



Industrial Efficiency and Decarbonization Office Overview

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Industrial Efficiency and Decarbonization Office

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Building a Net-zero, Clean Energy Future

To build a net-zero, clean energy future by 2050, we need to decarbonize the entire U.S. economy:

- ✓ Commercial
- ✓ Residential
- ✓ Transportation
- ✓ Industrial



Building a Net-zero, Clean Energy Future

The U.S. industrial sector (manufacturing, agriculture, mining, and construction) accounts for:

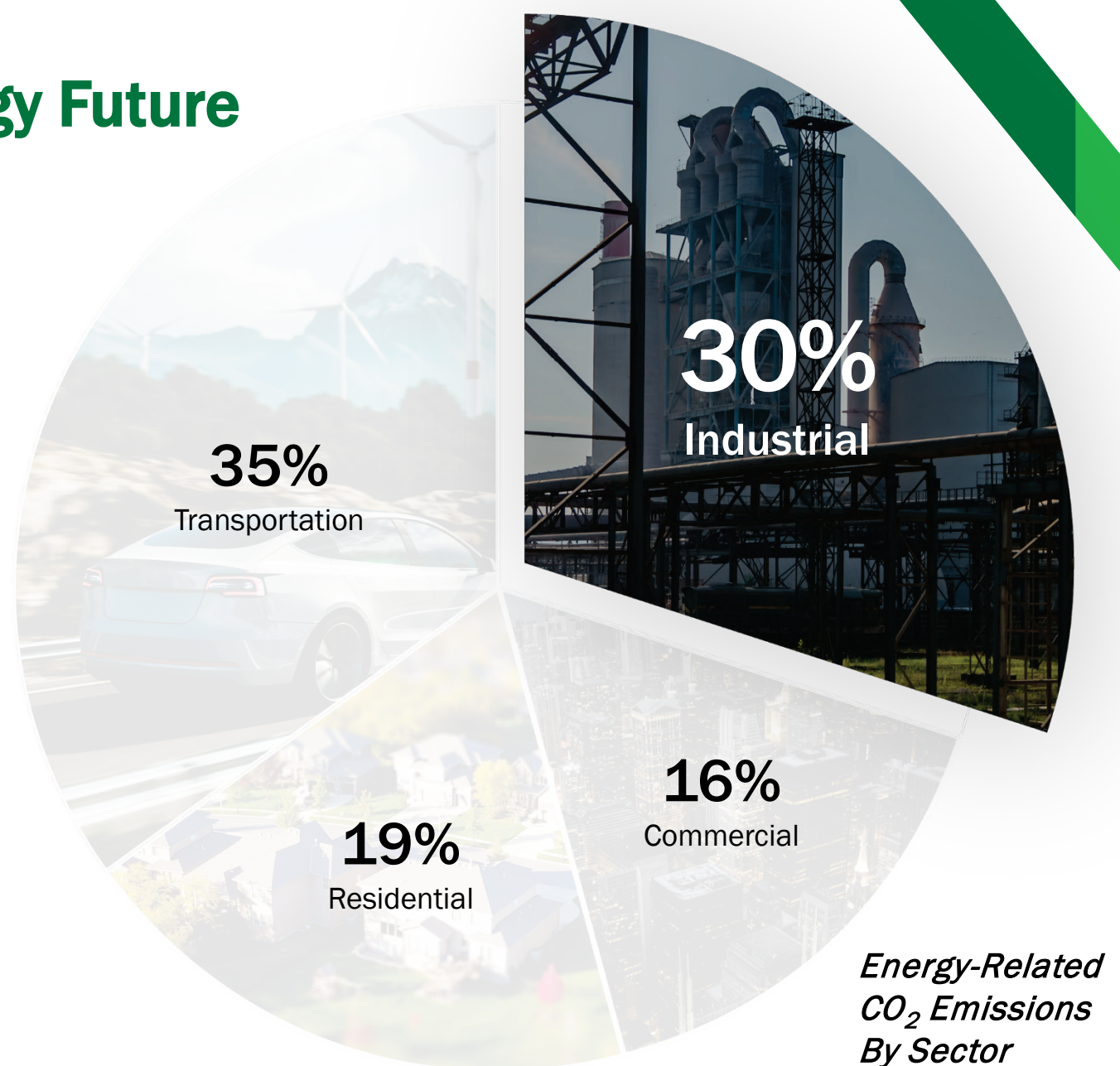
33% of the nation's primary energy use

30% of CO₂ emissions

Anticipated industrial sector energy demand growth of 30% by 2050 may result in a:

17% CO₂ emissions increase*

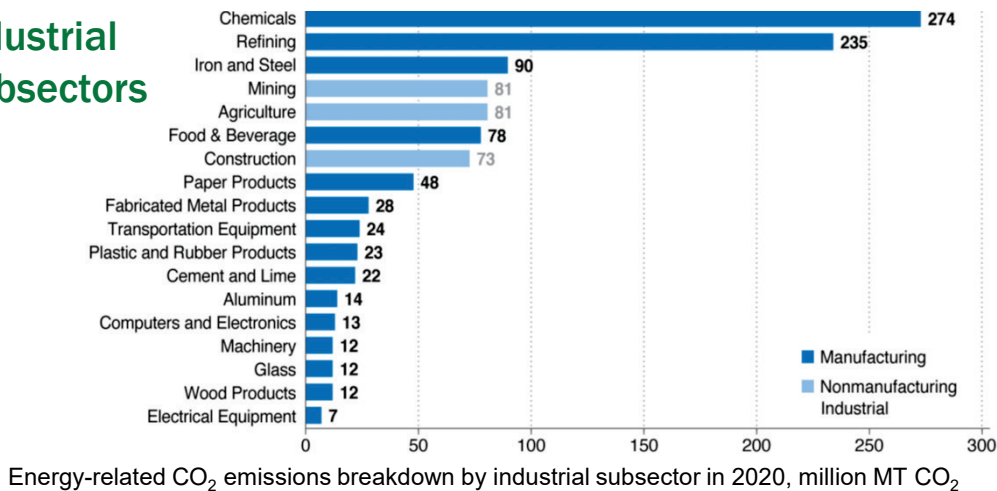
*EIA, Annual Energy Outlook 2021 with Projections to 2050.



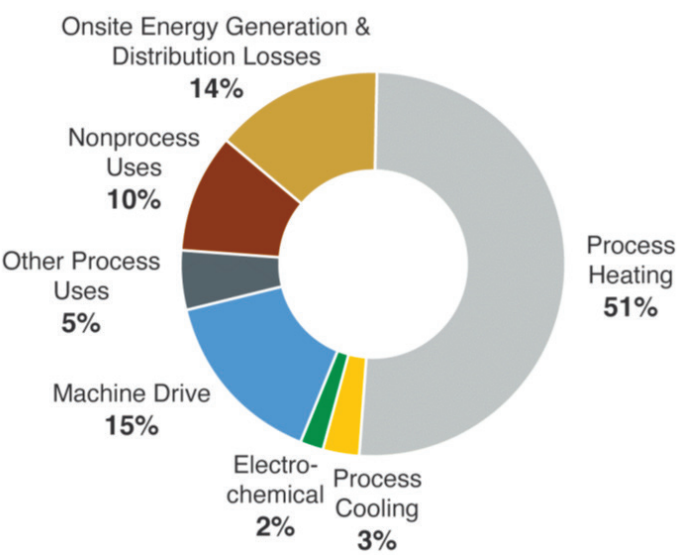
Systemic Barriers to Industrial Decarbonization

