Office of Clean Energy Demonstrations

THE OFFICE OF

CLEAN ENERGY DEMONSTRATIONS

Industrial Demonstrations Program
Western Regional Community Briefing

04/22/2024

Office of Clean Energy Demonstrations

U.S. Department of Energy

Webinar Logistics

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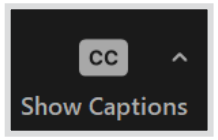

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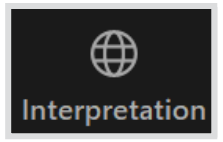

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Is this webinar being recorded?

No, this webinar is not being recorded.

Will the slides be shared?

Yes, a copy of the presentation slides will be shared via email with registrants and on the OCED website within the next week.

Western Regional Briefing Agenda

- **(5:00-5:30 pm PT) DOE and Industrial Demos Program Overview**

- **(5:30-6:10 pm PT) Project Overview**
  - Golden Aluminum, Fort Lupton, CO
  - Kohler, Casa Grande, AZ
  - Gallo Glass, Modesto, CA
  - Owens-Brockway Glass Container, Inc., Tracy, CA
  - National Cement Company of California, Inc., Lebec, CA

- **(6:10-6:40 pm PT) Q&A**

- **(6:40-6:45 pm PT) Closing Comments**

OCED Overview

OCED Mission

Deliver clean energy technology **demonstration projects at scale** in partnership with the **private sector** to **accelerate deployment**, **market adoption**, and the **equitable transition** to a decarbonized energy system.”

INDUSTRIAL DEMONSTRATIONS PROGRAM SELECTION SNAPSHOT

OCED
Office of Clean Energy Demonstrations

$20+ BILLION
Total Funding
(Federal and private cost shares)

OVER
14 MILLION METRIC TONS
of avoided emissions annually

85% would reduce criteria air pollutants
(28) PROJECTS

TENS OF
THOUSANDS
total jobs

with
19 committed to union labor
PROJECTS

Selectees Delivered on Ambitious Program Priorities

Deep Decarbonization	**Target:** 50 – 75% emissions reductions per project	**Result:** Average **77% reduction** in carbon intensity & ~**14+ million MT CO2e reduced** annually
Timeliness	**Target:** Accelerate decarbonization into this decade	**Result:** Average performance period of **less than 6 years**
Market Viability	**Target:** Spur follow-on investment in lower-embodied carbon goods	**Result:** **35+ products** to be produced with lower embodied emissions; multiple with premium offtake agreements in place today
Community Benefits	**Target:** Select projects with the greatest benefit for the greatest number of people	**Result:** **85% of projects** improve air quality; investment will create **tens of thousands of jobs** across the United States

Community Benefits

Selectees described strategies and methods of accountability to ensure:

- Meaningful, two-way community and labor engagement
- Diversity, equity, inclusion, and accessibility
- Benefits to the surrounding community
- Quality jobs and workforce development
- Furthering the Justice40 Initiative

By **prioritizing community benefits**, we can ensure the next chapter in America's energy story is marked by greater justice, equity, security, and resilience.

The Inflation Reduction Act supports this goal by giving priority to projects that provide the **greatest benefit to the greatest number of people in nearby communities**.

Community & Labor Engagement

Diversity, Equity, Inclusion, & Accessibility

Greatest Benefit for the Greatest Number

Investing in the American Workforce

Justice40 Initiative

Community Benefit Commitments - Implementation Requirements per Phase

**CBPs are considered alongside assessments of engineering, procurement, and construction; business development and management; permitting and safety; and technical data and analysis.*

