health

Includes environmental regulatory permitting and compliance; Employee Concerns Program; Operating Experience; Injury and Illness Reporting; Packaging and Transportation; Accident Investigation; Federal Employee Occupational Safety and Health (FEOSH); and oversight of contractor Worker Safety and Health such as industrial hygiene and radiation protection.

Nuclear Safety

Includes management and oversight of nuclear facility safety basis, system engineering, configuration management, criticality safety, and startup/restart authorizations. Facilities Management/Maintenance and Operations: Includes oversight of the management of utilities and infrastructure, nuclear facility maintenance, and conduct of operations.

Emergency Preparedness/Continuity of Operations

Implements the emergency preparedness and continuity of operations programs for LFO and oversees the contractor programs.

Site Sustainability, Infrastructure, and Utility Planning

Includes planning for future infrastructure and utility needs, energy and water management, supporting federal sustainability goals and implementing strategies, and contract representation for third-party financed and direct agency contracts.

Project Management

Includes oversight of construction projects and removal of surplus facilities as well as decontamination and decommissioning projects.

Waste Management

Includes obtaining federal agreements and permits and the packaging and transportation of waste.

Weapon Quality Assurance

Includes Quality Index of M&O contractor's performance, quality Improvement initiatives and quality assurance surveys.

Program Activities

Includes oversight of the Defense Programs, Defense Nuclear Nonproliferation, Counterterrorism, Counterproliferation, and Department of Energy program work.

Strategic Partnership Program

Includes ensuring work complies with DOE Order 481.1, *Strategic Partnership Projects [Formerly Known as Work for Others (Non-Department of Energy Funded Work)]*; offsets operational/overhead costs for Strategic Partnership Project customers and NNSA; and helps maintain critical NNSA capabilities.

Contract Administration

Administration of the M&O contract, development and management of the Strategic Performance Evaluation Measurement Plan, development of the year-end Performance Evaluation Report, and periodic performance assessments throughout the year.

Human Capital Management

Includes site strategic activities, performance management, employee development and training, equal employment and diversity.

Finance and Business Administration

Field Office program direction budget execution, review of M&O internal controls oversight, IG/GAO audit coordination, M&O financial assessments and validations, and M&O budget execution oversight.

Public affairs

Includes internal/external communications.

Records Management and Disposition

Includes physical and electronic records, Vital Records, and Freedom of Information Act request research and support.

Legal

Includes management of the ethics program and all internal and external legal matters, oversight of the M&O legal management program and other legal activities.

Recent Organization Accomplishments

Succession Planning

The LFO leadership team is executing a Succession Strategy with the following near term objectives: managing a significant number of expected retirements in the coming years; communicating new opportunities; promoting and facilitating employee development consistent with needed capabilities; and establishing hiring priorities based on gaps in capabilities. The long term goals are to meet mission and work load projections and planning; achieve employee development and engagement aligned with mission needs; and assure continuity of operations and the long-term viability of LFO and the LLNL.

Employee Development & Engagement

The LFO leadership team improved employee knowledge of the nuclear security enterprise through the development of a nuclear weapons training course and partnered with DTRA for delivery of training, including extensive training on nuclear testing, stockpile, and stewardship and

site visits of the nuclear security complex. LFO has also initiated a Science and Technology speaker series in partnership with Lawrence Livermore National Security, LLC (LLNS) and made the monthly lectures offered by the Center for Global Security Research available to all employees. The Employee Engagement and Empowerment Team (E Team) was established by employees with the support of management in 2020. The E Team is an employee-led initiative that works cooperatively with management to improve the LFO workplace.

Building 311 Facility Improvements

Construction has begun on the Office of Defense Programs (DP) Secure Workspace project in 2020 and this follows the completion of a multi-phase facility improvement project that was aimed at improving LFO employee productivity, retention and recruitment. A class 3 estimate has been initiated for a new federal building.

Collaboration and Exascale

Approved the development and procurement of an Exascale class computer system and collaborated with DOE Office of Science to share costs. DOE has a long history of supporting high-end computing system acquisitions through the DOE Advanced Scientific Computing Research and NNSA Advanced Simulation and Computing programs. With the Exascale Computing Project, the two programs jointly fund a coordinated multi-lab effort to avoid duplication, maximize efficiency, and drive significant new efforts in terms of application readiness; hardware and software co-design; and workforce development. The El Capitan Exascale system will be delivered to LLNL and will support the NNSA Stockpile Stewardship Program starting in 2023.

Decontamination and Decommissioning (D&D)

Executed a Memorandum of Agreement with DOE Environmental Management to initiate D&D at LLNL. Building 280 D&D is planned to begin in late 2020.

LFO Governance

The LFO improved oversight by developing and implementing a joint assessment program with LLNS and recently completed implementation of the next generation Issues Tracking System for improved integration and utilization of the Contractor Assurance System.

Lawrence Livermore Solar Center

The 3.3 MW Lawrence Livermore Solar Center represents DOE/NNSA’s largest purchase of solar power from an onsite facility and the first in the western region. LFO is in Year 5 of a twenty-year power purchase contract through Western Area Power Administration. At peak production, the facility provides 5% of the LLNL electrical demand and is interconnected behind the meter adding resilience to the power supply.

Leadership Challenges

COVID 19 pandemic and related restrictions

Maintaining the ability to meet major NNSA milestones and deliverables while protecting our workforce.

