



IEDO – Energy- and Emission-Intensive Industries (EII) subprogram Overview

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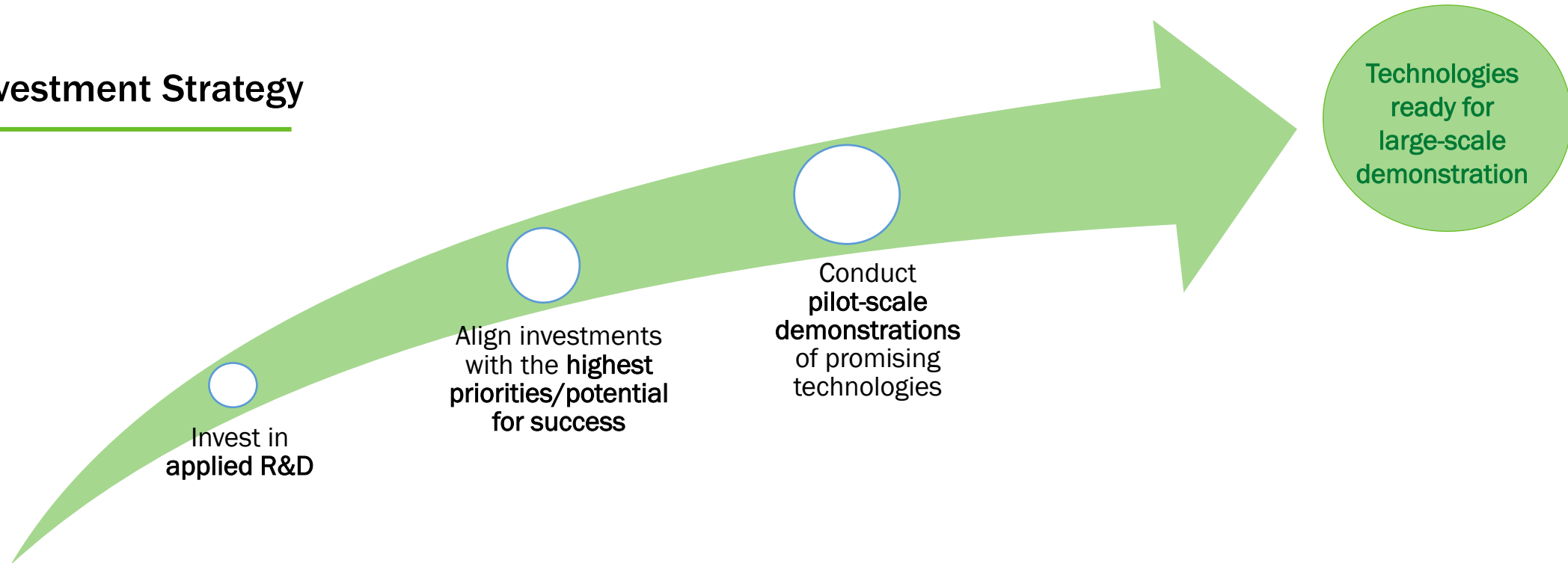
AMMTO & IEDO JOINT PEER REVIEW
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EEI Program: Mission & Strategy