Negotiations Conducted

Go/No-Go Decisions

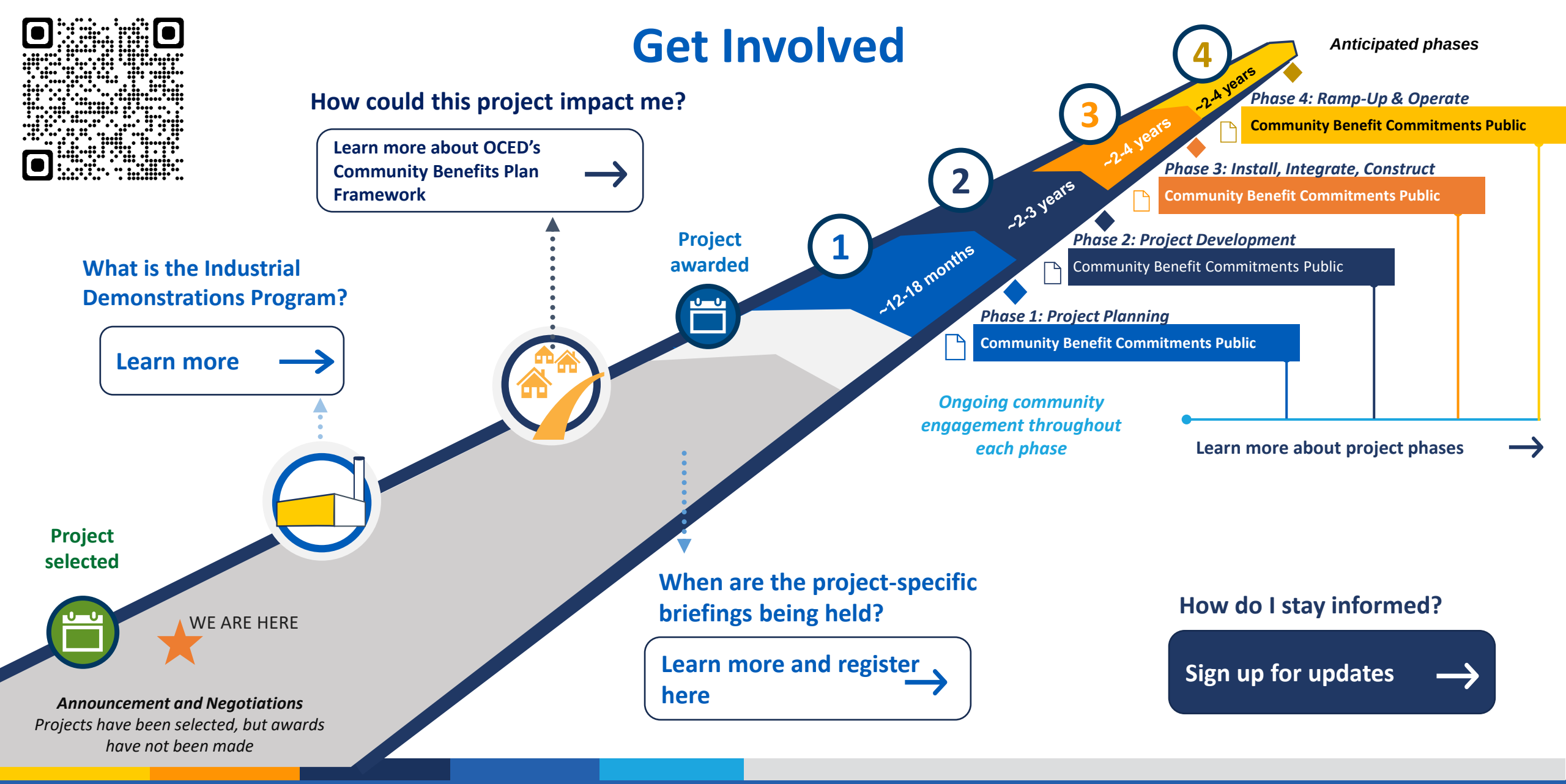
Get Involved

How could this project impact me?

Learn more about OCED's Community Benefits Plan Framework →

What is the Industrial Demonstrations Program?

Learn more →



Announcement and Negotiations
Projects have been selected, but awards have not been made

When are the project-specific briefings being held?

Learn more and register here →

How do I stay informed?

