



Cement & Lime Workshop (7-19-23)

Industrial Efficiency & Decarbonization Office (IEDO)



Energy- and Emissions-Intensive Industries
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Program Manager

Industrial Efficiency & Decarbonization Office (IEDO)

U.S. DEPARTMENT OF
ENERGY

Office of ENERGY EFFICIENCY
& RENEWABLE ENERGY

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

Energy- and Emissions-Intensive Industries Program

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



CEMENT & CONCRETE

367 TBtu
66 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

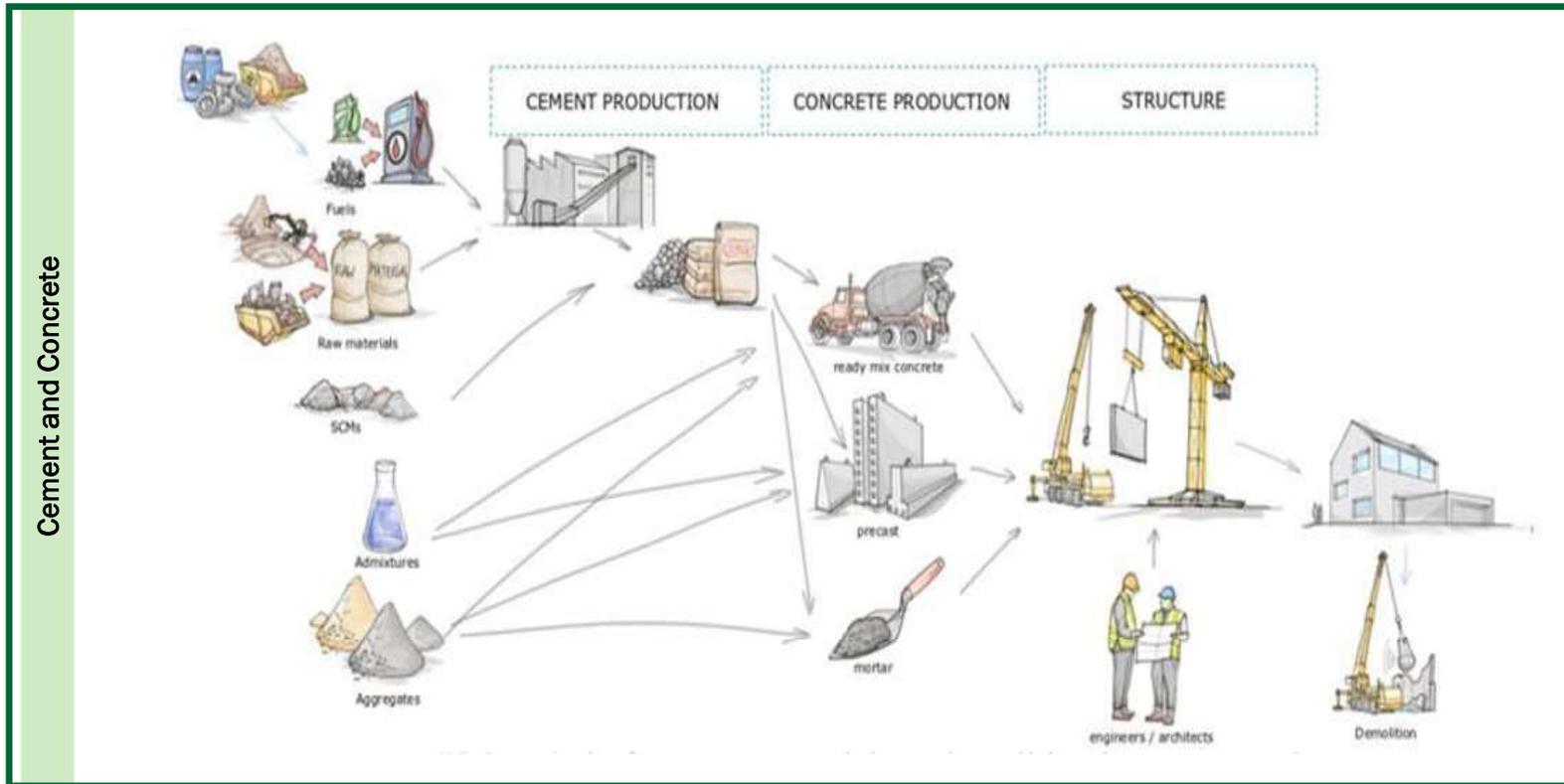


IRON AND STEEL

1,469 TBtu
100 MMT CO₂e

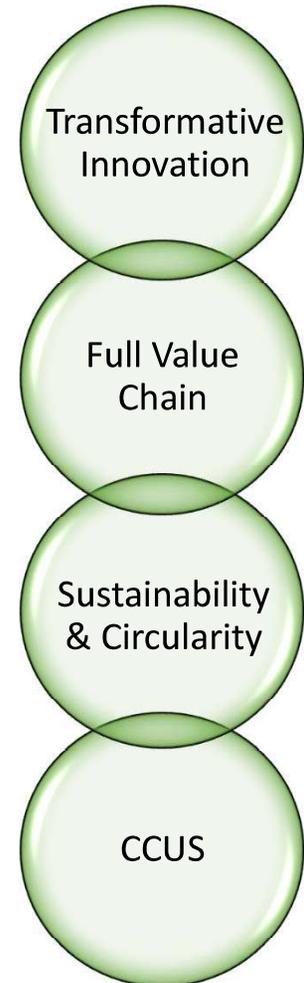
DOE [Manufacturing Energy and Carbon Footprint](#), based on EIA Manufacturing Energy Consumption Survey (MECS) data for 2018

Full Value Chain Approach



IEDO Strategy