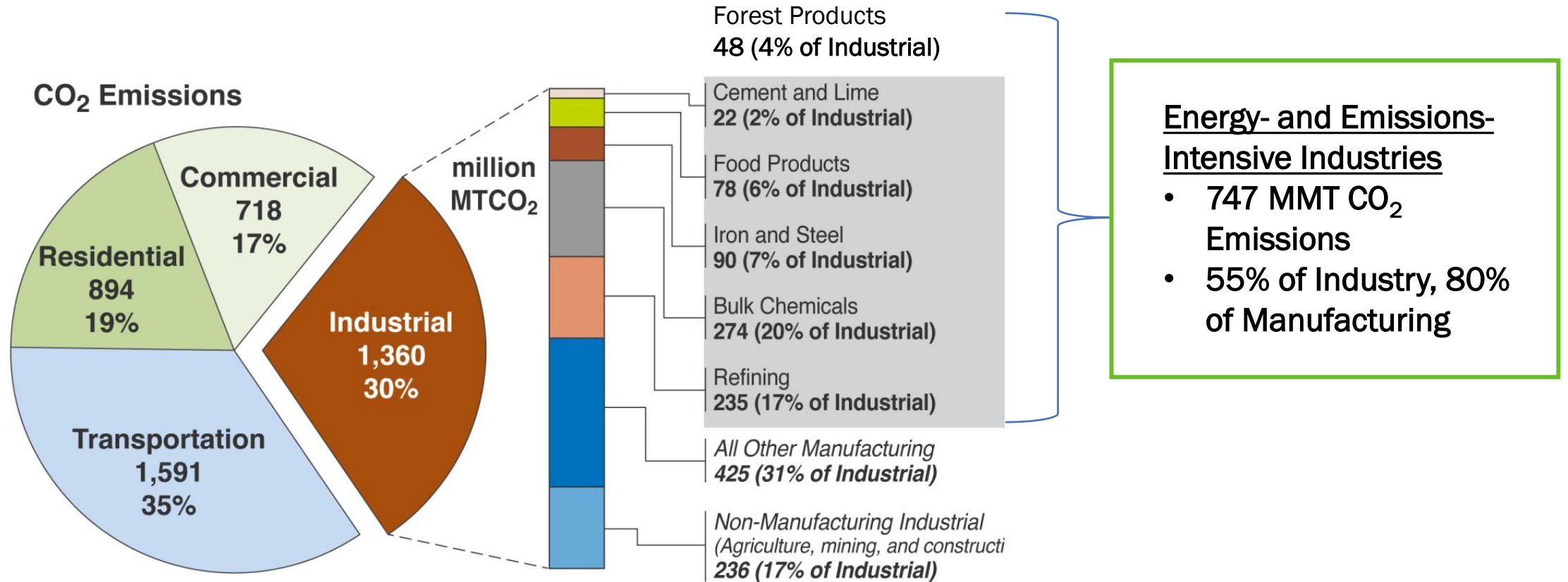
Mission: accelerate the readiness of emerging, industry-specific technologies to decarbonize the most energy- and emissions-intensive industrial subsectors.

Investment Strategy



Investments are needed now to meet the Net Zero by 2050 goal—given the 15 to 20-year capital investment cycle typical for broad adoption of new and emerging industrial technologies

Motivation: Industrial Emissions Profile



Source: IEDO Roadmap (J Cresko) Sept 2022

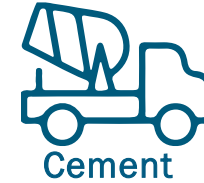
Sector-Specific Approach

Each EEl Sector has

- BIG emissions → BIG impact potential
- High energy footprint → energy efficiency improvements
- Important role → can't replace products
- Unique decarb challenges & solutions

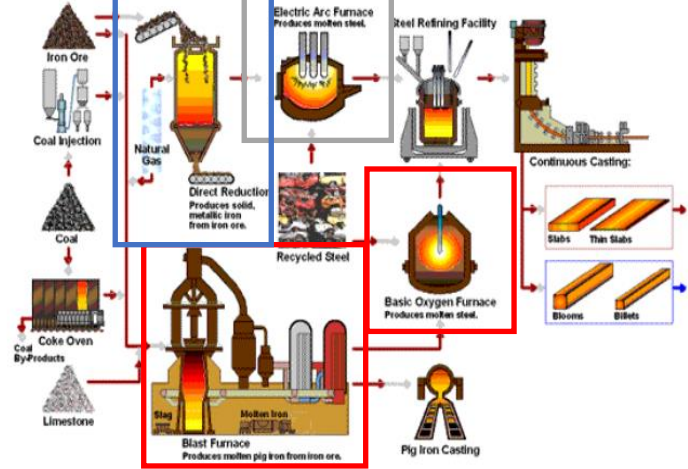
Approach

- Sectoral strategic plans → Net-Zero 2050
- Identify levers & enabling technologies
- Target multiple pathways & big RD&D impacts
- Seek transformative innovations (not incremental)