No One-Size-Fits-All Solution

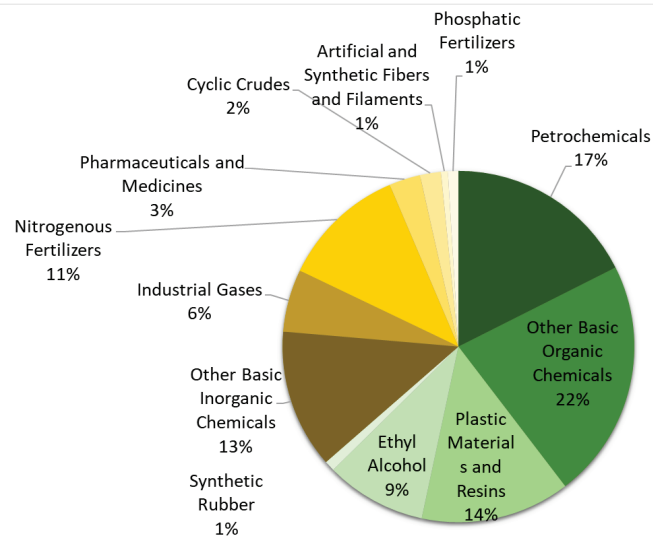
Industrial Subsectors



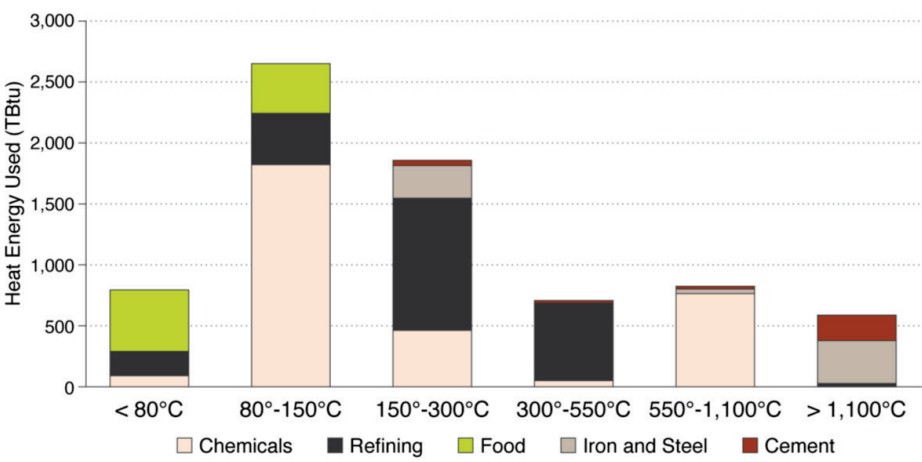
Onsite Energy Use



Chemical Products



Distribution of Process Heat



Systemic Barriers to Industrial Decarbonization

Risk to Industry's Bottom Line

Investment scale → In the range of
\$11-21 Trillion

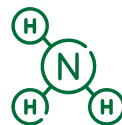
just for 4 sectors:



cement



steel



ammonia

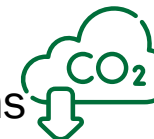


ethylene

(McKinsey, 2018)

Estimated that

60% of heavy industry
emissions reductions



by 2050 will come from technologies
that are **not currently market ready**
(IEA, 2022)

Targeted investment for research, development,
and pilot-scale demonstrations can help U.S. industry
overcome these barriers

DOE Industrial Decarbonization Roadmap

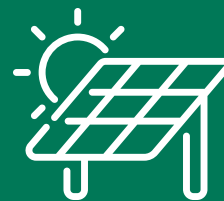
Industrial Decarbonization Pillars



Energy
Efficiency



Industrial
Electrification



Low-Carbon Fuels,
Feedstocks, and Energy
Sources (LCFFES)



Carbon Capture,
Utilization, and
Storage (CCUS)

Decarbonization pillars: inter-related, cross-cutting strategies to pursue in parallel



