MESC

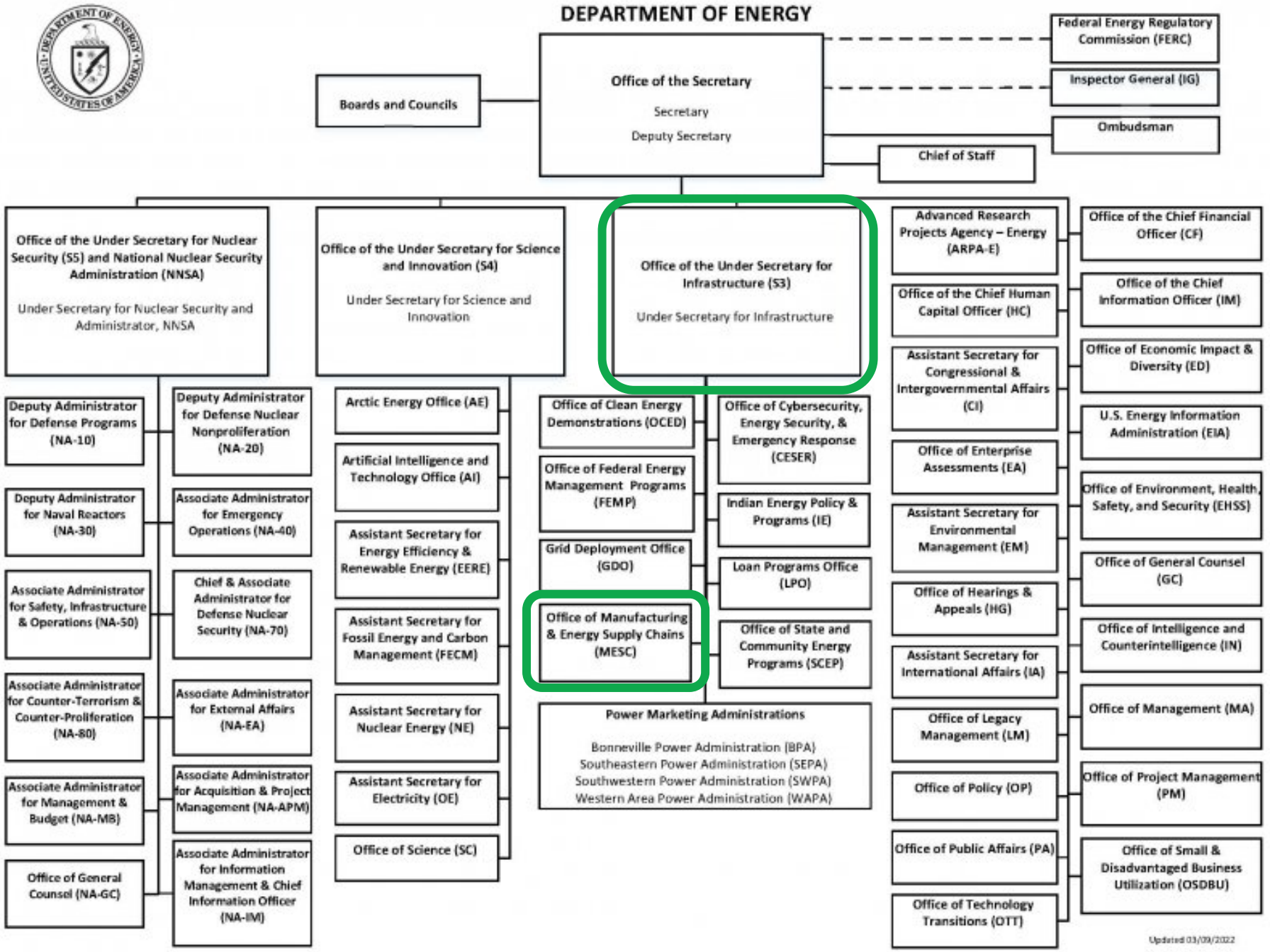
OFFICE OF MANUFACTURING AND ENERGY SUPPLY CHAINS

Office of Manufacturing & Energy Supply Chains

May 31, 2023

MESC Overview

Strengthening and securing domestic energy supply chains to modernize energy infrastructure and support the clean and equitable energy transition.



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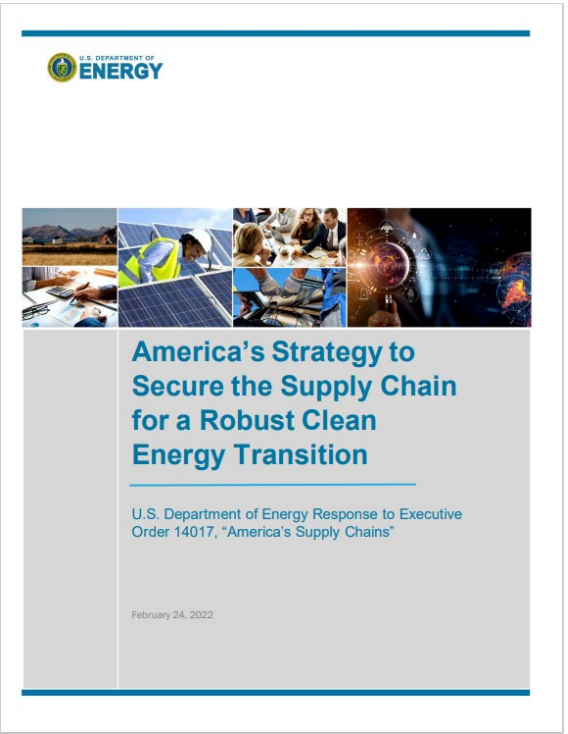
Executive Order 14017: America's Supply Chains
(February 2021–2022)