Sign up for updates →

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Community Benefit Commitments Public
Go/No-Go Decisions

Next Steps – Negotiations

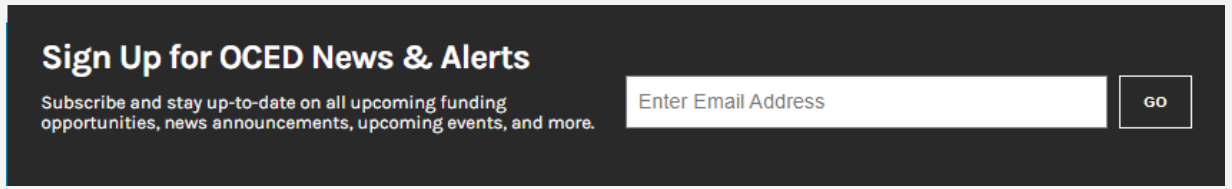
Award Negotiations: OCED will begin the negotiations process with project selectees.

After Award: ***IF the projects receive an award (successful negotiations)***

- Awarded projects will enter into a cooperative agreement with OCED
- Phase 1: Detailed Project Planning begins
  - OCED will work with the awarded project partners starting in Phase 1 to ensure compliance with the National Environmental Policy Act (NEPA)
  - Local communities (state, local and community stakeholders) will have the opportunity for ongoing engagement with OCED and the awardee(s)

For more information

- **For questions regarding IDP projects email engage_industrialdemos@hq.doe.gov**
- **OCED Website & Newsletter Sign-up energy.gov/oced**
  Scroll to bottom to sign up here:



- **OCED Exchange (RFIs, NOIs, and FOAs) oced-exchange.energy.gov**
- **Follow us on LinkedIn linkedin.com/company/doe-oced/**

IDP Resources

Industrial Demonstrations

- Program Page
- Press Release
- Overview of Selected Projects
- Local Engagement Opportunities
- OCED CBP fact sheet

Additional Resources

- NEPA Resources
- Industrial Decarbonization Pathways to Commercial Liftoff Reports
- DOE Industrial Decarbonization Roadmap

Justice40 Resources

- Justice40 Initiative
- Energy Justice Dashboard (BETA)
- Climate and Economic Justice Screening Tool

Projects in the Western Region

Ground Rules for Discussion

- Representatives have 5 minutes each to cover their projects.
- After project overviews, we will answer questions posed in the Q&A feature, moderated by a third-party facilitator.
- Submit questions using the Q&A feature.
  - You can also see and upvote other questions that have been asked.
- Reserve judgement
- One idea at a time
- It is okay to build on the ideas of others
- Clarifying questions are okay

Project Overviews

5:30 – 6:10 pm PT (8:30 – 9:10 pm ET)

- Golden Aluminum, Fort Lupton, CO
- Kohler, Casa Grande, AZ
- Gallo Glass, Modesto, CA
- Owens-Brockway Glass Container, Inc., Tracy, CA
- National Cement Company of California, Inc., Lebec, CA

Nexcast – Next Generation Aluminum Mini Mill

Golden Aluminum, Inc.

Project Overview

Golden Aluminum, Inc.

- The Fort Lupton, CO, facility, established in 1980, was set up to recycle Al-packaging products in a closed-loop system.
- The company continued to enhance its proprietary Mini-Mill technology by engaging with a development partner and expanded its product portfolio to include the industrial and automotive sectors.

Technology Snapshot

- Replace the Fort Lupton Caster unit to demonstrate the capability of the Nexcast Mini-Mill process to decarbonize the US Al-value chain holistically.
- Upgrade equipment, especially those operating at elevated & higher temperatures, to reduce the facility's carbon footprint and enhance efficiency across the processing centers.

Federal Cost Share

Up to $22.3 million

Value and Impacts

- Reduced energy, waste, and water usage over conventional technology is crucial for strengthening Al-manufacturing abilities in the increasingly arid western U.S.
- Help solidify the U.S. as a world leader in decarbonized secondary Al-production.
- Further improve the environmental sustainability of the Fort Lupton operations.
- Produce Al-products for EVs and other clean energy technology applications.