Iron & Steel



Chemicals



Food & Beverage

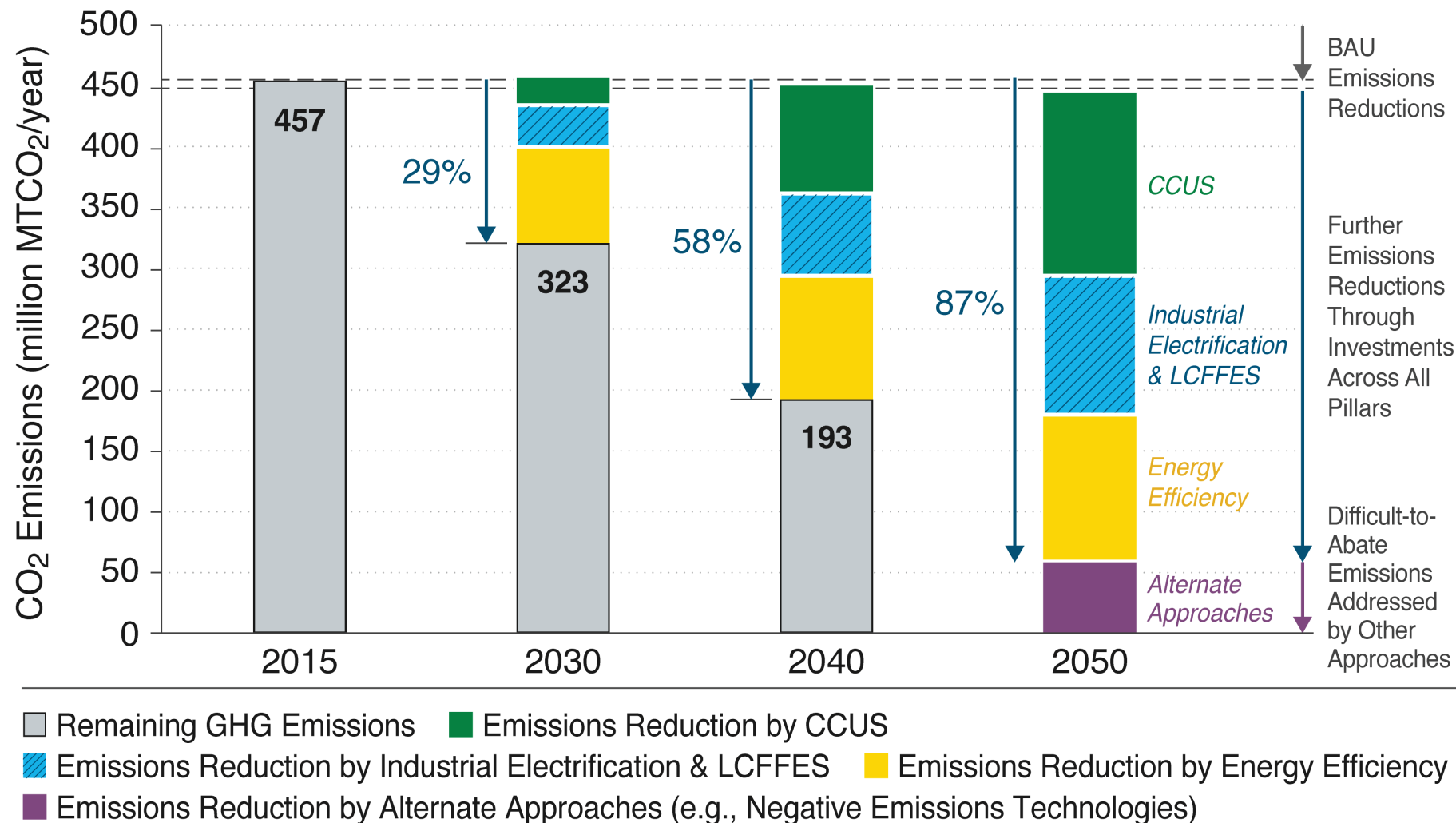


Petroleum Refining



Cement

Path to Net-Zero Emissions by 2050



Industrial Efficiency and Decarbonization Office (IEDO)

U.S. DEPARTMENT OF
ENERGY

Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY

Industrial Efficiency and Decarbonization Office

IEDO leads the development and accelerates the adoption of sustainable technologies that increase efficiency and eliminate industrial GHG emissions.