Employee recruitment and attrition

Maintaining core capabilities in an environment of high attrition rates. Over 30% of LFO employees are retirement eligible in 2020; this increases to 45% in 2023. LLNS similarly faces high rates of attrition and challenges with recruitment and retention in certain fields. The difficulty in recruiting is due to the high cost of living in the San Francisco (SF) Bay Area and competitive hiring from SF Bay Area agencies and employers.

Modernizing LLNL Infrastructure

Need to continue to modernize the LLNL infrastructure, including utilities, facilities, and equipment, to ensure the site can provide necessary capabilities to accomplish the increasing NNSA mission responsibilities.

Security Clearances

Although the time necessary to receive required security clearances has improved and is approaching the goal (80 days for a Q clearance), it remains a challenge impacting both federal and contractor employees and potentially accomplishment of the mission.

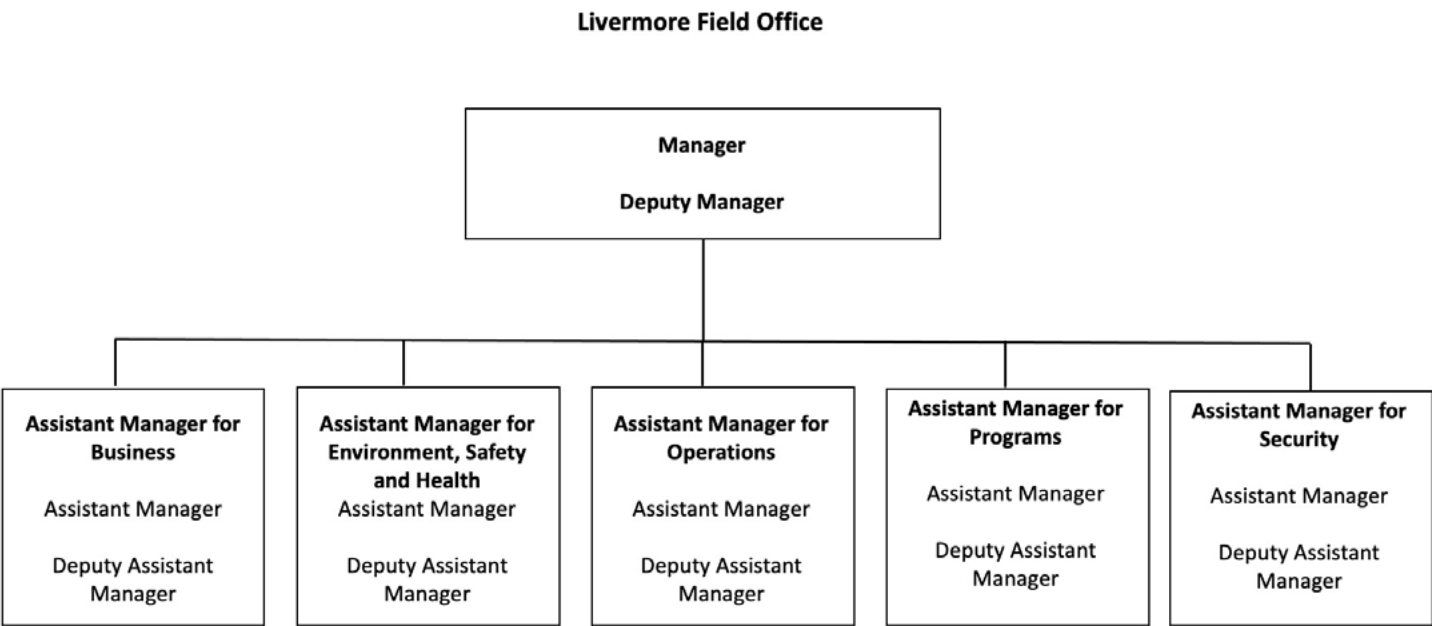
Improving Governance

Need to continue to implement and maintain the partnership governance model as a permanent way of doing business for LFO and its M&O partner, consistent with the DOE Governance and Management Implementation Plan.

Critical Events and Action Items

NA-1 Approval of the Publication Draft Site-wide Environmental Impact Statement (SWEIS) for the Continued Operation of LLNL – March/April 2021.

Organizational Chart



NNSA Nevada Field Office

Supporting the DOE Mission

Goal 2: Nuclear Security

Strategic Objective 4

Maintain the safety, security, and effectiveness of the nation's nuclear deterrent without nuclear testing.

Strategic Objective 5

Strengthen key science, technology, and engineering capabilities and modernize the national security infrastructure.

Strategic Objective 6

Reduce global nuclear security threats.

Goal 3: Management and Performance

Strategic Objective 9

Manage assets in a sustainable manner that supports the DOE mission.

Strategic Objective 10

Effectively manage projects, financial assistance agreements, contracts, and contractor performance.

Strategic Objective 11

Operate the DOE enterprise safely, securely, and efficiently.

Strategic Objective 12

Attract, train, and retain the best federal workforce to meet future mission needs.

Mission Statement

The Nevada Field Office (NFO) provides direction, oversight, and performance evaluation of the Management and Operating (M&O) contract at the Nevada National Security Site (NNSS) in Las Vegas, Nevada, and associated facilities located in North Las Vegas, Nevada; Albuquerque and Los Alamos, New Mexico; Joint Base Andrews, Maryland; Nellis Air Force Base, Nevada; San Diego and Santa

Barbara, California; and New York. NFO is one of seven NNSA Field Offices.