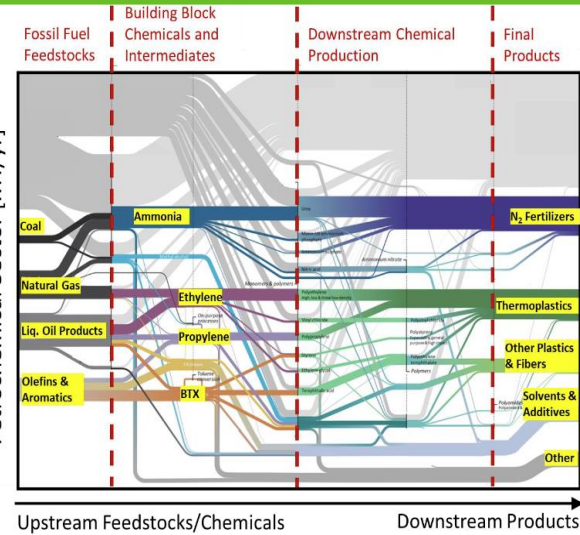


Sector Value Chains: Raw Materials, Process, Final Products

Iron and Steel

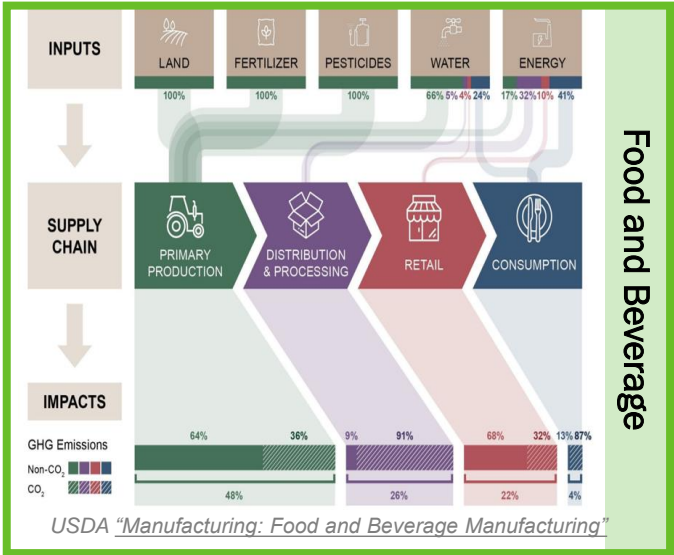


Mass Flow in the Chemical and Petrochemical Sector [MT/yr]

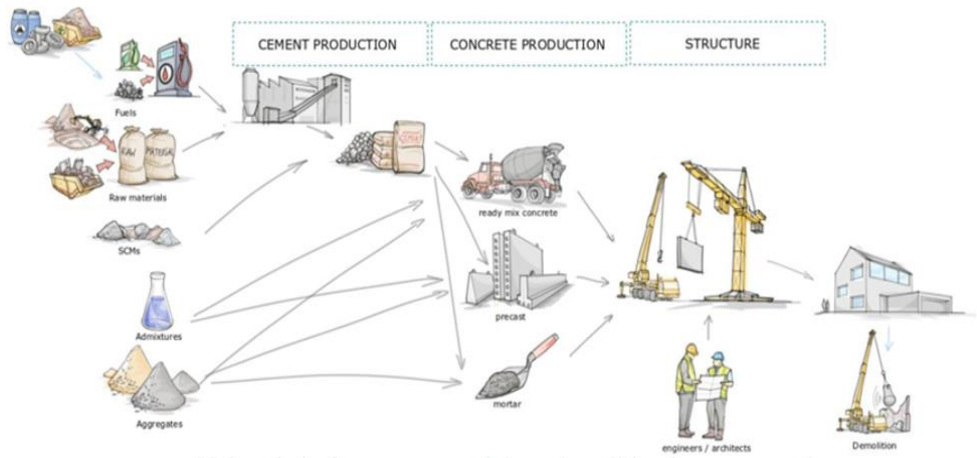


Chemicals (Refining, Fuels)