- DOE released 14 reports on the energy sector supply chains, including 13 issue-specific deep dive assessments and an overarching strategy report
- "America's Strategy to Secure the Supply Chain for a Robust Clean Energy Transition" is the first-ever comprehensive U.S. government strategy to secure our domestic energy supply chains and an Energy Industrial Base
- Lays out dozens of critical strategies and actions to build secure, resilient, and diverse domestic energy supply chains
- Part of a larger whole-of-government approach on supply chains

Deep-Dive Assessment Report Topics

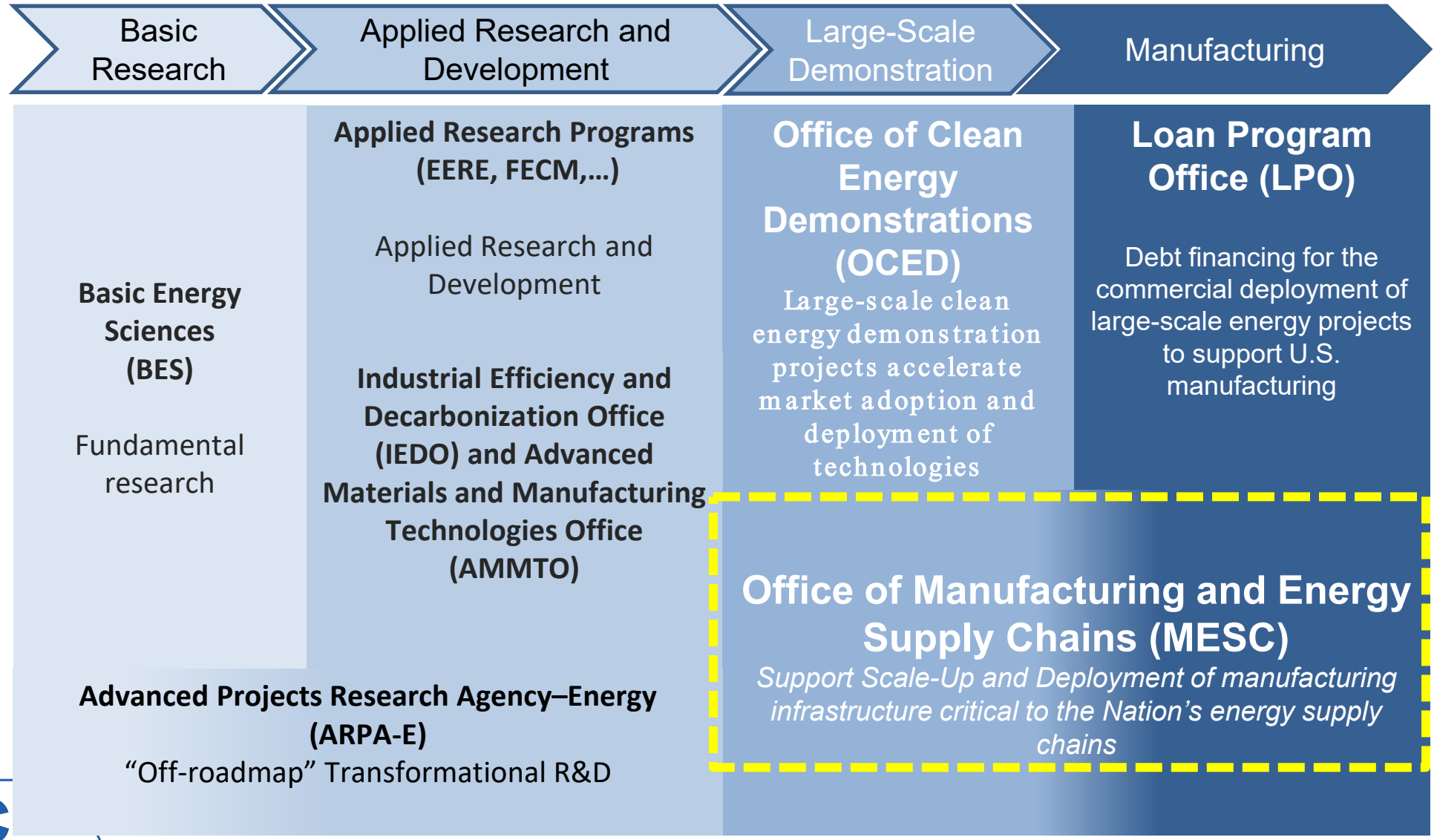
- Carbon capture materials
- Electric grid including transformers and high voltage direct current
- Energy storage
- Fuel cells and electrolyzers
- Hydropower including pumped storage hydropower
- Neodymium magnets
- Nuclear energy
- Platinum group metals and other catalyst
- Semiconductors
- Solar photovoltaics
- Wind
- Commercialization and competitiveness
- Cybersecurity and digital components

https://www.energy.gov/policy/securing-americas-clean-energy-supply-chain



MESC's Place in the DOE Ecosystem

DOE Innovation, Demonstration, Manufacturing Landscape



Office of Manufacturing and Energy Supply Chains (MESC)

Mission Statement: **Strengthen and secure energy supply chains** needed to modernize the nation's energy infrastructure and support the **clean and equitable** energy transition.

