U.S. DEPARTMENT OF ENERGY

Increase U.S. industrial competitiveness for a net-zero future.

Industrial Technologies Joint Strategy

America's manufacturing sector is the heart of the U.S. economy, accounting for 12% of the country's gross domestic product (GDP) and producing chemicals, electronics, machinery, steel, metals, textiles, and many other products that are critical to daily life. As of 2020, it is also responsible for approximately one third of domestic greenhouse gas emissions. Creating an efficient and competitive U.S. manufacturing industry is critical to achieving a net-zero-carbon future that benefits all Americans.

The U.S. Department of Energy (DOE) is committed to investing in technologies at each stage of the innovation pipeline to help manufacturers and businesses use clean energy, reduce emissions, increase efficiency, save money, and create good jobs. By developing and integrating new, innovative processes and technologies domestically, we can help make American manufacturers more competitive.

Industrial Decarbonization Approaches

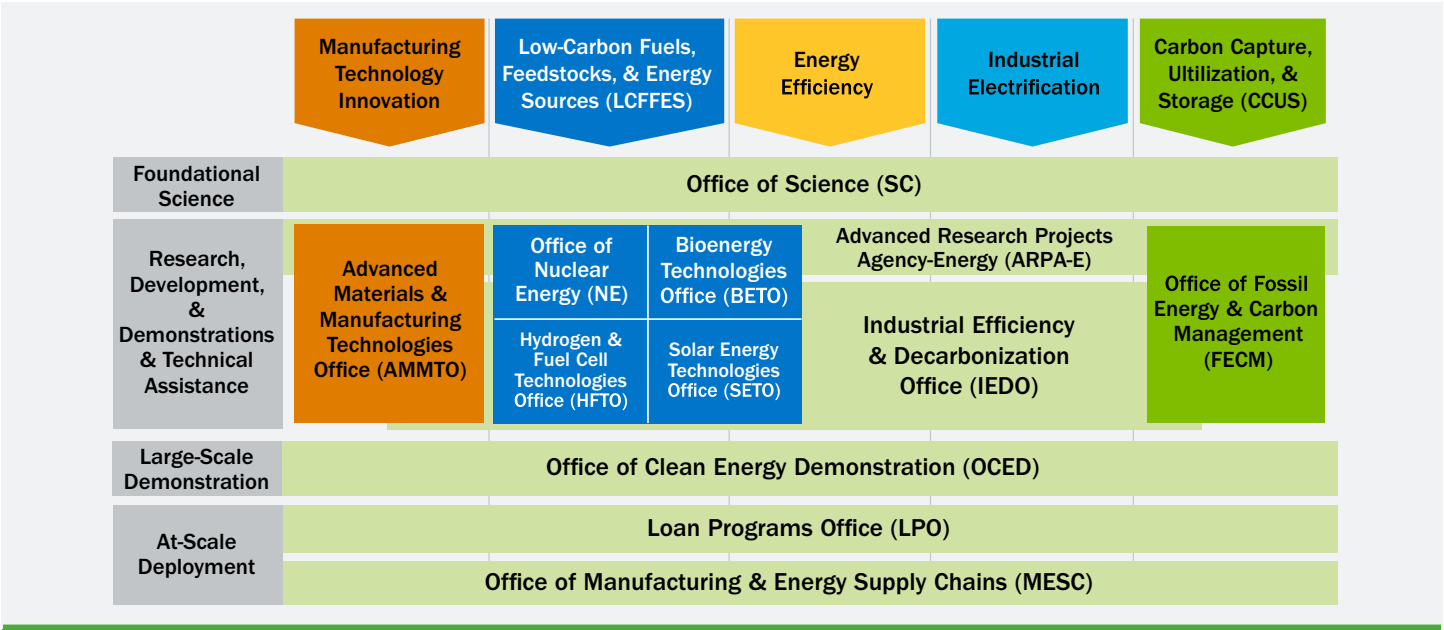
The ***DOE Industrial Decarbonization Roadmap*** (energy.gov/eere/doe-industrial-decarbonization-roadmap), released September 2022, identifies four key pillars driving industrial decarbonization investments:

1. **Energy Efficiency:** Energy efficiency is a foundational, crosscutting decarbonization strategy and is the most cost-effective option for emissions reductions in the near term.
2. **Industrial Electrification:** Leveraging advancements in low-carbon electricity from both grid and onsite renewable generation sources will be critical to decarbonization efforts
3. **Low-Carbon Fuels, Feedstocks, and Energy Sources (LCFFES):** Substituting low- and no-carbon fuel and feedstocks reduces emissions associated with combustion emissions for industrial processes.
4. **Carbon Capture, Utilization, and Storage (CCUS):** This refers to the multi-component strategy of capturing generated carbon dioxide from a point source and using the captured carbon dioxide to make value-added products or storing it long-term to avoid release.

Leveraging stakeholder engagement across a diverse range of industries, DOE has identified an additional crosscutting pillar underpinning industrial decarbonization investments:

5. **Manufacturing Technology Innovation:** Advancements in manufacturing processes, new materials, and technologies such as data analytics, and machine learning, are essential to helping manufacturers further optimize their energy use and reduce carbon emissions.

Scan the QR code to learn more.
energy.gov/industrial-technology



DOE is investing in technologies to advance industrial decarbonization at each stage of the innovation pipeline. DOE's closely coordinated initiatives are designed to work together to maximize impact and achieve deep decarbonization across the industrial sector.

Supporting Every Step of the Innovation Pipeline

Many of the technologies the United States needs for the industrial sector either do not exist yet or are in early stages of development, whereas others are much closer to commercialization. DOE offices are investing in technologies spanning all stages of development and deployment.

Learn more about the DOE offices working on industrial technologies below:

Fundamental Research

- ***Office of Science*** (energy.gov/science)

Applied Technology Offices

- ***Advanced Materials and Manufacturing Technologies Office*** (energy.gov/eere/ammto)
- ***Advanced Research Projects Agency–Energy*** (arpa-e.energy.gov)
- ***Bioenergy Technologies Office*** (energy.gov/eere/bioenergy)
- ***Hydrogen & Fuel Cell Technologies Office*** (energy.gov/eere/fuelcells)
- ***Industrial Efficiency & Decarbonization Office*** (energy.gov/eere/iedo)
- ***Office of Fossil Energy & Carbon Management*** (energy.gov/fecm)
- ***Office of Nuclear Energy*** (energy.gov/ne)
- ***Solar Energy Technologies Office*** (energy.gov/eere/solar)

Demonstration & Deployment

- ***Office of Clean Energy Demonstrations*** (energy.gov/oced)
- ***Loan Programs Office*** (energy.gov/lpo)
- ***Office of Manufacturing & Energy Supply Chains*** (energy.gov/mesc)

Cross-functional Offices

- ***Office of Economic Impact & Diversity*** (energy.gov/diversity)
- ***Office of Policy*** (energy.gov/policy)
- ***Office of Technology Transitions*** (energy.gov/technologytransitions)

Industrial Technologies Joint Strategy Team

DOE established an Industrial Technologies Joint Strategy Team with representatives from offices across the department to better coordinate and target technology research development, demonstration, and deployment efforts. By improving understanding of technology pathways, time to commercialization and production at scale, regulatory barriers, and supply chain as well as addressing workforce development gaps, DOE can accelerate domestic production of priority low- and zero-carbon-emission products.

Specifically, the joint strategy team has three objectives. They aim to:

- Develop an actionable DOE-wide strategy.
- Align budgets to the strategy.
- Collaborate and lead coordinated work.

Learn More

To learn more about DOE's industrial technologies strategy, read:

- ***The DOE Industrial Decarbonization Roadmap*** (energy.gov/eere/doe-industrial-decarbonization-roadmap)
- ***DOE Pathways to Commercial Liftoff Reports*** (liftoff.energy.gov) ■

Visit DOE's *Industrial Decarbonization Technology site* (energy.gov/industrial-technology) to find opportunities and online resources.

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For more information, visit:
energy.gov/industrial-technology

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