50
STAFF

Federal staff, contractors,
and fellows in Golden, CO
and DOE Headquarters

\$266.5
Million FY23 Budget



Energy- and
Emissions-
Intensive
Industries

FY23 = \$131M



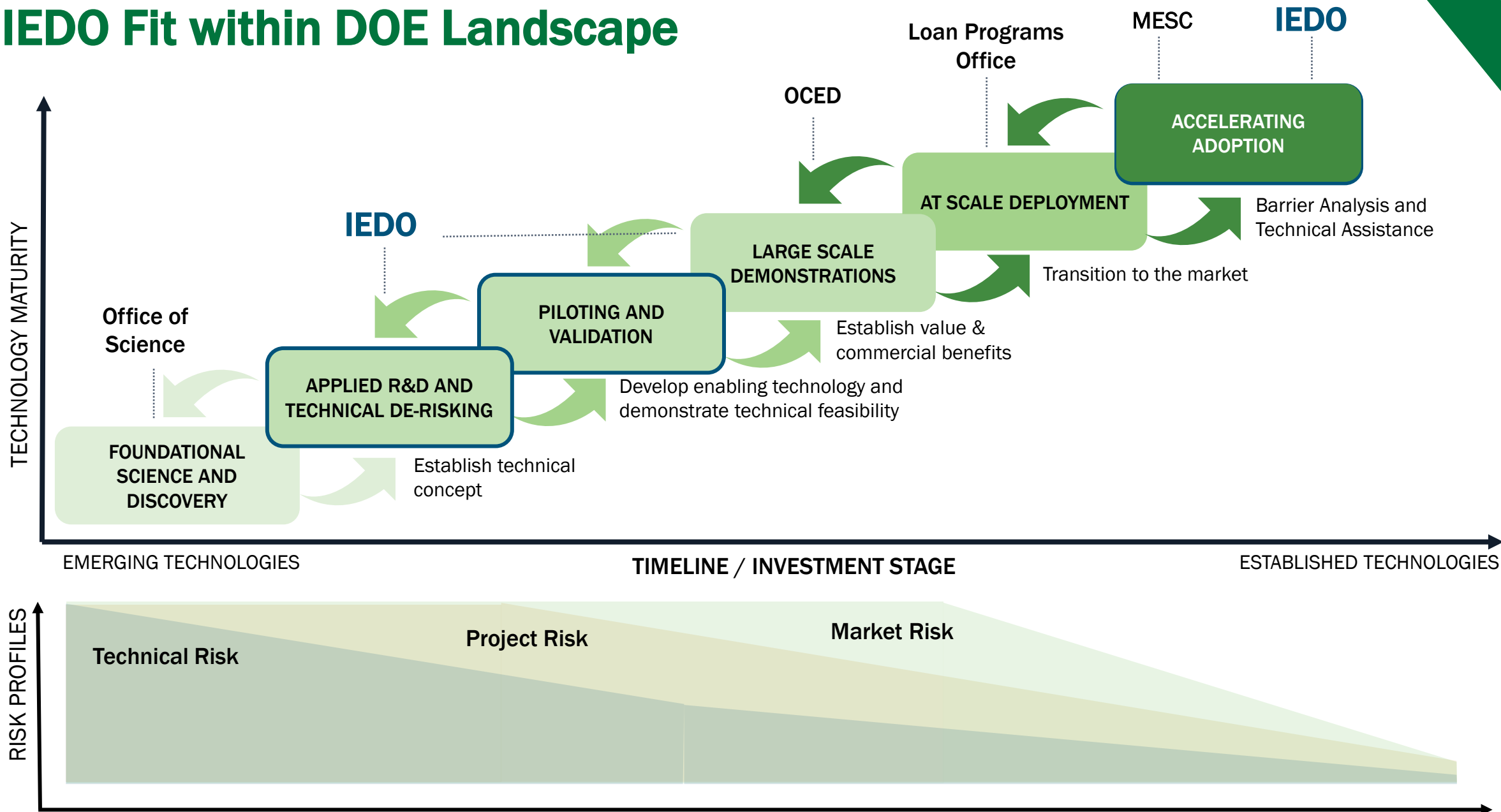
Cross-sector
Technologies
FY23 = \$90.5M



Technical
Assistance
and Workforce
Development

FY23 = \$45M

IEDO Fit within DOE Landscape



IEDO Leadership



Dr. Avi Shultz
Director



Joe Cresko
Chief Engineer



Lauren Hall
Operations Supervisor



Isaac Chan
Program Manager
Cross-Sector Technologies



Dr. Paul Majsztrik
Program Manager
Energy- and Emissions-
Intensive Industries



Anne Hampson
Program Manager
Technical Assistance and
Workforce Development



Ava Coy
Program Manager
Technical Project Officers

Energy- and Emissions-Intensive Industries

IEDO accelerates the readiness of emerging, industry-specific technologies to decarbonize the most energy- and emissions-intensive industrial subsectors.