The NNSS is a government-owned, contractor-operated facility that supports high-hazard operations, testing, and training, supporting Stockpile Stewardship, Defense Nuclear Nonproliferation, Emergency Response, National Security, Counterterrorism and Counterproliferation for DOE, NNSA, and many other government agencies. The site provides diagnostics and instrumentation; data analysis; materials staging; research test beds for nuclear high-hazard activities, including the nation's primary criticality experiments platforms and chemical release test beds; and low-level radioactive waste material disposition. The site manages security category I materials and facilities and nuclear safety hazard category 2 and 3 nuclear facilities and operations.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$522,922,000
FY 2020 enacted	\$617,649,000
FY 2021 requested	\$858,178,000

**Does not include SPP funding*

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 78

History

The NNSS, formerly the Nevada Test Site, was established by President Truman on December 18, 1950 as the United States on-continent site for lower-yield atmospheric nuclear testing. Eventually, testing in the Pacific Ocean was halted and the nuclear weapons testing program moved to the NNSS; located 65 miles northwest of Las Vegas, Nevada. When the United States nuclear weapons testing program ended in 1992, the site had recorded a total of 928 nuclear tests. As a nation, 1,054 total nuclear tests were conducted by the United States. With the end of nuclear testing, the mission of the site evolved to a unique and indispensable extension of the national laboratories' experimental capabilities in support of the Stockpile Stewardship Program, as well as other important national security missions (non-proliferation, counterterrorism, etc.).

In 1996, two physics experimental programs were located at NNSS to help understand the effects of aging on plutonium. The first was high-explosive shock physics, or subcritical experiments, conducted at a facility nearly 1,000 feet underground, the U1a Complex. The second was high-speed (eight kilometers per second or 17,895 mph) impact experiments on plutonium using a two-stage gas gun, the Joint Actinide Shock Physics Experimental Research (JASPER) Facility. The site has become the nation's leader in National Security with respect to nuclear/ radiological testing, training, and emergency response. NNSS has evolved into supporting a wide-range of other government agencies through the Strategic Partnership Program (formerly Work-for-Others) umbrella. In addition to on-going environmental cleanup of historic nuclear research and testing areas on NNSS, non-defense research, development, and training activities are conducted in cooperation with universities, industries, and other federal agencies

Functions

NFO/NNSS activities support the following efforts:

- Stockpile Stewardship (NA-10)
- Non-Proliferation support (NA-20)
- National Emergency Response (NA-40)
- Infrastructure Modernization (NA-50)
- Counterterrorism and Counterproliferation (NA-80)
- Nuclear Security of Category I (security) facility (NA-70)
- Low-Level Radioactive Waste Disposal [Environmental Management (EM)]
- Legacy clean-up (EM)
- Underground Test Area Groundwater Assessment (EM)
- Strategic Partnership Programs/Strategic Intelligence Partnership Programs

Recent Organization Accomplishments

Argus Security System

The Argus security system was successfully installed at the Device Assembly Facility (DAF) as part of NNSA's enterprise security modernization program. Argus is NNSA's recommended enterprise security

system and integrates access control, intrusion detection, and video assessment of alarms to protect and control high-consequence assets. The DAF Argus project was a multi-year line-item project which was completed this year ahead of schedule and under budget. In August 2020, the Associate Administrator for Defense Nuclear Security (NA-70) certified the system for operation.

Stockpile Stewardship Program

The Stockpile Stewardship program at the NNSS assists in the monitoring of the nation's nuclear stockpile through assessments of the safety, security, reliability, and effectiveness of nuclear weapon systems. These assessments rely, in part, on information obtained from the execution of subcritical experiments (SCE). SCEs provide data on the behavior and aging of special nuclear material without creating nuclear yield. The SCE program has been an essential element of the NNSA Stockpile Stewardship Program since underground nuclear testing was terminated in the early 1990s. Los Alamos National Laboratory (LANL) and Lawrence Livermore National Laboratory (LLNL) have successfully led and safely conducted 45 SCEs and 9 confirmatory experiments underground at the NNSS since 1997. Recent SCEs are the Lamarck confirmatory in 2018, Ediza in 2019, and Iris confirmatory and Nightshade A SCE in 2020. The NNSS stands ready to conduct up to 3 SCEs in 2021. The future plans for this important program include the creation of new diagnostic machines and expanded test beds at the underground facility on the NNSS. The Stockpile Stewardship Program ensures scientists have the critical data needed to verify the stockpile viability.

Source Physics Experiments

The Source Physics Experiments (SPE) nuclear test detection program, sponsored by NNSA, is a series of underground chemical explosions at testbeds adjacent to historic nuclear tests at the NNSS. SPE collects data to develop and validate physics-based computer models. SPE is carried out in multiple phases: six experiments in granite (Phase I, 2011–2016) and four experiments in alluvium (Phase II, 2018–2019). The experiments are executed in partnership with NNSS, Los Alamos National Laboratory, Lawrence Livermore National Laboratory, Sandia National Laboratories, and the University of Nevada-Reno.

