



Industrial Demonstrations Program – Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation

The Industrial Demonstrations Program, managed by the U.S. Department of Energy (DOE) Office of Clean Energy Demonstrations (OCED), aims to accelerate decarbonization projects in energy-intensive industries and provide American manufacturers a competitive advantage in the race to lead the world in low- and net-zero carbon emissions manufacturing. To advance industrial decarbonization, OCED sought applications for up to \$6 billion in funding to support the demonstration of transformational technologies necessary to reduce greenhouse gas emissions in the U.S. industrial sector. Following negotiations, in September 2024, OCED awarded the Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation project with \$9.5 million to begin Phase 1 of the project, located in Middletown, OH.



Awardee Fact Sheet Industrial Demonstrations Program: Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation

Project at a Glance – Phase 1

- » **Total OCED Cost Share:** Up to \$500 million
- » **Phase 1 Total Project Amount:** \$19,100,000*
- » **Phase 1 OCED Award Amount:** \$9,500,000**
- » **Phase 1 Scope of Work:** Planning, permitting, design, community engagement, and other development activities
- » **Phase 1 Timeline:** 15 months
- » **Recipient:** Cleveland-Cliffs Steel Corporation, a subsidiary of Cleveland-Cliffs Inc.
- » **Project Location:** Middletown, OH
- » **Start Date:** September 2024

*Represents the total project cost for Phase 1.

**Represents OCED's cost share for Phase 1. Additional funding for this project is subject to future award negotiations at the end of each project phase.

About This Project

The Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation project for iron and steelmaking, led by Cleveland-Cliffs Steel Corporation (Cleveland-Cliffs), plans to install a hydrogen-ready flex-fuel Direct Reduced Iron (DRI) plant and two electric melting furnaces at the Cleveland-Cliffs' Middletown Works facility in Ohio. This project would reduce an estimated 1 million tons of greenhouse gas (GHG) emissions per year.

This project plans to demonstrate hydrogen-based ironmaking technology while replacing one of Cleveland-Cliffs' seven operating blast furnaces and enabling Cleveland-Cliffs to further decarbonize rolled steel products for its customers in the U.S. automotive industry, thereby helping to decarbonize the automotive industry's supply chain.

During Phase 1 of the project, Cleveland-Cliffs will conduct preliminary design and engineering activities, provide documentation and reports necessary for OCED to complete the National Environmental Policy Act review, as well as engage community and labor stakeholders, which Cleveland-Cliffs will continue to do throughout the entirety of the project.

OCED will provide oversight of the Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation project by evaluating the status and quality of implementation at each phase of the project. Through its phased approach to project management oversight, OCED will review and evaluate the project's progress, including community benefits, which will impact OCED's decision to continue to provide federal funding and allow the project to progress to the following phase.

Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation Project Fact Sheet

Project Site

The Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation project would be located at Cleveland-Cliffs' Middletown Works facility in Middletown, OH, in the southwestern part of the state.

Community Benefits Commitments

Community benefits commitments are a key component of the Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation project. The commitments are informed and developed in consultation with local communities to mitigate potential negative impacts of this project and maximize local community benefits. Cleveland-Cliffs plans to implement these commitments through:

- Creating approximately 170 permanent jobs and up to 1,200 temporary union construction jobs while preserving the site's existing 2,500 jobs—including 2,000 union workers represented by the International Association of Machinists Local 1943 and covered under the associated workforce agreements. Construction jobs will be covered under an existing National Maintenance Agreement with Building Trades Unions.
- Providing on-the-job training through paid apprenticeships, ensuring equitable access to these opportunities for local residents and residents of disadvantaged communities, and collaborating on workforce development activities with local building trades and other workforce stakeholders.
- Substantially reducing air emissions (including both criteria and hazardous air pollutants) and quantifying air quality impacts for any relevant air pollutants emitted (or expected to be emitted) from the project.
- Negotiating a Community Benefits Agreement or alternative community investment plan.
- Supporting the Justice40 initiative by completing a Justice40 Assessment and Implementation Strategy during each phase.
- Sharing project information publicly to support engagement, accountability, and transparency.
- Incorporating diversity, equity, inclusion, and accessibility goals into supplier outreach and procurement activities, consistent with applicable laws and regulations.

More details on the Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation project's community benefits commitments can be found in the [Community Benefits Commitments Fact Sheet](#).



Steel slab runout tables

Hydrogen-Ready Direct Reduced Iron Plant and Electric Melting Furnace Installation Project Fact Sheet

Industrial Demonstrations Program Goals

U.S. industry is a backbone of the nation's economy, producing the goods critical to everyday life, employing millions of Americans in high-quality jobs, and providing an economic anchor for thousands of communities. Yet the sector's energy- and carbon-intensity contributes to nearly one-third of the nation's carbon dioxide emissions, representing a unique and complex challenge to achieving a carbon-free economy. Decarbonizing the U.S. industrial sector will require equally unique and innovative technological solutions that leverage multiple pathways, including energy efficiency, electrification, and alternative fuels and feedstocks such as clean hydrogen. The Industrial Demonstrations Program includes new, emerging technologies that aim to help produce clean steel, cement, chemicals, and other materials used in our nation's roads, bridges, transmission lines, electric vehicles, solar panels, wind turbines, and everyday lives, which in turn, benefit every American.



Middletown Works employees band finished steel coils

Contact

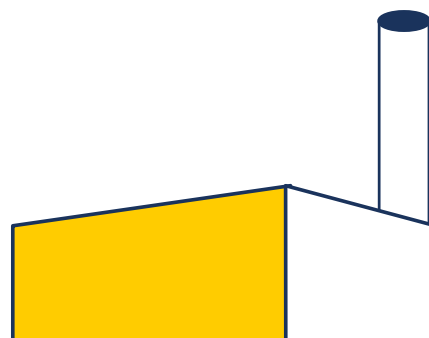
Program Email: engage_industrialdemos@hq.doe.gov

OCED Media Email: OCEDNewsroom@hq.doe.gov

More Resources

Website: energy.gov/oced/IDP

Office of Clean Energy Demonstrations: energy.gov/oced



The U.S. Department of Energy established OCED to help scale the emerging technologies needed to tackle our most pressing climate challenges and achieve net-zero emissions by 2050. OCED's mission is to deliver clean energy demonstration projects at scale in partnership with the private sector to accelerate deployment, market adoption, and the equitable transition to a decarbonized energy system.