Carbon Emission Reductions

Project Demonstration:
Avoiding >4,600 tons per year equal to ~1,400 cars per year
Exceeding 100,000 tons in a full-scale Greenfield project.

Nexcast – Next Generation Aluminum Mini Mill

Golden Aluminum, Inc.

Community Benefits

- With the aid of the DoE grant, the Fort Lupton facility is set to become a display of cutting-edge manufacturing technology.
- The Nexcast line achieves a 63.9% reduction in carbon intensity compared to the conventional hot rolling process.
- Additionally, the improved material utilization reduces CO2e emissions in the melt-shop and facilitates greater use of regional scrap.
- Create modern onsite training facility including hands on training stations, computer lab and classrooms.
- Train existing Fort Lupton employees on this new technology and upskill workforce.
- Sustain tenured workforce for the long-term in above-market job opportunities.
- Work with local partners to develop workforce training programs available to the whole community.

Image Credit: Golden Aluminum, Inc.

Nexcast – Next Generation Aluminum Mini Mill

Golden Aluminum, Inc.

Contact Information

Project Email

Nexcast@GoldenAluminum.com

Person of Contact

Jeff Frim, President & CEO

Other Method of Contact

800.838.1004

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Image Credit: Golden Aluminum, Inc.

Electric Boiler & Microgrid System

Kohler Co. – Casa Grande, Arizona

Project Overview

Kohler Co. Plumbing Ware Production Facility

- Global leader in kitchen and products design and manufacturing
- Greenfield plant to produce high-volume bathing and showering fixtures
- Plant to open for production mid-year; ceremonial ribbon-cutting – May 14

Technology Snapshot

- Replace natural gas boilers with electric boilers powered by a microgrid
- Microgrid consists of 21MW solar array and 68MWh long duration energy storage, and 12MW HVO-capable KOHLER backup generators
- 4-year project timeline with engineering and construction managed by Clarke Energy

Federal Cost Share

Up to $51.2 million

Value and Impacts

- Power >90% of energy required by electric boilers with renewable energy produced on-site.
- Operational uptime of >99%
- At least 30% reduction of energy related costs
- Minimize impact on local grid

Carbon Emission Reductions

Avoids 7,865 tons per year or over 1,700 cars per year

Electric Boiler & Microgrid System

Kohler Co. – Casa Grande, Arizona

Community Benefits

- Bring more than 400 new full-time jobs to the local market
- Workforce development opportunities (Kohler Talent Academy, LinkedIn Learning, and tuition reimbursements)
- Create work culture where associates can express themselves and “be” their best selves. Associate-led business resource groups help foster more diverse, inclusive workplace. Kohler earned Equality 100 Award in 2023-2024 Corporate Equality Index for work / commitment to DEIA.
- Dedicated to forging private, public, and federal partnerships to help ensure water security for all; partnering with local NGOs, companies, and universities to explore opportunities.
- Continuous local stakeholder engagement through surveys and in-person meetings.
- Reduce stress on local grid through self-generation of power and participation in demand response programs with local utility.
- Improved air quality through reduced ongoing plant GHG emissions and minimize particulate matter during construction

Image Credit: Mortenson Construction

Electric Boiler & Microgrid System

Kohler Co.

Contact Information

Project Email

todd.weber@kohler.com

Person of Contact

Todd Weber, Communications Director – PR, Kohler Co.

Image Credit: Mortenson Construction

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Demonstrating Hybrid Glass Furnace Technology to Support the Decarbonization of the United States Glass Industry

Gallo Glass Company, Modesto, California

Project Overview

Gallo Glass Facility

- Gallo Glass is the largest glass plant in the United States manufacturing up to three million glass bottles per day.
- Family-owned company that has been in business for 65 years.
- Strong commitment to environmental sustainability, serving as an industry leader in sustainable manufacturing.