Emergency Communication Network

The DOE Emergency Communications Network (ECN) was modernized and the infrastructure optimized by moving the ECN infrastructure from the Remote Sensing Laboratory at Nellis Air Force Base to the Switch Las Vegas 9 Data Center Facility, both located in Las Vegas, Nevada. The scope of work included acquisition planning for Switch facilities; leased communications bandwidth; installation services for core network routing and data services infrastructure; and testing, evaluation and accreditation. The project was completed in late FY 2020 ahead of schedule and under budget.

Remote Sensing Laboratory Aviation Program

The Remote Sensing Laboratory Aviation program replaced three aging aircraft with three new special mission twin engine turboprop aircraft customized for the emergency response mission. These new aircraft incorporate mission system modifications and installations providing increased effectiveness and efficiencies in support of critical NNSA missions including aerial surveillance for radiological threats before or during major events, and the capability to conduct safe and rapid wide-area surveys of locations compromised by a radiological or nuclear incident. The acquisition, system integration, and operational deployment was conducted on schedule and under budget.

Mercury Modernization - Building 1 Project

The first new office building constructed in Mercury at the NNSA in 20 years and part of a new NNSA building program to transform Mercury into a smaller, more efficient and capable operations center that reduces risk and cost; saves energy; enables future missions; and supports a 21st Century workforce, Mercury Building 1 (23-460) was successfully completed on time and within budget. An excellent example of the type of administrative building that is needed to support the NNSA mission, major elements of the Mercury Building 1 design will be used at other sites to enhance mission capabilities across the enterprise.

Storm Area 51

In September 2019, NFO worked with local law enforcement; NNSA HQ and Field Offices; and other federal agencies to successfully manage the Storm Area 51 event. NFO prepared for the potential of

40,000 participants attempting to “storm” Area 51 through the NNSA. The security enterprise quickly came together, deploying 60 security police officers from across the DOE complex to support NNSA assets. During the three-day event, approximately 170 vehicles and over 300 people approached NNSA boundaries. Due to the pre-planning and close coordination with local, State, and Federal partners, there were no accidents or injuries and no trespassers. Mission impact to the site was minimal and normal operations were quickly resumed. The operation would not have been successful without the excellent relationship and strong coordination between NNSA program, functional, and field offices; the M&O partner; and local and Federal government agencies.

Leadership Challenges

Line item projects associated with the Enhanced Capability for Subcritical Experiments are the Advanced Sources and Detectors (ASD) project and the U1a Capabilities Enhancement Project (UCEP). These coupled projects are the most important activities occurring at the NNSA over the next 5 years and will support stockpile stewardship and stockpile certification for decades to come. Successful execution requires coordination between the Defense Program office; the NNSA M&O contractor; three National Laboratories; four NNSA Field Offices; the safety and security functional offices; and the NNSA Office of Acquisition and Program Management. The NFO in conjunction with the NNSA M&O contractor must successfully orchestrate all of these disparate organizations to ensure that safety, security, and infrastructure combine to support the science and mission priorities of the NA-10 Program Office.

Critical skills hiring and retention.

Modify, approve, and implement multiple nuclear safety bases in conjunction with completing start-up activities to support the national security program schedules/deliverables.

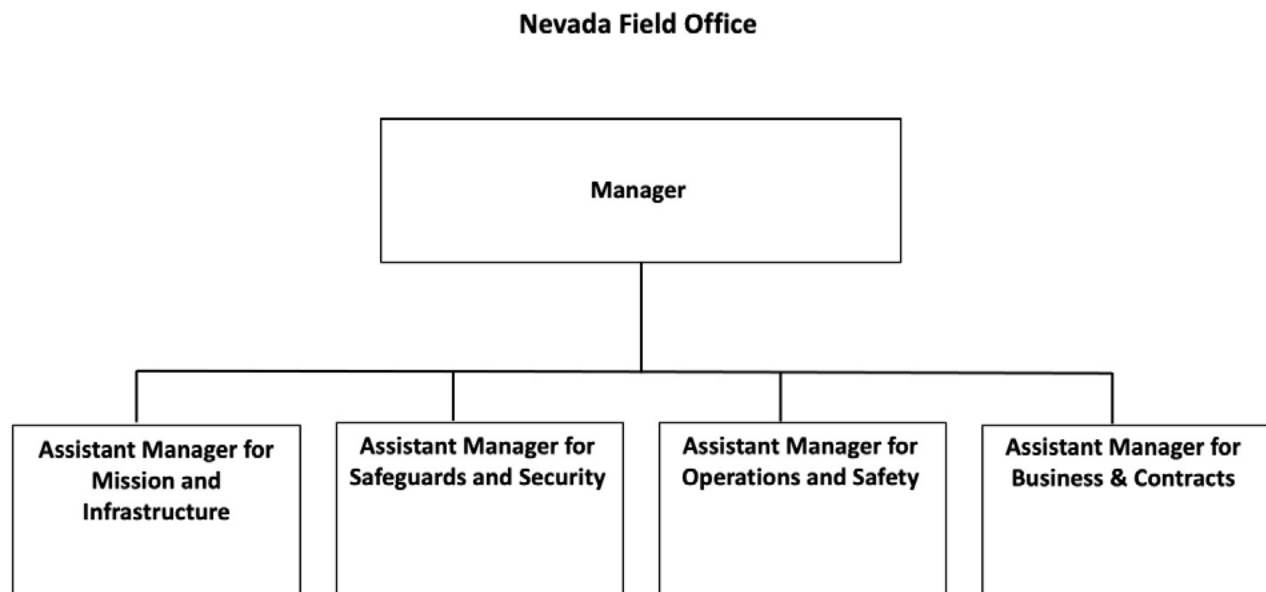
Continue focus on operational excellence between NNSA facilities/assets, the National Security Laboratories (LANL, LLNL, and SNL), and the respective NNSA Field Offices.