- 1) **Technology Solutions:** Drive development of next generation transformative tech through collaborative & targeted RD&D (lab-scale to pilot demos).
- 2) **Full Value Chain:** look outside cement plant at materials, design, and products– not just cement.
- 3) **Sustainability & Circularity:** Reduce not just carbon emissions, but energy use, waste production, and natural resources. Incorporate recycling & material reuse (LCAs & TEAs).
- 4) **CCUS:** Collaborate with FECM on carbon capture process integration and use CO2 as feedstock in materials, chemicals, fuels.



IEDO Activities & Priorities

FY22 IEDO Industrial Decarbonization FOA (\$135M)

- CCU (green cement/SCMs from captured CO₂)
- Non-OPC with lower firing temperature
- Concrete with high-volume SCMs and CNTs

FY23 IEDO Multi-topic FOA (\$156)

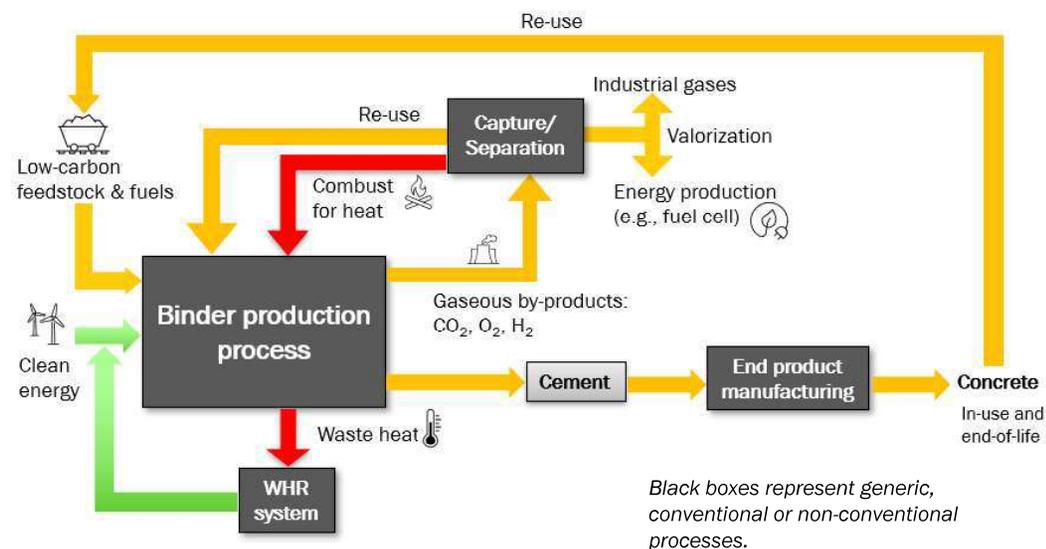
- Currently Reviewing Proposals

FY23 IEDO-AMMTO-BTO TCF Lab Call (\$2.4M)