Differentiation: "The MESC Difference" —

(1) Install Critical Supply Chain Manufacturing Capacity

(2) Reduce Industrial Base Carbon Emissions

(3) Increase Clean Energy Jobs

(4) Provide World Class Energy Industrial Sector Analysis

Program Offices

Our goal is to **scale up and deploy** the nation's manufacturing capacity, MESC has three program focus areas:

Facilities and Workforce: Supporting small and medium manufacturing growth, industrial decarbonization, and workforce for energy and manufacturing industries

Batteries and Critical Minerals: Developing a domestic Batteries and Critical Minerals manufacturing supply chain from cradle to grave and recycling.

Energy Sector Industrial Base (ESIB): Setting up to build capabilities across energy technologies and throughout the supply chain for critical components, devices, and systems.

MESC Facility and Workforce Assistance Office

$7.165 Billion

 **Energy Sector Industrial Base**	Address regional manufacturing and supply chain challenges • Upgrade existing manufacturing facilities • Emphasis on opportunities for small and medium enterprises and communities in energy transition. • Train the next generation of energy engineers
 **Stakeholders**	Broad Group of Industrial Enterprises • Regional Manufacturers • Small and Medium Manufacturing Enterprises Academia: Universities, Community Colleges, Technical Schools State/Local Governments
 **Domestic Manufacturing**	➢ Industrial Assessment Centers (IACs) • BIL 40523 IAC Expansions • BIL 40521 IAC Implementation grants ➢ BIL 40209 Manufacturer and Recycling Grants in Distressed Communities ➢ BIL 40534 State Manufacturing Leadership ➢ IRA 50161 Advanced Industrial Facilities Deployment (with OCED)

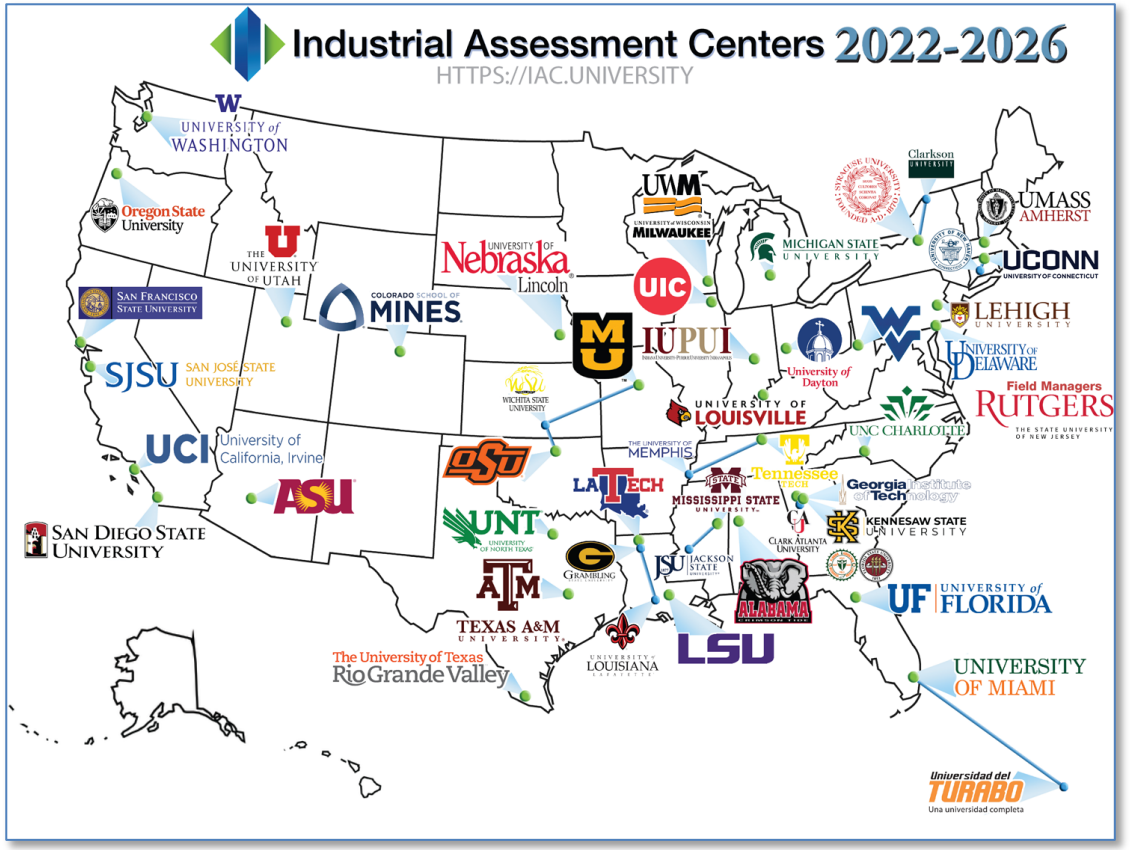
Facilities & Workforce: Industrial Assessment Centers