Enhance collaborative working relationships and communications between DOE/NNSA and the state of Nevada.

Critical Events and Action Items

None.

Organizational Chart



NNSA Production Office

Supporting the DOE Mission

The NNSA Production Office (NA-NPO) ensures the safe, secure, and cost-effective management and operations of the Pantex Plant (Pantex) in Amarillo, Texas; and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee. Pantex handles nuclear weapons surveillance and life extension programs; weapons dismantlement; the development, testing, and fabrication of high explosive components; and storage and surveillance of plutonium pits. Y-12 is responsible for uranium storage; processing and manufacturing operation; the production of uranium feedstock for the U.S. nuclear navy; and supports international nuclear nonproliferation programs. NA-NPO administers the Management and Operating contract for the Y-12 National Security Complex in Oak Ridge, Tennessee (a government-owned, contractor-operated dedicated production facility), and the Pantex Plant in Amarillo, Texas (a government-owned, contractor-operated production facility).

Mission Statement

Execute effective contract management and oversight to safely and securely maintain the nuclear weapons stockpile for the nuclear security enterprise; provide enriched uranium for naval, research, and isotope production reactors; and support nonproliferation activities to reduce the global nuclear threat.

Budget

Fiscal Year	Budget	NPO Budget
FY 2019 enacted	\$2,700,000,000	\$2,200,000
FY 2020 enacted	\$2,800,000,000	\$2,300,000
FY 2021 requested	\$3,200,000,000	\$2,300,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 134

History

NA-NPO was established in June 2012 when NNSA combined two independent NNSA site offices to report to a single Field Office Manager. This combination allowed NA-NPO to consolidate federal functions and operate under NA-NPO processes prior to the transition to the single consolidated contract on June 1, 2014.

Functions

- Vital factory oversight of high hazard nuclear & chemical operations
- Emergency Management Oversight
- Environment Management System Oversight
- Environmental Permit Approvals
- Fire Protection Program Oversight
- Human Reliability Program Certifications
- Interagency Memorandums of Understanding
- Nuclear Explosive Safety Oversight
- Federal Employee Occupational Safety & Health Occupational Safety & Health Oversight
- Occurrence Reporting Oversight
- Packaging & Transportation Oversight
- Price Anderson Amendment Act Program
- Program Oversight
- Quality Assurance Federal Implementation and Program Oversight
- Quality Assurance Issues Management
- Radiation Protection Oversight
- Safeguards & Security Oversight
- Safety Basis Oversight and Approvals
- Safety System Oversight Program Oversight
- Training & Qualifications
- Business, Legal, and Public Affairs

Recent Organization Accomplishments

Completed the W76-2 Program of Record, one of NNSA's top priorities, thus providing the U.S. Navy with a low-yield, sea-launched ballistic missile warhead capability.

Completed the B61-12 Life Extension Program's First Production Capability Unit.

Completed the W88 Alt 370 First Production Capability Unit disassembly and inspection.

Effectively managed nuclear weapons programs and strategic partnership project missions through the COVID-19 response.

Completed successful Binary Vacuum Arc Re-melt (VAR) Secondary Electrode Melt in the Development VAR.

Developed a corrective action plan that significantly improved the execution of the Pantex Safety Basis.

Supported the development of the Zero Based Budget, which aligns the out-years funding requests with requirements.

Ensured effective oversight with regard to the implementation of the Nuclear Quality Assurance for use in weapon and weapon related structures, systems, and components that serve a nuclear safety function.

Maintained progress and achieved milestones on several key Y-12 projects including the West End Protected Area Reduction, Beta 2 concrete retrofits, and both the Fire Station and Emergency Operations Center construction projects.

Completed 50-year sprinkler replacements at Y-12, thus ensuring those facilities continue to meet fire protection requirements.

Continued to make significant progress in advancing Y-12's Lithium Strategy including the development of lithium production technologies, processes, and equipment.

Continued demolition and removal of older facilities at Pantex, thus further reducing the site footprint.

Leadership Challenges

Pantex/Y-12 Contract competition and transition by September 30, 2021.

Reconstituting full production capabilities for Binary at Y-12.

Managing the fragility of Lithium processing facility and capabilities at Y-12.

Costs and risks associated with the Uranium Processing Facility construction with interfaces through the contract and turnover to the future Management & Operating contractor.

Fragility of High Explosive (HE) supply and HE modernization at Pantex.