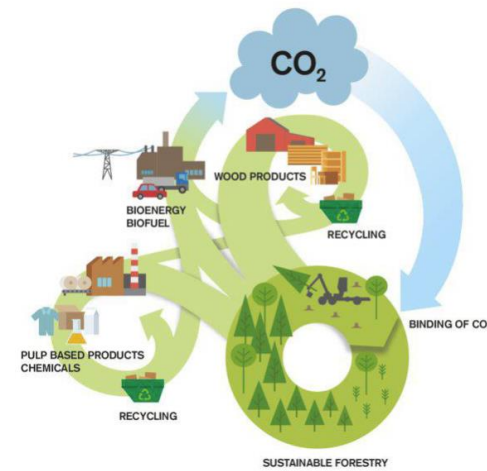
Food and Beverage



Cement and Concrete



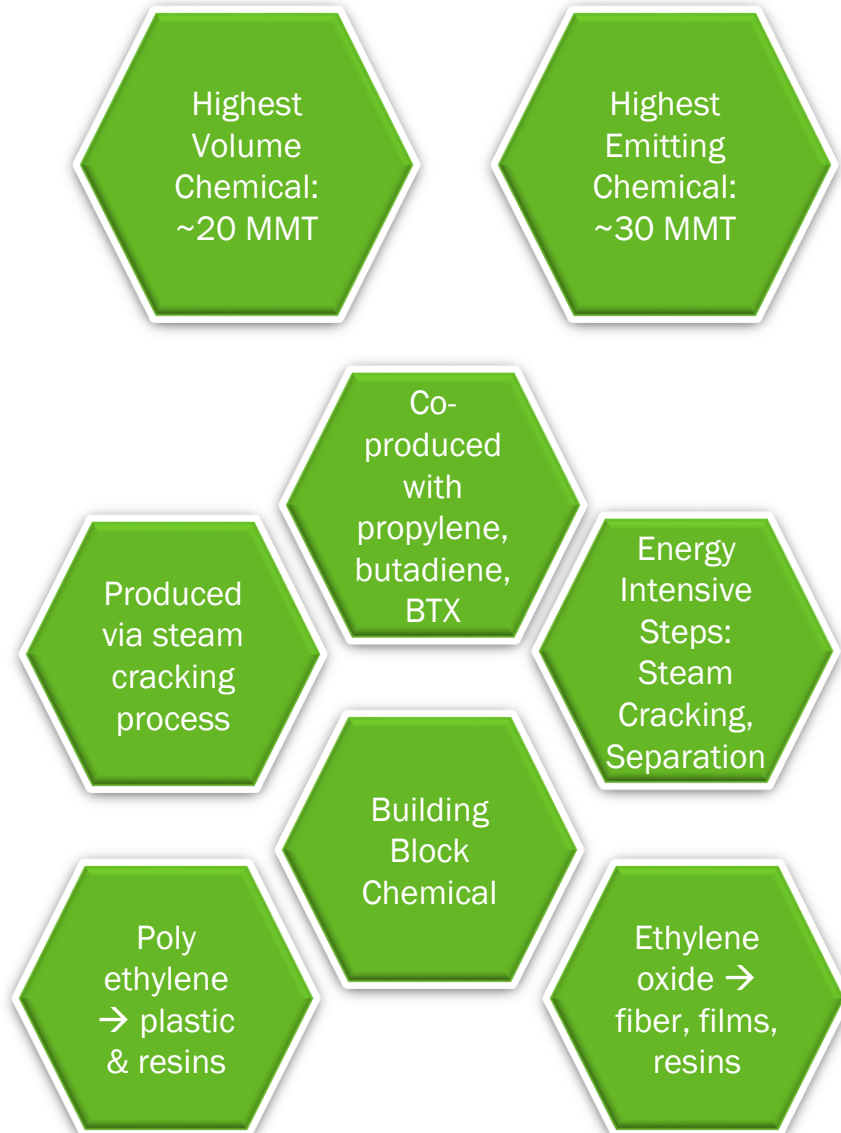
Paper and forest product



American Forest & Paper Association <https://www.afandpa.org/about-afpa> data from Bureau of Economic Analysis