- **Overview:** IACs train the next generation of clean energy, energy efficiency, and advanced manufacturing workers, and provide no-cost technical assistance to small and medium-sized manufacturers (SMMs)
- **Network:** IACs operate 37 Centers at ~$15M annually, hosted at four-year universities around the country
- **Bipartisan Infrastructure Law expansions** and upcoming milestones
  - ***$150M for expanded workforce development,*** including**:**

    New IACs at community colleges, trade schools, and union training programs – **see current $54M funding opportunity here:** bit.ly/IACfunding

    Regional centers of excellence, and a national Clearinghouse

    Apprenticeships and internships with federal cost share
  - ***$400M in implementing grants to SMMs*** *who received an IAC or similar assessment (funding opportunity forthcoming)*



IACs have conducted nearly 20k assessments and provided nearly 150k recommendations to SMMs, with savings of over $130k/year identified on average

The IAC Program

Opportunity #1: $54M to expand IAC program for skilled trades, and to create building-focused center

Broad scope: Fund projects that train workers for high-demand clean energy, energy efficiency, and advanced manufacturing jobs while saving manufacturers money, increasing productivity, and reducing emissions

- **Eligible applicants:** Community colleges and college systems, trade schools, and union training programs (including labor-management training programs)
- **Possible three-year grants** of $150K-$3M/year, depending on scope and topic area
- **No cost share** required, partnerships encouraged!
- **Deadline** to submit a concept paper is June 16th

Learn more and submit a short, required concept paper by June 16th, 2023 at bit.ly/IACfunding

Forthcoming : $80M to SMMs to implement clean energy and energy efficiency projects

- **Defined scope:** Fund projects based on IAC and Combined Heat and Power Technical Assistance Partnership (CHP TAP) assessment recommendations
- **Eligible applicants:** SMMs that received IAC and/or CHP TAP assessments from 2018-2023 (and other assessment providers, to qualify for future rounds)
- **First tranche of $80M,** with more rounds coming
- **50% cost share** required for up to $300K in DOE funds
- **Third-Party assessors** can also apply to qualify their assessments as "IAC-equivalent" for future rounds

MESC Battery and Critical Materials

$6.215 Billion

 **Energy Sector Industrial Base**	Scale-Up & Deployment of new manufacturing capacity ▪ Critical minerals and materials, and key material components ▪ Establish critical materials recycling and re-use ecosystem ▪ CM Focus Areas • Battery materials • Rare Earths, PGMs, + Other Critical Materials
 **Stakeholders**	▪ Upstream and Mid-Stream Mineral Processing, Refining, and Materials Production Enterprises ▪ Recycling Enterprises ▪ Upstream and Mid-Stream Innovation, Demonstration and Scale-Up Stakeholders ▪ Private Sector, Federal Agencies, International Partners, State/Local
 **Domestic Manufacturing**	➢ 40207(b) Battery Material Processing Grants (with FECM) ➢ 40207(c) Battery Manufacturing and Recycling Grants ➢ 40207(f3) Battery Recycling: State/Local Programs ➢ 40207(f4) Battery & Crit. Mineral Recycling: Retailer Collection ➢ BIL 40205 Rare Earth Demonstration (with FECM)

MESC Energy Sector Industrial Base

$2.2748 Billion

 **Energy Sector Industrial Base**	**Scale-Up & Deployment of New Manufacturing Capacity** • Critical components, devices, systems for the Energy Sector • Establish world-class *Energy Sector Industrial Base* mapping, modeling, and analysis tools • **ESIB Focus Areas:** Grid/HV/Storage, Solar/Wind, Fuel Cells/Electrolysis, Semiconductors, plus others
 **Stakeholders**	Mid-Stream and Down-Stream Components, Device, and Systems Manufacturing Enterprises Supply Chain Planning and Forecasting Stakeholders Private Sector, International Partners
 **Domestic Manufacturing**	➢ FY23 Technical Assistance, and Modeling, Mapping, and Analysis ➢ BIL 40555 Rebate Program ➢ IRA 50143 Manufacturing Conversion Grants ➢ Defense Production Act (DPA) ➢ **48C Tax Credits (support Treasury)**

Justice40 Initiative

Executive Order 14008: Tackling the Climate Crisis at Home and Abroad (1/27/21)

40% of the overall benefits of certain Federal investments must flow to disadvantaged communities, including:

- Climate change
- Investments in clean energy and energy efficiency
- Clean transit
- Affordable and sustainable housing
- Training and workforce development
- Remediation and reduction of legacy pollution
- Development of clean water infrastructure

Community Benefits

Justice 40

Meet or exceed the objectives of the Justice40 initiative that 40% of benefits accrue to disadvantaged communities