Dr. Paul Majsztik
Program Manager



IRON AND STEEL

1,469 TBtu
100 MMT CO₂e



CHEMICALS

(including production of
low-carbon fuels)
4,842 Tbtu
332 MMT CO₂e



FOOD & BEVERAGE

1,935 TBtu
96 MMT CO₂e



FOREST PRODUCTS

2,883 TBtu
80 MMT CO₂e



CEMENT & CONCRETE

367 TBtu
66 MMT CO₂e

DOE [Manufacturing Energy and Carbon Footprint](#), based on EIA Manufacturing Energy Consumption Survey (MECS) data for 2018

Cross-Sector Technologies

The Cross-Sector Technologies subprogram accelerates the readiness of energy- and emissions-reducing components, systems, and operational technologies, across a broad range of industries.



Isaac Chan
Program Manager



Thermal Process
& Systems



Low-Carbon Fuels,
Feedstocks, & Energy Sources



Emerging Efficiency



Water & Wastewater
Treatment

IEDO's Technical Assistance Efforts

Technical Assistance: Partners with and enables industry to accelerate the adoption of technologies, programs, and best practices that improve efficiency and decarbonization.

Workforce Development: Promotes the development of a diverse mix of new workers and upskills existing workers for the industrial jobs of today and the future.



Anne Hampson
Program Manager



Public /private partnerships to help industrial organizations set and achieve energy intensity reduction goals



Education and training for the current and future manufacturing workforce



No-cost tools and resources for manufacturers to reduce GHG emissions and improve energy efficiency and competitiveness



End-user support, stakeholder engagement, and technical services for the industrial sector

PROGRAMS INCLUDE: ONSITE ENERGY | PROGRAM 50001 | READY & SEP 50001 | WORKFORCE DEVELOPMENT

IEDO is Hiring – Join Our Team!

Current IEDO Career Opportunities

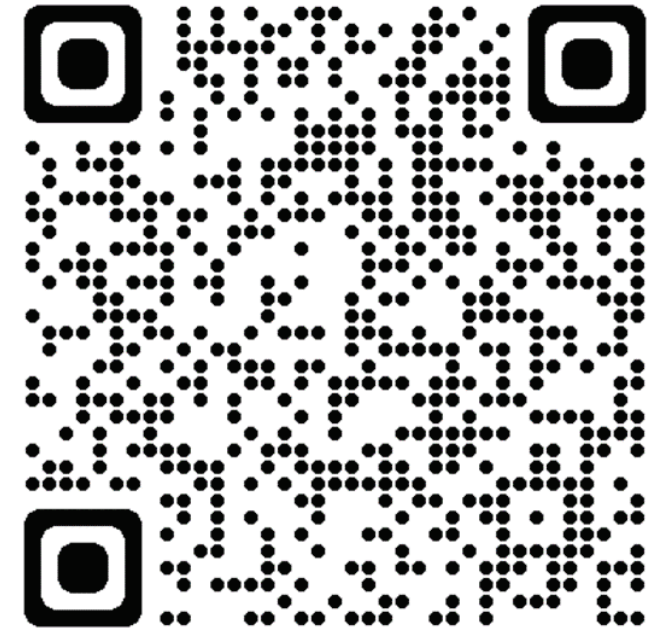
- Cement and Concrete Manufacturing Technology Manager
- Cross-Sector Industrial Efficiency and Decarbonization Technologies Technology Manager
- Technology Manager Technical Assistance and Workforce Development
- Iron, Steel, Aluminum, and Other Metals Sr. Technology Manager
- Operations Manager
- Senior Advisor

Interested in applying?

Visit our careers page or scan the QR code:

<https://www.energy.gov/eere/iedo/iedo-careers>

Email: IEDOJobs@ee.doe.gov



Thank you!

