

Industrial Decarbonization: U.S. Department of Energy Releases Roadmap



Walter Wright, Jr.
wwright@mwlaw.com
(501) 688.8839

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The United States Department of Energy ("DOE") issued a document titled:

DOE Industrial Decarbonization Roadmap ("Roadmap")

The Roadmap was prepared by DOE's Office of Energy Efficiency & Renewable Energy.

The industrial sector is argued to be among the most difficult to decarbonize. It is stated to account for one-third of all domestic greenhouse gas emissions.

The Roadmap proposes a staged research, development and demonstration agenda for industry and government. A 104 million funding opportunity is provided to advance industrial decarbonization technologies.

A focus of the Roadmap is what it describes as five key industrial sectors which include:

- Iron and Steel
- Cement and Concrete
- Food and Beverage
- Chemical Manufacturing
- Petroleum Refining

The four pathways that DOE believes could reduce emissions in such sectors include:

- Energy efficiency (described as the most-effective option for near-term reductions of greenhouse gas emissions)
- Industrial electrification (described as leveraging advancements in low-carbon electricity from both grid and onsite renewable generation sources)
- Low carbon fuels, feedstocks, and energy sources (describing efforts involving substituting low-and-no-carbon fuel and feedstocks)
- Carbon capture, utilization, and storage (describing decarbonization efforts which include permanent geologic storage as well as developing processes to use captured CO₂ to manufacture new materials)

Research, development, and demonstration suggested for industry and government to undertake to achieve decarbonization are listed as:

- Advance early-stage research, development, and demonstration
- Investment in multiple process strategies
- Scale through demonstrations

- Address process heating efficiency and emissions across all sub-sectors
- Decarbonize electricity sources
- Integrate solutions
- Conduct modeling and system analysis

A link to the DOE Roadmap can be downloaded [here](#).