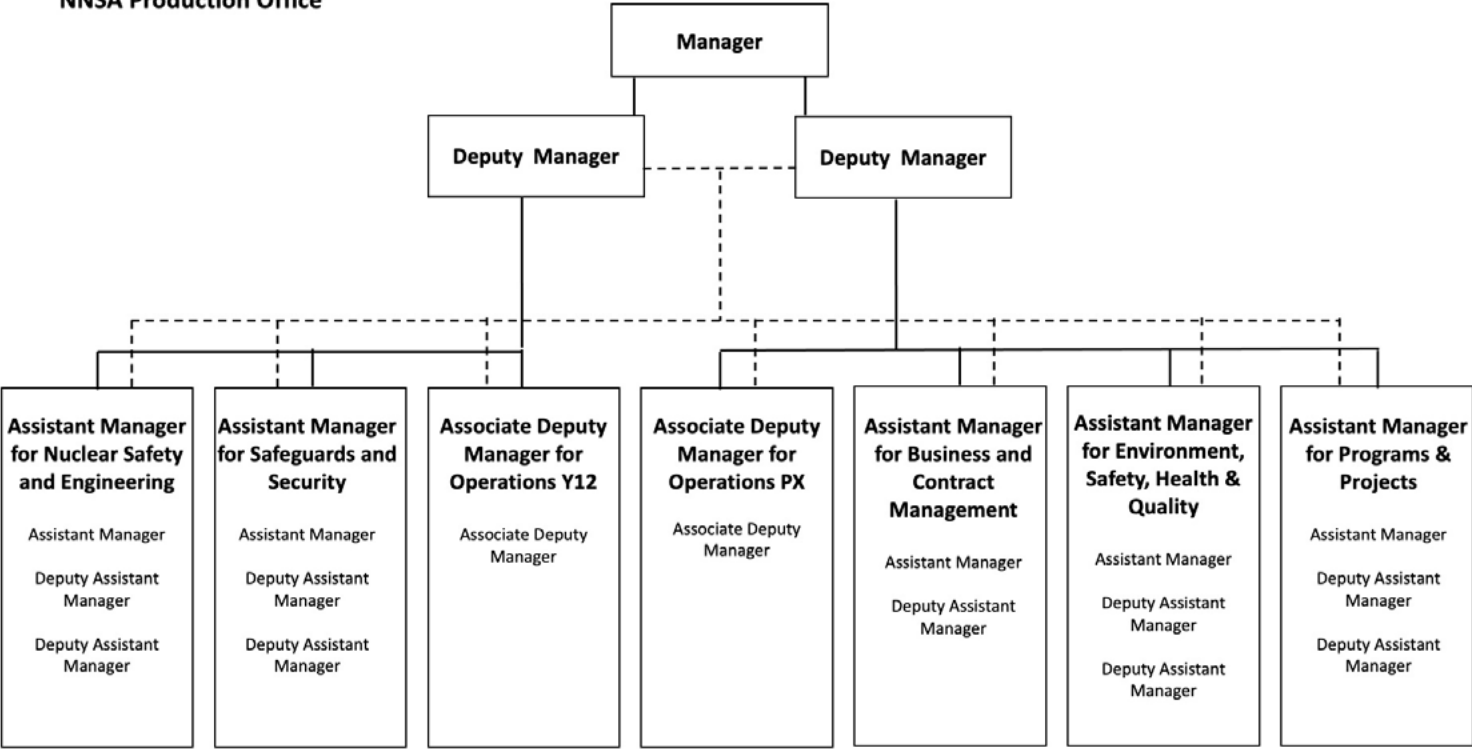
Executing the significant infrastructure investment portfolio at Pantex and Y-12.

Critical Events and Action Items

None.

Organizational Chart

NNSA Production Office



Sandia Field Office

Supporting the DOE Mission

The Sandia Field Office (NA-SN) oversees operations at Sandia National Laboratories (Sandia) and manages the contract with National Technology and Engineering Solutions of Sandia (NTESS). Keeping the U.S. nuclear stockpile safe, secure, and effective is a major part of Sandia's work as a multidisciplinary national security engineering laboratory. Sandia's role has evolved to address the additional complex threats facing our country. Meeting the nation's security challenges will require readiness, excellence in engineering, and rapid innovation.

Sandia carries out research and development in:

Nuclear Weapons

Supporting U.S. deterrence policy by helping sustain, modernize, and secure the nuclear arsenal.

National Security Programs

Providing advanced defense, deterrent, and intelligence technology and analysis to strengthen our nation's defenders.

Defense Nuclear Nonproliferation

Developing systems to monitor emerging threats; protecting nuclear assets and materials; and addressing nuclear emergency response and nonproliferation worldwide.

Energy & Homeland Security

Ensuring stable energy resources; protecting the grid and physical infrastructure; and helping protect the nation against nuclear, radiological, chemical, and biological threats.

Advanced Science & Technology

Fundamental science to promote national security, economic competitiveness, and improved quality of life.

Sandia's science, technology, and engineering foundations enable its unique mission. The laboratory's highly specialized research staff is

at the forefront of innovation, collaborating with universities and companies, and performing multidisciplinary science and engineering research programs with significant impact on U.S. security. Sandia's staff of approximately 14,000 includes more than 6,500 employees with advanced degrees.

Mission Statement

The Sandia Field Office (NA-SN) oversees operations at Sandia National Laboratories (Sandia) and manages the contract with National Technology and Engineering Solutions of Sandia (NTESS). Sandia is a government-owned, contractor-operated federally funded research and development center. Sandia accomplishes critical tasks that are integral to the National Nuclear Security Administration mission including the development, testing, and production of specialized nonnuclear components and quality assurance and systems engineering for the nation's nuclear weapons program. This is accomplished through basic and applied scientific research, systems engineering, experiments, assessments, analysis, and certification activities. Sandia operates facilities in Albuquerque, New Mexico; at a second lab in Livermore, California; and at other sites including Carlsbad, New Mexico; Las Vegas and Tonopah, Nevada; Amarillo, Texas; and Kauai, Hawaii.