Diversity, Equity, Inclusion, and Accessibility

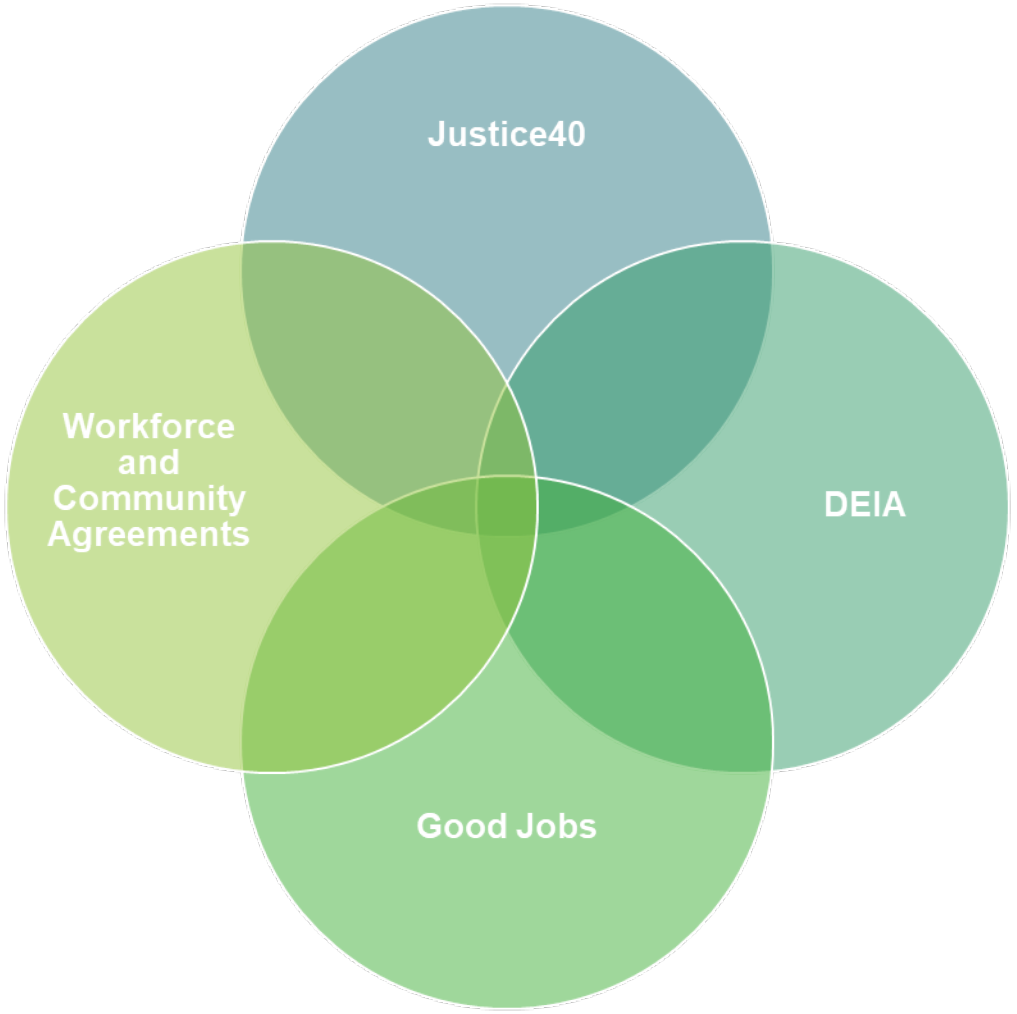
Equitable access to wealth building opportunities (teaming, access to good jobs, business and contracting opportunities, etc.)

Good Jobs

Create good-paying jobs to attract and retain skilled workers and ensure workers have a voice on the job over decisions that affect them (wages, working conditions, safety, etc.)

Workforce and Community Agreements

Meaningful engagement with community and labor partners leading to formal agreements



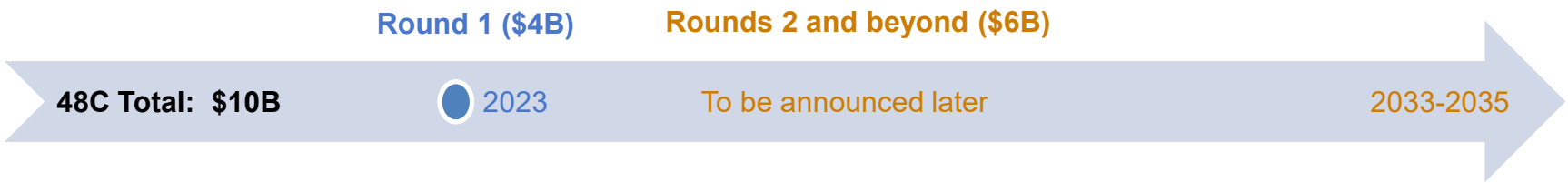
*These plans equate to 20% of the technical merit score for project proposals

