



Industrial Demonstrations Program – Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation

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 Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation project with more than \$1.2 million to begin Phase 1 of the project, located in Longview, WA.



Project at a Glance — Phase 1

- » **Total OCED Cost Share:** Up to \$46.6 million
- » **Phase 1 Total Project Amount:** \$2,412,546*
- » **Phase 1 OCED Award Amount:** \$1,203,911**
- » **Phase 1 Scope of Work:** Planning, permitting, design, and other development activities
- » **Phase 1 Timeline:** 5 months
- » **Recipient:** Nippon Dynawave Packaging Co. LLC is a manufacturer of liquid packaging board
- » **Project Locations:** Longview, WA
- » **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

In the Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation project, Nippon Dynawave Packaging Co. LLC (NDP) and Via Separations (Via) are partnering to decarbonize a thermal process at NDP's Longview, WA, site. The project would use Via's novel membrane-based technology, previously supported by the Advanced Research Projects Agency-Energy (ARPA-E). The installed membrane technology would enable a transformative energy efficiency improvement for industrial separations and would reduce 70% of carbon dioxide (CO₂) emissions per gallon of clean water removed during pulp production in this application. This project would not only reduce the facility's process energy intensity but also demonstrate the viability of the membrane technology to potentially scale across all other domestic pulp and paper mills and other industrial sectors, such as chemical manufacturing.

During Phase 1 of the project, NDP and Via will conduct planning and design, provide documentation and reports necessary for OCED to complete the National Environmental Policy Act (NEPA) review, and continue engagement activities with the community, project partners, and stakeholders.

OCED will provide oversight of the Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation 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.

Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation Project Fact Sheet

Project Site

The Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation project would be located at NDP's manufacturing facility in Longview, WA, in the southwestern part of the state.

Community Benefits Commitments

Community benefits commitments are a key component of the Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation project. The commitments are informed and developed—in consultation with local communities—to maximize local community benefits and mitigate potential negative impacts. NDP plans to implement these commitments through:

- Continuing partnerships with the Association of Western Pulp and Paper Workers to **ensure quality jobs for employees** and engaging with relevant unions to **ensure a sufficiently skilled and trained workforce** for construction.
- Creating a workforce pipeline for specific training around Via's system at NDP's Longview, WA, facility that **engages and prioritizes talent development** in underrepresented workers.
- Supporting the Justice40 initiative by **completing a Justice40 assessment and implementation strategy** during each phase.
- **Quantifying air quality impacts** for any relevant air pollutants emitted, or expected to be emitted, from the project.
- Sharing project information publicly to **support engagement, accountability, and transparency**.

More details on the Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation project community benefits commitments can be found in the [Community Benefits Commitments Summary](#).

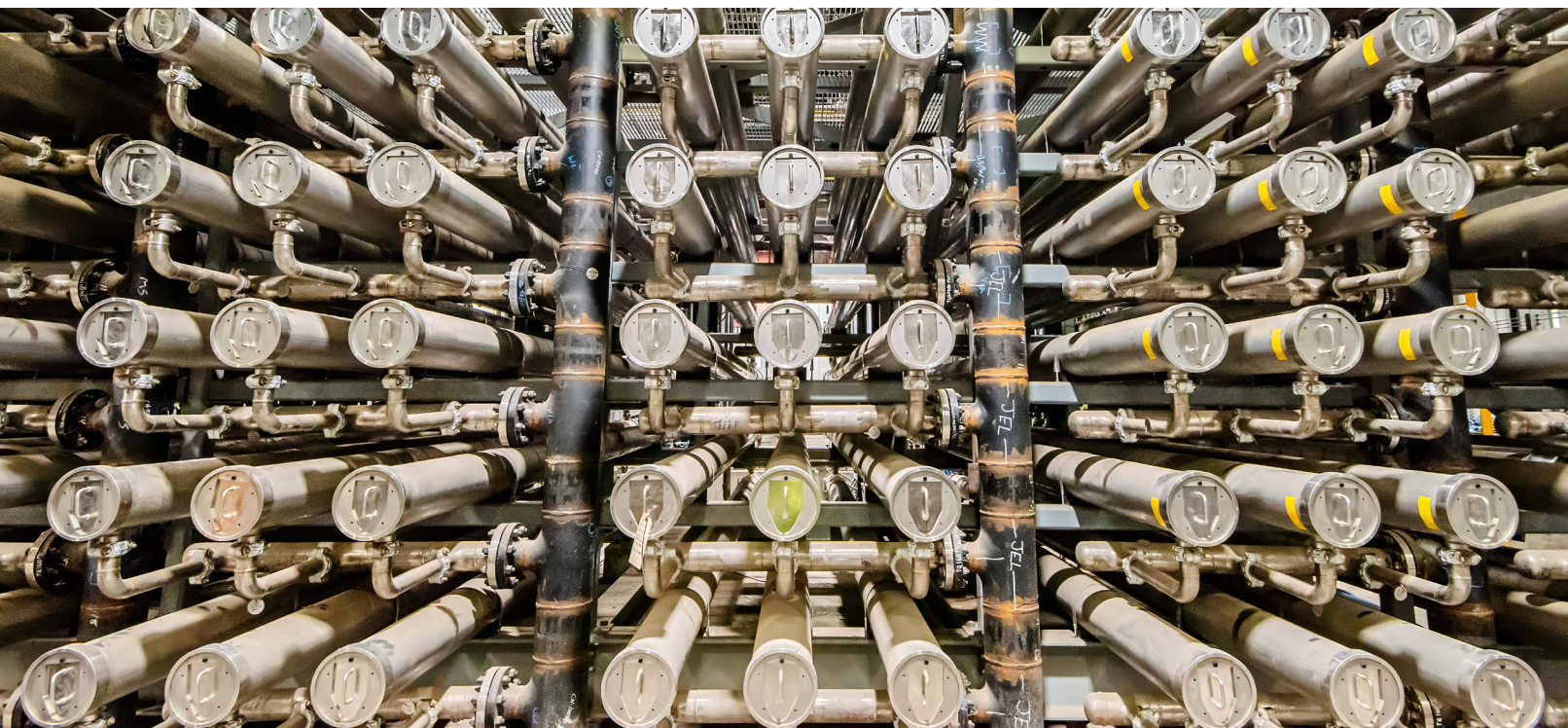


Pumps and industrial equipment that make up Via Separations' filtration system

Decarbonization of Black Liquor Concentration through Energy Efficient Membrane Separation 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.



Metal housing racks containing Via Separations' novel membranes

Contact

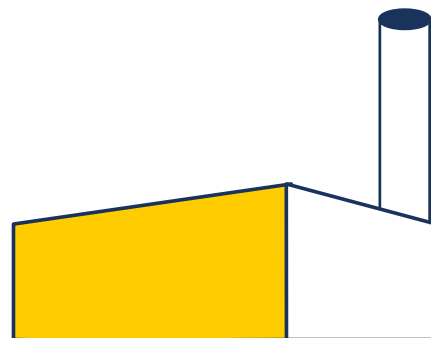
Program Email: engage_industrialdemos@hq.doe.gov

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.