NA-SN is also responsible for security, safety, emergency management, facilities management, and supply purchases for the tenants of the NNSA Albuquerque Complex. The current NNSA Albuquerque Complex houses approximately 1,100 federal and contractor employees and consists of 25 buildings. The majority of federal employees at the Albuquerque Complex are functionally aligned to NNSA Headquarters.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$8,300,000
FY 2020 enacted	\$9,000,000
FY 2021 request	\$7,600,000

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 89

History

The Kirtland Area Office was established in January 1999 and reported to the DOE's Albuquerque Operations Office. In 2002, the National Nuclear Security Administration was established and the office was renamed the Sandia Site Office. The office was renamed the Sandia Field Office in 2012.

Functions

The Sandia Field Office Functions, Responsibilities and Authorities (FRA) for Safety Management, 2019, lists the following Field Office Functions:

- Program Direction
 - [Contract Management](#)
- Oversight
- Assessment and Approvals
- Project Management
- Integrated Safety Management
- Employee Concerns Program
- Fire Protection
- Criticality Safety
- Nuclear Safety
- Worker Safety & Health

Recent Organization Accomplishments

Since the start of the COVID-19 pandemic, displayed outstanding leadership in support of the nuclear enterprise and the overall national response to the pandemic

Successfully supported the W88 Alteration (ALT) 370 and B61-12 Life Extension Program (LEP) First Production Capability Unit (FPCU) builds at Pantex, enabling NNSA to achieve FPCU and reduce risk to the First Production Unit (FPU) and follow-on rate production.

Successfully integrated the W87-1 program into the Ground Based Strategic Deterrent (GBSD) Flight Test matrix to achieve a significant cost avoidance.

Obtained important experimental nuclear sciences data by advancing pulsed power experimental capabilities. These pulsed power capabilities enabled the first Plutonium (Pu) experiment using the new Stripline geometry on the Z facility.

Led the integration of operational payloads onto Department of Defense satellites for the space-based nuclear detonation detection program, and effectively supported two GPS launches of the Global Burst Detector payloads despite COVID-19 restrictions.

Completed an assessment of critical utility-scale electrical components in response to Executive Order 13920, which called for securing the U.S. bulk-power system.

Provided rapid geotechnical assessments to the DOE Office of Fossil Energy in response to the Presidential Directive to fill the U.S. Strategic Petroleum Reserve, mitigating national economic impacts during the pandemic.

Successfully conducted a high visibility hypersonic flight test that demonstrated the technology, highlighting its tremendous potential as a future U.S. mission capability

Leadership Challenges

Maintain continuity of operations during the COVID-19 pandemic.

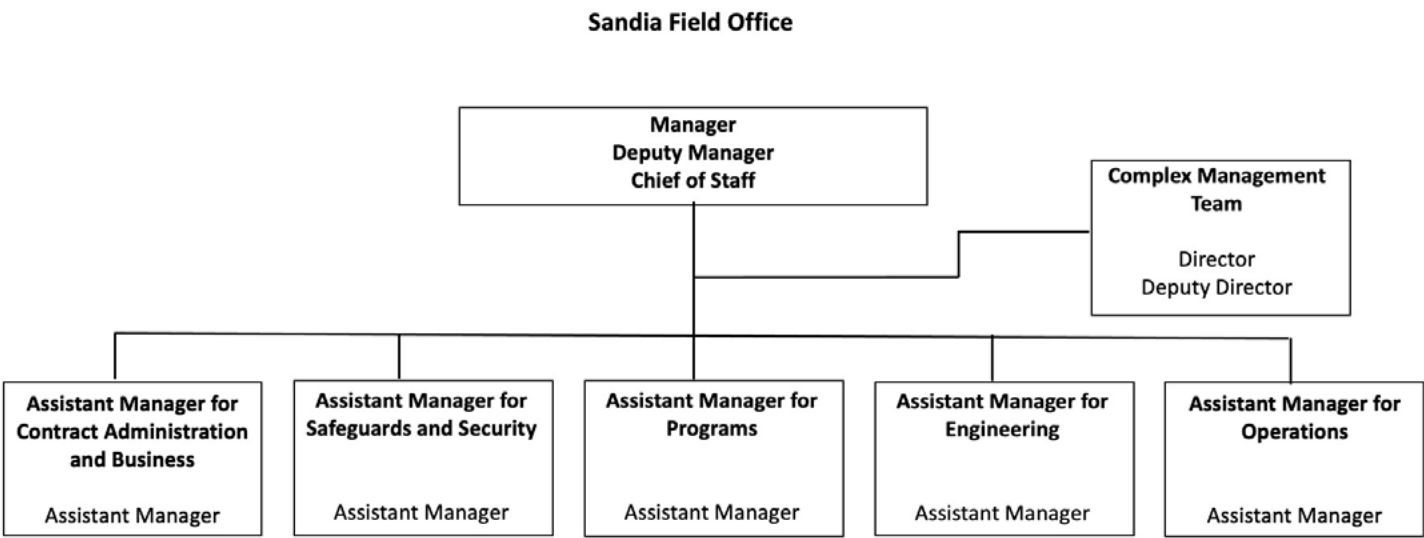
Modernize Sandia's infrastructure by implementing innovative solutions and cutting edge tools.