48C Tax Credits

Investing in Energy Communities

48C: Round 1 of Multi-Year Plan

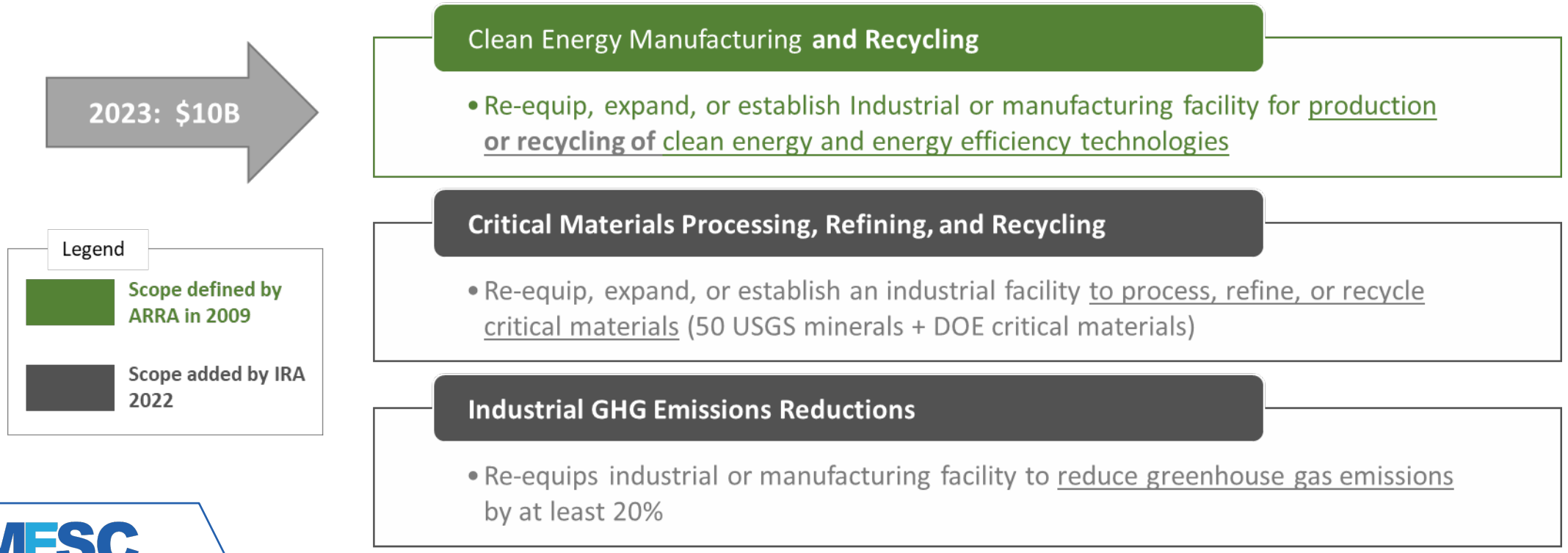
- Competitively-awarded Investment Tax Credit first established in 2009
- Expanded by IRA with $10B for clean energy manufacturing/recycling, critical materials, and industrial GHG emissions reductions projects
- Tribal Governments will be eligible for Direct Pay under 48C
- DOE will accept a first round of applications in 2023 to allocate up to $4B of the program's $10B total, with additional application rounds in future years



- In Round 1:
  - DOE will keep 48C Round 1 open to all project sizes
  - DOE will not predetermine funding allocated to each project category
  - At least **40% of credits ($1.6B) will be allocated to projects in energy communities**, if sufficient meritorious applications were received
  - Selected projects receive a 30% investment tax credit (6% if apprenticeship and prevailing wage requirements are not met)

48C: Scope of Eligible Project Types

- In 2023, IRA significantly expanded 48C's scope to include industrial decarbonization and critical materials projects. The program now supports **advanced energy projects in three categories**:



48C: Intended Impact

1. Clean Energy Manufacturing and Recycling

2. Critical Materials Refining, Processing, and Recycling

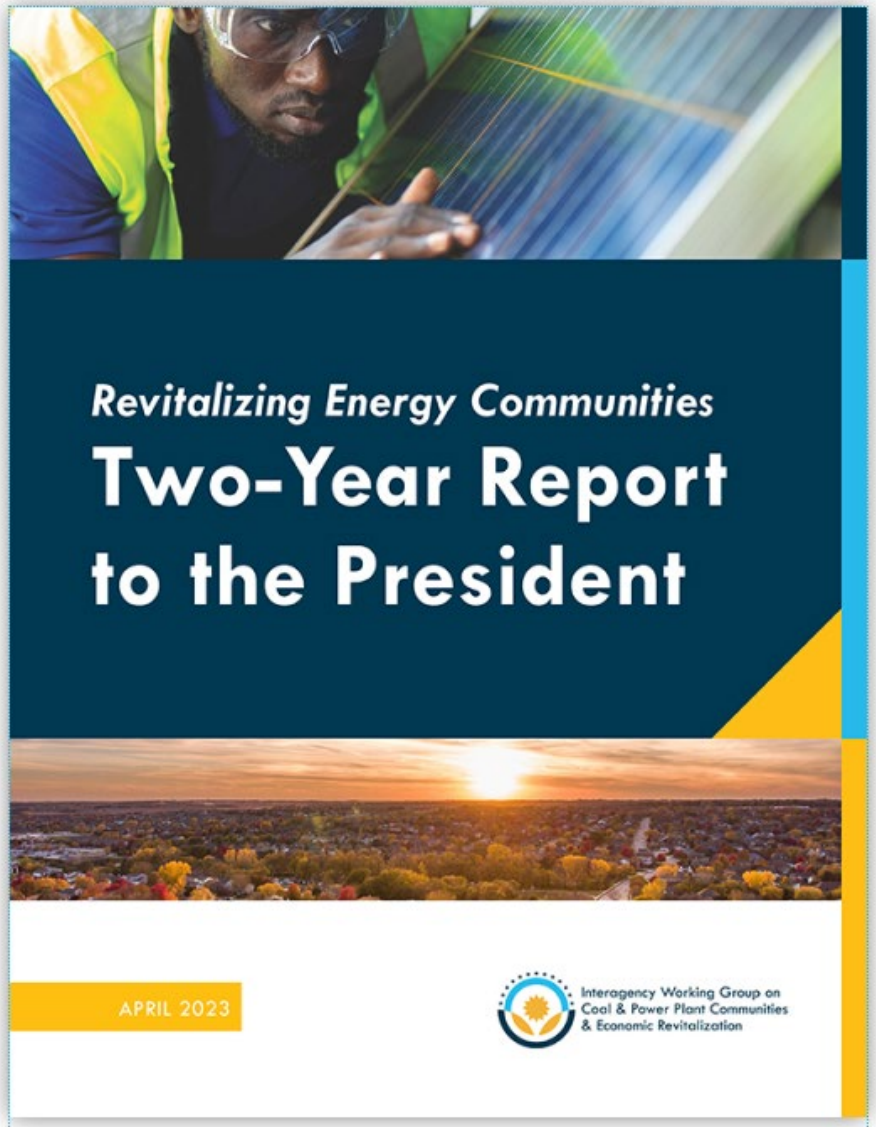
- Strengthen domestic clean energy supply chains
- Expand manufacturing capacity for products that will accelerate and enable the nation's transition to a net-zero economy

3. Industrial GHG Emissions Reductions

- Reduce GHG emissions in U.S. industrial and manufacturing sector
- Catalyze America's transition to a low-carbon industrial sector to decarbonize and enhance U.S. competitiveness

Crosscutting Impact

- Accelerate the transition to an equitable clean energy economy (e.g., at least 40% of amount awarded to projects in coal communities)
- Increase American competitiveness in the industrial and manufacturing sectors
- Create quality, sustainable jobs



What is an Energy Community?

In its Initial Report to the President, the Energy Communities IWG identified 25 key energy communities based on each community's urgent need to address recently closed, or imminently closing, energy facilities —primarily coal plants and mines. The Biden-Harris administration continues to prioritize these communities for outreach and engagement, including the Energy Communities IWG RRTs.

Since that Initial Report, and recognizing the critical need to drive resources to energy communities, Congress included specific statutory definitions of coal and/or broader energy communities throughout the Bipartisan Infrastructure Law and Inflation Reduction Act:

Coal Communities:

- *The Advanced Manufacturing and Recycling Grant Program*, Bipartisan Infrastructure Law Section 40209, provides $750 million in grants for clean energy manufacturing and recycling, limiting these funds to census tracts containing coal-fired generating units that have retired since December 31, 2009, or coal mines that have closed since December 31, 1999—or immediately adjacent census tracts.
- The *Advanced Manufacturing Tax Credit*, section 48C under the Inflation Reduction Act, includes a carve-out of 40% of all credits ($4 billion) for census tracts that meet a nearly identical definition to that under the Advanced Manufacturing and Recycling Grant Program.

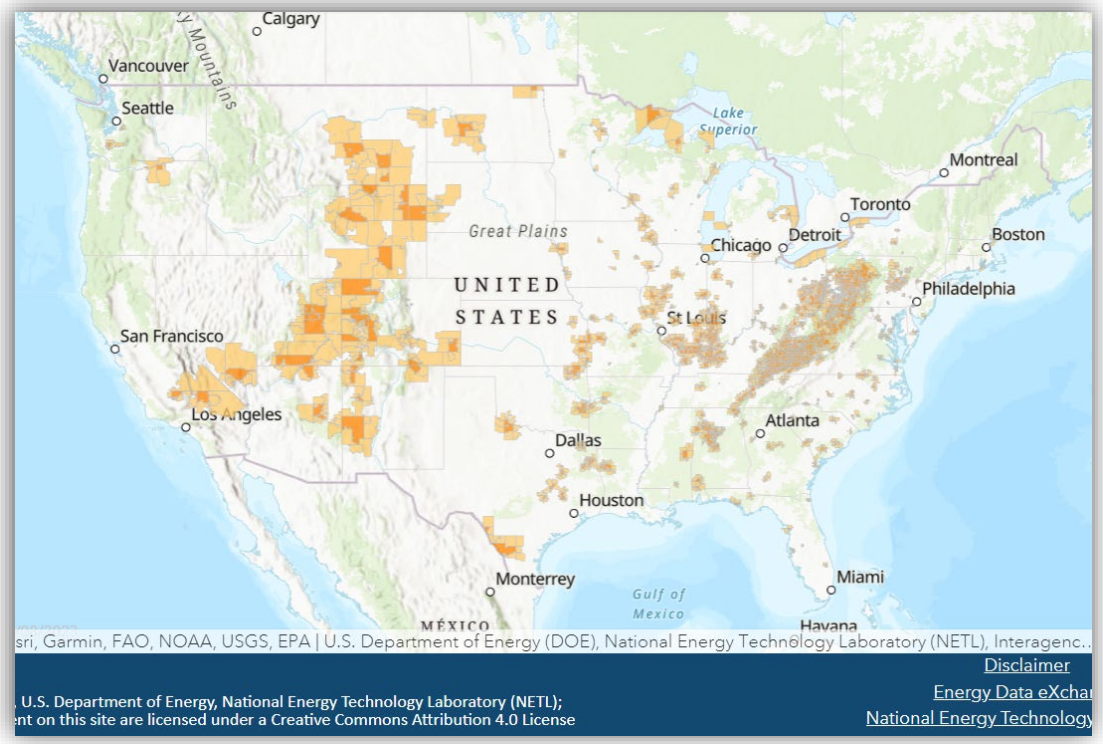
Energy Communities: The Inflation Reduction Act also includes a bonus tax credit of up to 10 percentage points for qualifying clean energy investments or a bonus credit of 10% for qualifying clean energy production. Under this definition, an energy community either: (1) meets the coal communities definition (above); (2) meets a certain threshold of employment or tax revenue dependence on fossil fuels, as well as having an unemployment rate higher than the national average; or (3) meets the definition of a brownfield under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Energy Assets and Infrastructure:

