Industrial Demonstrations Program – Steel Slab Electrified Induction Reheat Furnace Upgrade

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 emissions in the U.S. industrial sector. Following negotiations, in August 2024, OCED awarded the Steel Slab Electrified Induction Reheat Furnace Upgrade project more than $19 million to begin Phase 1 of the project, located in Lyndora, PA.



Project at a Glance

- **Total OCED Cost Share:** Up to $75 million
- **Phase 1 Total Project Amount:** $38,151,901*
- **Phase 1 OCED Award Amount:** $19,074,900**
- **Phase 1 Scope of Work:** Planning, permitting, design, and other development activities
- **Phase 1 Timeline:** 6 months
- **Recipient:** Cleveland-Cliffs Steel Corporation is a subsidiary of Cleveland-Cliffs Inc.
- **Project Location:** Lyndora, PA
- **Start Date:** August 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 Steel Slab Electrified Induction Reheat Furnace Upgrade project plans to electrify the only production facility for high-silicon grain oriented electrical steel (GOES) in the United States. GOES is a critical input for transformers and the electricity sector. By implementing induction heating—a highly energy efficient heating method that minimizes energy losses and enables precise control over temperatures—this project aims to secure a crucial component of the U.S. domestic energy supply chain and could be widely replicable among the many iron and steel facilities that use reheat furnaces across the nation. Cleveland-Cliffs estimates the furnace installations could result in up to a 100% reduction in direct greenhouse gas emissions associated with the high-temperature reheat furnaces and improve air quality for the nearby communities.

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 (NEPA) review, and engage community and labor stakeholders, which Cleveland-Cliffs will continue to do throughout the entirety of the project.

OCED will provide project management oversight of the Steel Slab Electrified Induction Reheat Furnace Upgrade project by evaluating the status and quality of implementation at each phase of the project. Through its phased approach to project management, 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.

Project Site

The Cleveland-Cliffs Steel Slab Electrified Induction Reheat Furnace Upgrade project is located at the Cleveland-Cliffs' Butler Works facility in Lyndora, PA. The project's goal, in subsequent phases, is to construct four new induction reheat furnaces for the high temperature production of high-silicon GOES, which is a critical material used in the manufacturing of electrical transformers.

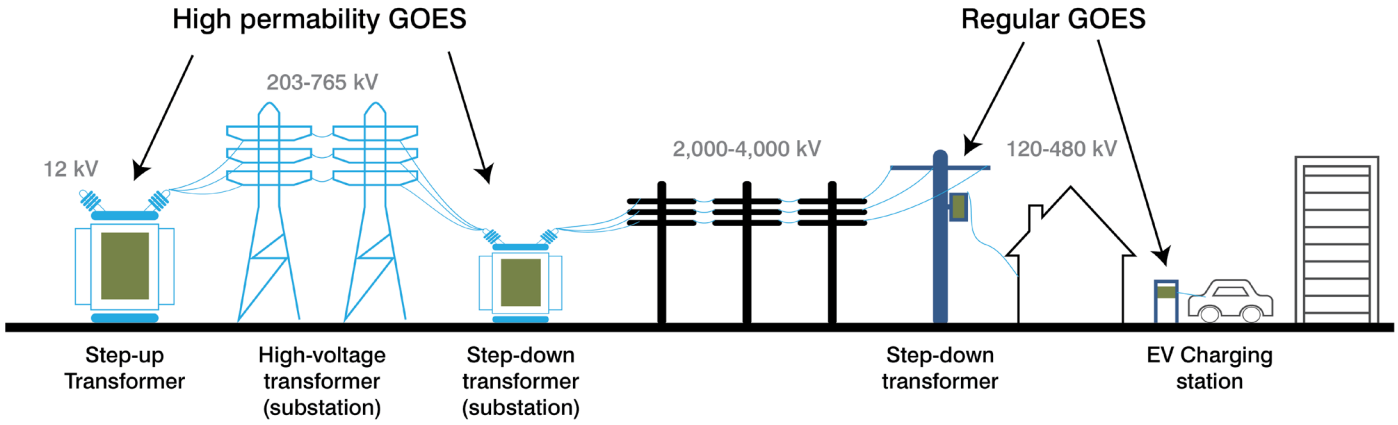


Diagram showing the power distribution stream and where Cleveland-Cliffs' GOES fits into the process

Community Benefits Commitments

Community benefits commitments, informed by and developed in consultation with the local community, aim to maximize local community benefits and mitigate potential impacts of this project. Cleveland-Cliffs plans to implement these commitments through:

- Sustaining 1,000+ existing union jobs at the Butler Works facility in Pennsylvania, supporting 160 union jobs at the Zanesville Works facility in Ohio, and supporting 200+ Building Trades Unions construction jobs.
- Providing on-the-job training through paid apprenticeships and ensure equitable access to these jobs for local residents and residents of disadvantaged communities.
- Improving air quality for nearby communities by reducing criteria and hazardous air pollutants and supporting the Justice40 initiative by completing a Justice 40 Assessment and Implementation Strategy during each project phase.
- Negotiating a Community Benefits Agreement or alternative community investment plan.
- Sharing basic project information publicly to enhance transparency.
- Setting and evaluating diversity, equity, inclusion, and accessibility (DEIA) goals for Cleveland-Cliffs' apprenticeship program and incorporating DEIA objectives into supplier outreach process, including conducting a baseline assessment of existing practices.

More details on the Steel Slab Electrified Induction Reheat Furnace Upgrade project's community benefits commitments can be found in the Community Benefits Commitments Fact Sheet.

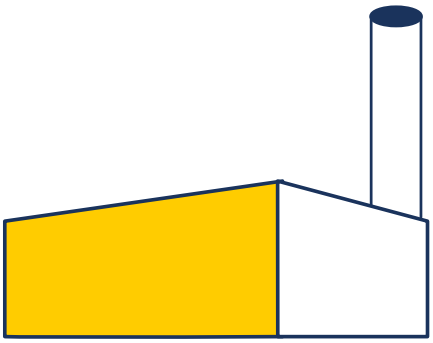
Steel Slab Electrified Induction Reheat Furnace Upgrade
Project Fact Sheet

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.



Three steel coils at Cleveland-Cliffs facility



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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.