



Industrial Demonstrations Program – Baytown Olefins Plant Carbon Reduction Project

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 December 2024, OCED awarded the Baytown Olefins Plant Carbon Reduction Project with more than \$11 million to begin Phases 1 and 2 of the project, located in Baytown, TX.



Awardee Fact Sheet

Industrial Demonstrations Program:

Baytown Olefins Plant Carbon Reduction Project

Project at a Glance — Phases 1 and 2

- » **Total OCED Cost Share:** Up to \$331.9 million
- » **Phase 1 and 2 Total Project Amount:** \$22,353,191*
- » **Phase 1 and 2 OCED Award Amount:** \$11,176,596**
- » **Phase 1 and 2 Scope of Work:** Permitting, design and engineering, community engagement, and other development activities
- » **Phase 1 and 2 Timeline:** 6 months
- » **Recipient:** ExxonMobil is one of the largest integrated fuels, lubricants, and chemical companies in the world
- » **Project Locations:** Baytown, TX
- » **Start Date:** January 2025

*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 Baytown Olefins Plant Carbon Reduction Project, led by ExxonMobil, would enable the use of hydrogen in place of natural gas across high heat-fired equipment using new burner technologies for ethylene production in Baytown, TX. Ethylene is a chemical feedstock used in the production of textiles, synthetic rubbers, and plastic resins, with applications in packaging, electronics, and vehicles. These equipment modifications would enable the use of up to 95% clean hydrogen fuel. At full implementation, the modifications would be expected to enable avoidance of an estimated 2.7 million metric tons of carbon emissions per year—equal to more than 50% of the olefin plant's total emissions—and an estimated 200 tons per year of nitrogen oxide (NOx) emissions. Demonstrating clean hydrogen fuel switching in one of the largest ethylene plants in the U.S. would help de-risk viable decarbonization

solutions for large, existing industrial facilities, prove the use of clean hydrogen in industrial processes, and provide a pathway for decarbonizing the chemical industry, which is responsible for more than one-third of the U.S. industrial sector's carbon emissions.

During Phases 1 and 2, development activities such as the project's engineering and design, and outreach and engagement will progress to prepare for construction. Throughout Phases 1 and 2, ExxonMobil will provide documentation and reports necessary for OCED to complete the National Environmental Policy Act (NEPA) review. OCED will provide oversight of the Baytown Olefins Plant Carbon Reduction 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 impact OCED's decision to continue to provide federal funding and allow a project to progress to the following phase.

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Project Site

The Baytown Olefins Plant Carbon Reduction Project would be located in Baytown, TX, in the southeastern part of the state. The project would primarily include demonstrations of high heat-fired equipment using new burner technologies at the Baytown Olefins Plant, while also including a few new burner installations at ExxonMobil's Chemical Plant and Refinery also located in Baytown, TX.

Community Benefits Commitments

Community benefits commitments are a key component of the Baytown Olefins Plant Carbon Reduction Project. The commitments are informed and developed—in consultation with local communities—to maximize local community benefits and mitigate potential negative impacts. ExxonMobil plans to implement these commitments through:

- Pursuing **Community Agreements** (including a Community Benefits Agreement, if desired by the local community) to partner with local organizations in support of maximizing project benefits to the Baytown community.
- Creating approximately **300 new construction jobs**, with a target of at least 15% of which being offered U.S. Department of Labor-approved Apprenticeships. Additionally, at least 140 current Baytown Olefins Plant workers would be trained in the use of hydrogen.
- **Proactively engaging** with the construction workforce, labor groups and labor unions, including towards the development of negotiated agreements. ExxonMobil's Baytown Chemical Plant and Refinery is represented by several unions for operations and mechanical workers, including the United Steelworkers, the International Association of Machinists and Aerospace Workers, and the International Brotherhood of Electrical Workers.
- Expanding an existing **Small Business Support Center** with local partners and launching community-based solutions that support opportunities for local workforce development, including certified apprenticeships and wrap-around services that address identified barriers to participation.
- Co-creating an **independently facilitated Community Advisory Panel** together with the Baytown community, where community members and project management commit to regular dialogues throughout the life of the project.
- Supporting **the Justice 40 initiative** by implementing an assessment-based strategy during each phase of the project that addresses economic benefits and impacts, impact mitigation, and maximizing community benefits.
- **Reducing nitrogen oxide (NOx) emissions**, improving air quality for the local community.
- Developing a plan that outlines steps to communicate relevant project-related changes to emissions and associated **air quality impacts**, and sharing that plan with the Community Advisory Panel for input.

More details on the Baytown Olefins Plant Carbon Reduction Project's community benefits commitments can be found in the [Community Benefits Commitments Summary](#).



ExxonMobil's Baytown, TX facility with large industrial pipes

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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.



ExxonMobil's Baytown, TX facility, featuring large industrial pipes extending upwards

Contact

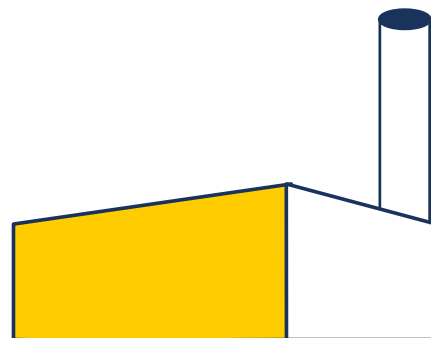
Program Email: engage_industrialdemos@hq.doe.gov

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.