- DOE's Loan Program Office received funding under the Inflation Reduction Act for a new *Energy Infrastructure Reinvestment Loan Program*, with up to $250 billion in loan authority, for projects that repurpose, reuse, or decarbonize existing energy infrastructure. This will be broadly applicable across energy communities.
- USDA will preference energy communities in certain of *Inflation Reduction Act programs*, including the Rural Energy for America Program. Additionally, the USDA will unveil two new Inflation Reduction Act programs to help finance affordable, reliable, and resilient clean energy projects: the $9.7 billion Empowering Rural America (New ERA) program and $1 billion for renewable energy programs with loan forgiveness.

48C: Energy Communities

- Of the $10 billion in tax credits to be allocated, at **least $4 billion must go to qualifying projects in energy communities** that have been directly impacted by the closure of a coal mine or coal-fired power plant.
  - These energy communities have knowledge, infrastructure, resources, and know-how to play a leading role in the move to a clean energy economy.
  - In many cases these communities could benefit from some initial public investment to jumpstart that process.



48C: Guidance Issued Today

- Explains the r**equirements for qualifying projects and gives examples** of products that could qualify
- Provides a detailed description of the **application process**
- Provides a detailed description of the **criteria and policy factors** that DOE will use **to evaluate concept papers and applications**, including:
  1. commercial viability
  2. greenhouse gas emissions impacts
  3. strengthening U.S. supply chains and domestic manufacturing for a net-zero economy
  4. workforce and community engagement
- Indicates **priority areas** for the first application round
- Presents timelines and key dates, such as **concept papers are due by July 31 and allocation decisions will be made not later than March 31, 2024**

The application portal 48C eXCHANGE will go live alongside the notice release on May 31st. The 48C eXCHANGE portal will then allow users to register and submit their complete concept papers starting no later than June 30th, 2023. The final deadline for concept paper submissions will be July 31st, 2023. Taxpayers must submit a concept paper for consideration of 48C tax credit allocation.

Helpful Links

DOE 48C overview

https://www.energy.gov/infrastructure/qualifying-advanced-energy-project-credit-48c-tax-credit-program

48C eXCHANGE web portal

https://48c-exchange.energy.gov

DOE energy communities Map

https://energycommunities.gov/

Questions?

- For questions or comments regarding the non-tax aspects of this notice email 48CQuestions@hq.doe.gov.
- For applicant registration and/or application submission related questions email InfrastructureExchangeSupport@hq.doe.gov
- For Tax-related questions, please refer to the IRS contact information in the updated guidance

Appendix

Bipartisan Infrastructure Law Provisions

Program	Funding Amount
Advanced Energy Manufacturing and Recycling Grant Program (40209)	$750 Million
Industrial Research and Assessment Center Implementation Grants (40521)	$400 Million
Industrial Research and Assessment Centers Program (40523)	$150 Million
State Manufacturing Leadership Program (40534)	$50 Million
Battery and Critical Mineral Recycling: Retailers as collections points and State and local programs for battery collection, recycling and processing (40207 (f)(3) and (f)(4))	$65 Million
Battery Materials Processing Grants (40207 B)	$3 Billion
Battery Manufacturing and Recycling Grants (40207 C)	$3 Billion
Rare Earth Elements Demonstration Facility (40205 and 41003(b)) – FECM/MESC	$140 Million
Energy Efficient Transformer Rebates Program (40555)	$10 Million
Extended Product System Rebates Program (40555)	$10 Million

Inflation Reduction Act Provisions

Provision	Funding Amount
Domestic Manufacturing Conversion Grants for Electrified Vehicles (50143)	$2 Billion

Defense Production Act Provisions

Provision	Funding Amount
Enhanced Use of Defense Production Act of 1950 – Electric Heat Pumps (30001)	$250 Million