Chemicals Example: Decarbonization of Ethylene

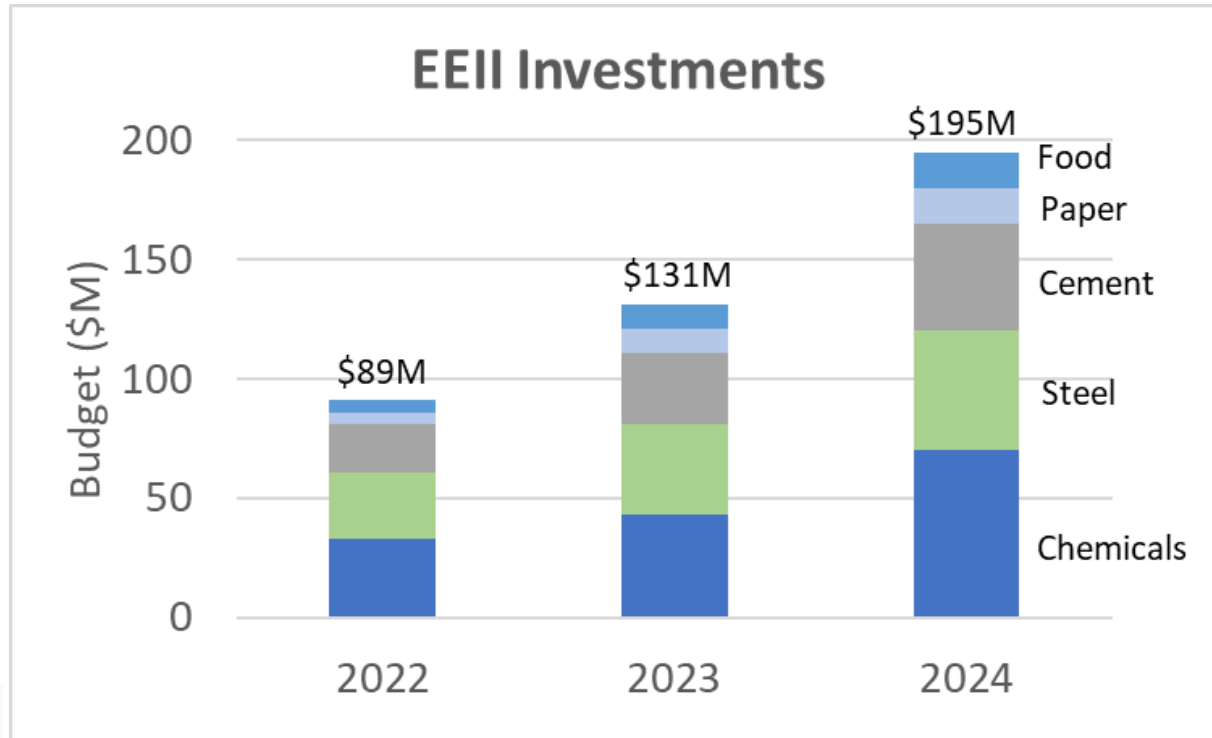
Decarbonization Pathways



Cement and Concrete Example

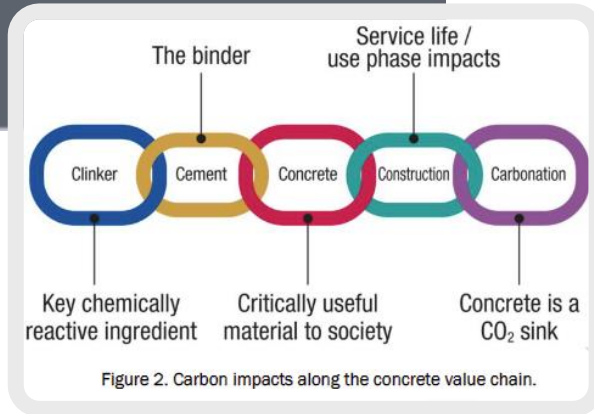
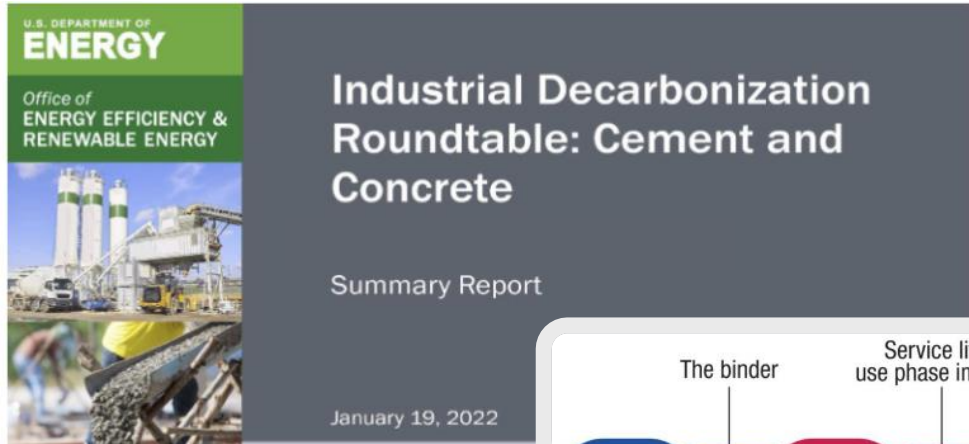
Decarbonization Pathways

EEII Investment Overview



- Sustained and growing sectoral investments
- Flexibility in budget (TRL, topics, sector)
- Pursuing multiple pathways in all sectors
- Applied R&D to maximize potential pathways
- Demonstrations for critical projects

Stakeholder engagement is key to RD&D program planning

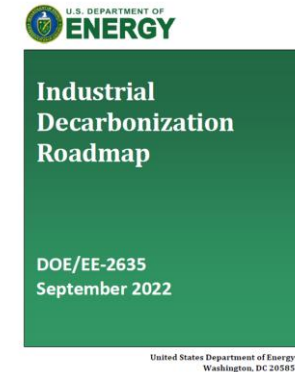
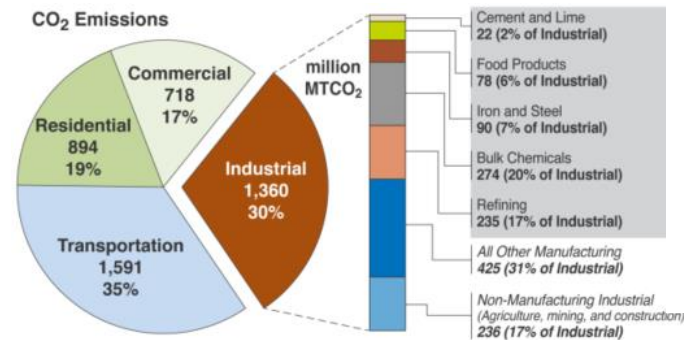


DE-FOA-0002687: Request for Information on Industrial Decarbonization Priorities

DATE: January 27, 2022
SUBJECT: Request for Information (RFI)

Description
The Advanced Manufacturing Office (AMO) is seeking information to better understand industrial priorities for decarbonization, including emerging technologies that could be demonstrated or adopted by the industrial sector. This request for information (RFI) is specifically focused on aspects of industrial decarbonization associated with key industrial sectors, including chemicals, iron and steel, food and beverages, and cement, in addition to other manufacturing industries or crosscutting technology areas that would have a substantial level of emissions reduction in the industrial sector. Information collected in this RFI may also be used by other DOE offices collaborating with AMO, including DOE's newly formed Office of Clean Energy Demonstrations (OCED), for planning purposes including implementation of provisions enacted in the Bipartisan Infrastructure Law (BIL).¹

Industrial Decarbonization Priorities RFI



Vision of Future

EEl Program to play leading role in industrial transformation

Vision of the future

- Net-zero industrial emissions (2050)
- Sustainable transformation of EEl industries
 - Circularity, CO₂/waste feedstocks, low environmental impact
- Improve energy & material efficiency
- US leadership in clean manufacturing
- Strong stakeholder partnerships & collaborations
- Transformative technologies enabled by RD&D



Cement



Food & Beverage



Chemicals & Refining



Iron & Steel



Forest Products

Thank you