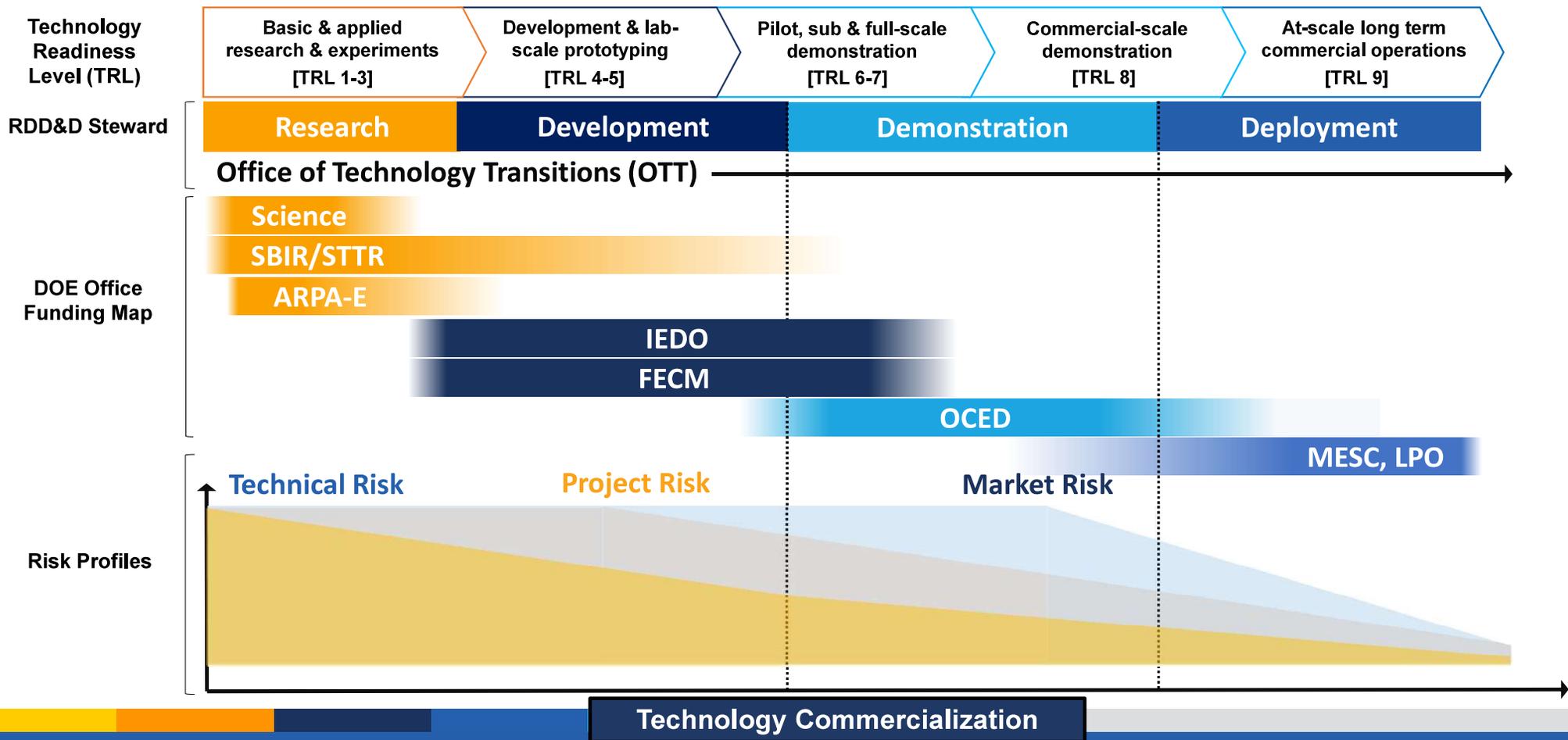
- Topic 1: Greener Buildings and Building Materials with Reduced Embodied Carbon

FY24-25 priorities

- Alternative binders, alternative SCMs
- Process innovation for deep & economical emissions reduction
- Cement and concrete circularity
- CO₂ mineralization (waste materials)
- Advances design of concrete systems for carbon reduction
- Integrated decarbonization strategies for low-emissions cement production



Role Across Research, Development, Demonstration & Deployment (RDD&D) Continuum



Interoffice Collaboration





Thank You!

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