

Inflation Reduction Act of 2022 - DOE Grant Awards – Industrial Sector

Overview

- The Inflation Reduction Act (IRA) provides ~\$369 billion to several federal agencies, including the Department of Energy (DOE); Department of Agriculture (DOA) and the Environmental Protection Agency (EPA) to invest in clean energy technologies that would decarbonize the US by roughly 40 percent by 2030.
 - DOE Office of Clean Energy Demonstrations (OCED) - \$5.8 billion allocated to a newly created office to invest in projects aimed at reducing emissions from energy intensive industries.
 - The OCED will issue RFPs (also known as Funding Opportunity Announcements (FOAs)) to provide financial assistance, on a competitive basis, for domestic energy intensive industries, including pulp and paper.
 - The financial assistance is to purchase, install or implement advanced industrial technologies and/or to retrofit, upgrade or operationalize improvements to lower greenhouse gas emissions.
- IRA also provides for new tax incentives.

DOE Funding Opportunity Announcement (FOA) - EXAMPLE

FOA - 1/31/23 DOE OCED announces an FOA for the industrial sector – DE-FOA-0002936

Timeline –

- April 21, 2023 - Conceptual proposals due (10 pages)
- August 4, 2023 - Final application due (90 pages)
- Winter 2023/2024 - Award announcements, with 3-6 month period for contract negotiations
- Awarded project in March 2024
- April 3 – kick-off meeting with DOE – project not to start until June or July.

Applicable section of FOA – Topic Area 3

System Upgrades and Retrofits for Critical Unit Operations or Single Process Lines Within Existing Facilities.

Awards – Topic Area 3

DOE will award 10 to 30 projects in total, each with a 50%-50% cost share, with a 3 to 7 year time horizon. Projects can be submitted below the \$70M threshold but will need extra justifications as to why OCED should consider such projects.

- Anticipated Minimum Award Size for Any One Individual Project \$70M (\$35M/\$35M)
- Anticipated Maximum Award Size for Any One Individual Project \$150M (\$75M/\$75M)

IP Projects – Black Liquor Membrane Separation

Membrane Black Liquor Separation

- DOE contribution of up to \$47 million (50%)
- IP's Mansfield, Louisiana Mill
- Partnership with Via Separations
- Project aims to install a commercial scale black liquor membrane separation system. The system removes water from black liquor using graphene oxide membranes.
- The membrane separation process improves energy efficiency and electrifies a traditionally heat intensive process of evaporation.



Black Liquor Membrane Separation System at IP's Grande Prairie Mill in Alberta, Canada.
Image Credit: Via Separations

IP Projects

Carbon Capture and Sequestration

- Partnership between RTI, IP, Amazon and SLB
- DOE contribution of up to \$88 million (70%)
- IP's Vicksburg, Mississippi Mill
- Project aims to implement a 120,000 tpa carbon capture system using RTI's non-aqueous solvent technology on the mill's power boiler.
- Captured CO2 would be directed to a pipeline for transportation and sequestration.



Technology Centre Mongstad – RTI Testing of NAS Solvent Technology
Image Credit: TCM <https://tcmda.com/rti-is-testing-at-tcm-so-far-so-good/>

KEY STEPS TO SECURE GRANT

- Prior to FOAs
 - ✓ Identify a grant consultant firm familiar with the DOE grant process – Capitol Funding Solutions.
 - ✓ Brief key congressional committees writing the IRA about the need to decarbonize our industry;
 - ✓ Met several times with several DOE offices including OCED;
 - ✓ Briefed the USW;
 - ✓ Monitor DOE website for all FOAs but had our law firm Akin Gump summarize all expected FOAs, Loan guarantees; RFIs/NOIs issued; Opened and Closed Opportunities; etc.

KEY STEPS TO SECURE GRANT

- Post FOAs
 - ✓ Senior Leadership Alignment
 - ❖ C-Suite support for pursuit of funding
 - ❖ Conformance with internal Governance requirements
 - ✓ Organize an internal team to work with CFS in preparing grant applications
 - ❖ Project Manager
 - ❖ Government relations
 - ❖ Technical staff
 - ❖ Communications Engagement
 - ✓ Key Information for Application
 - ❖ Techno-economic Analysis – Business Plan Commercial Feasibility; Key Contracts, Permits and Agreements; Preliminary Site Selection; Market Analysis; Business Case Analysis; Financial Plan etc.
 - ❖ Community Benefits Plan: Job Quality and Equity – Community and Labor Engagement; Justice 40 Initiative

FOCUS OF INDUSTRIAL GRANTS

Industries – 33 projects with five of the priciest projects at half a billion dollars a pop

Focus: Decarbonization

- Chemicals and Refining
- Iron and Steel:
- Food and Beverage:
- Glass
- Cement and Concrete :
- Pulp and Paper
- Process Heat –
 - **Steam-Generating Heat Pumps for Cross-Sector Deep Decarbonization** | Skyven Technologies (Up to \$145 million - TBD)
 - **Vikrell Electric Boiler & Microgrid System** | Kohler (Up to \$51.2 million - Casa Grande, Arizona)

Four key technological pillars

- EE
- Industrial Electrification
- Low-Carbon Fuels, Feedstocks, and Energy Sources
- CCUS