Recruit and retain the best and brightest for critical skills such as Computer Science, Cybersecurity, Computer Engineering, Electrical Engineering, and Mechanical Engineering.

Critical Events and Action Items

The NNSA Albuquerque Complex Project construction will be complete July 28, 2021. Move in will be complete on February 26, 2022.

Organizational Chart



NNSA Savannah River Field Office

Supporting the DOE Mission

The Savannah River Field Office (SRFO) enables NNSA to meet its mission of enhancing national security through its support of three major mission areas in addition to other provided support. First, SRS provides tritium to support the nuclear weapons stockpile and is the only source of tritium in the Nation for this purpose. Second, SRS supports NNSA's nonproliferation mission through surplus plutonium disposition. Third, the 2018 Nuclear Posture Review called upon NNSA to produce 80 plutonium pits per year during 2030 to support the Nation's nuclear weapons stockpile. To implement this objective, NNSA and the Department of Defense approved of a two-site solution for pit production to include the production of at least 50 pits per year during 2030 at SRS and at least 30 pits per year during 2026 at Los Alamos National Laboratory.

Mission Statement

The mission of the Savannah River Field Office is to administer the Management and Operating (M&O) contract for NNSA's Savannah River Site activities, acting as the risk acceptance agent for NNSA. This includes: 1) directing, overseeing, and evaluating the work and business systems of the M&O contractor; 2) overseeing, managing, and executing NNSA programs; 3) ensuring the safe, secure, and environmentally responsible operation of facilities under the purview of NNSA; and 4) planning for the long-term viability of the site.

Budget

Fiscal Year	Budget
FY 2019 enacted	\$587,363,000
FY 2020 enacted	\$964,250,000
FY 2021 requested	\$1,092,790,000

Note: includes only weapons and nonproliferation activities

Human Resources

FY 2020 authorized full-time equivalents (FTEs): 46

History

SRS has its roots in a letter from President Harry Truman, dated August 1950, that authorized private industry to locate, design, build, and operate a new facility to produce tritium and plutonium needed to create the Nation's nuclear weapons. Between 1953 and 1988, SRS produced and extracted tritium and produced about 36 metric tons of plutonium. At the end of the Cold War, SRS' tritium production reactors were shut down and the Tritium Extraction Facility (TEF) was built to support the tritium production mission.

Functions

SRFO performs the following functions:

Operations

Nuclear safety, maintenance, conduct of operations, technical training, operational oversight.

Business

Contract administration and evaluation; performance assurance; cost estimation; financial management and oversight; risk management; personal property management; quality assurance; records management; directives.

Security

Cyber security, physical security, secure transportation, classification, badging, barriers, emergency management, information and technology (IT).

Environment, safety, and health

Environmental programs; air and water quality; safety assurance; fire protection; waste management; industrial safety; radiological protection.

Programs

Weapons quality, small projects, packaging, program liaisons, science and technology

Recent Organization Accomplishments

Met an accelerated shipping request for the DoD despite the many challenges posed by the pandemic, and has not missed any mission deliverable to the Department of Defense.

Obtained Critical Decision (CD)-1 for the Major System Acquisition Line Item for the Tritium Finishing Facility (TFF).

Completed the Tritium Facilities Security Risk Assessment to allow implementation of the Design Basis Threat directive.

Initiated preliminary Tritium Finishing Facility design and executed contract for the site prep work.

Completed conceptual vulnerability analysis and design of security for the proposed Savannah River Plutonium Processing Facility (p-SRPPF).

Completed p-SRPPF Conceptual Design packages for all process and balance of plant systems.

Completed the Environmental Impact Statement required to repurpose Mixed Oxide Fuel Fabrication Facility to p-SRPPF.

Repackaged and shipped one metric ton of plutonium from South Carolina to meet a court order by January 2020.

Completed modifications in K Area to optimize removal of plutonium from South Carolina and began optimized downblending.

Infectious Disease Response Team formed to actively manage SRS response to the COVID-19 pandemic over the past six months.

Leadership Challenges

Need to increase staffing levels to properly maintain facility oversight, meet future increased production needs; NNSA leadership required to increase FTEs from 45 to 108.

Dramatically increased workload due to 3 concurrent line item projects.

Lack of IT system that integrates with rest of NNSA complex and provides for enhanced collaboration.

COVID-related disruptions and case management.

Operational reliability in aging infrastructure.

Attrition and knowledge transfer.

Cost sharing and resource utilization between DOE-EM and NNSA at SRS.

Contract rebid and separation of SRNL contract.

SRS M&O contract expires September 30, 2021, with an option to extend performance through September 30, 2022. DOE is preparing the acquisition package for a follow-on contract to be awarded by DOE-Environmental Management. NNSA must ensure ongoing work is not impacted during the process of awarding a new contract and transitioning performance to the new contractor.

Critical Events and Action Items

Approval of p-SRPPF CD-1 package; will be submitted for review and approval by the end of December 2020. Schedule includes NNSA reviewing and approving of CD-1 package during the second quarter of FY2021.

Implement countermeasures for known high security risks in tritium.

Completion of MOX Termination.

Obtain CD and cost estimate for a new administration building to address increased staffing needs.

Organizational Chart

Savannah River Field Office