Technology Snapshot

- Demonstration of a hybrid-glass furnace powered by up to 80% electricity.
- First electric/gas hybrid glass furnace in the nation.
- Equipment is proposed to be in operation by January 2028.

Federal Cost Share

Up to $75 million

Value and Impacts

- A significant reduction of natural gas use in a socioeconomically disadvantaged community.
- Production of low-carbon glass bottles to meet demand from premium wine producers in California.
- Test the viability of hydrogen as a replacement for natural gas.
- Ability to share learnings with broader glass industry through established partnerships.

Carbon Emission Reductions

13,703 MTCO2e in annual GHG emission reductions compared to conventional glass furnaces

Demonstrating Hybrid Glass Furnace Technology to Support the Decarbonization of the United States Glass Industry

Gallo Glass Company, Modesto, California

Community Benefits

- Create skilled jobs in the glass manufacturing facility as well as construction positions.
- 100% of the environmental and societal benefits of this project will flow to a socioeconomically disadvantaged community, ensuring this project is in strong alignment with the Justice40 Initiative.
- Establishment of a CBP Advisory Committee, comprised of key community members and workforce development partners.
- Introduce glass collection program in regional disadvantaged communities, providing onsite glass bin collection and recycling education for participating schools.
- Reinvest the California Redemption Value refunds from this glass collection program in local community development projects.
- Investment to develop and integrate new curriculum; support apprenticeship salary and benefits; and provide training to both new and existing employees.

Image Credit: SORG

Demonstrating Hybrid Glass Furnace Technology to Support the Decarbonization of the United States Glass Industry

Gallo Glass Company, Modesto, California

Contact Information

Project Email

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Person of Contact

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To contact OCED about this project, please email us at
engage_industrialdemos@hq.doe.gov

Image Credit: Gallo Glass

Glass Furnace Decarbonization Technology

O-I Glass, Inc. - Tracy California, Zanesville Ohio, Toano Virginia

Project Overview

O-I Glass, Inc ("O-I")

- One of the world's leading manufacturers of glass containers
- 69 manufacturing plants in 19 countries including 14 in the USA
- Vision to be the most innovative, sustainable, and chosen supplier of brand-building packaging solutions

Technology Snapshot

- Integrating 5 emerging sustainability technologies into each glass furnace
- Utilizing 2 waste heat recovery technologies
- Increasing electrification
- Project timeline 2024 - 2028

Federal Cost Share

Up to $125 Million

Value and Impacts

- Demonstrates O-I's commitment to Sustainability
- Supporting our Customer's Scope 3 Emission Reduction Targets
- Supporting O-I's 2030 GHG Reduction Goal of 25%
- Reducing scope 1 emissions by approximately 40%, on average for rebuilt furnaces

Carbon Emission Reductions

Avoiding up to 48,000 tons per year equal to 11,424 cars per year

Glass Furnace Decarbonization Technology

O-I Glass, Inc. - Tracy California, Zanesville Ohio, Toano Virginia

Community Benefits

- Up to approximately 1200 construction related jobs.
- Will develop a Community Benefits Plan through direct engagement with local communities to address impact and local community needs.
- O-I and its charitable contributions would continue to support the communities through local investments in organizations, including the United Way, that address the communities' social needs, arts and culture, education and career development, and environmental impact related to glass recycling and beyond.
- The sustainability technologies also are expected to reduce NOx air emissions

Image Credit: O-I Glass

Glass Furnace Decarbonization Technology

O-I Glass, Inc. - Tracy California, Zanesville Ohio, Toano Virginia

Contact Information

Project Email

Glass.furnace.decarbonization.project@o-i.com

Contact Person

John Jenkinson, Project Management Office Leader, O-I Glass, Inc.

Image Credit: O-I Glass

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Lebec Net Zero (LNZ) Cement Plant project

National Cement Co. of California, Lebec, Kern County, CA

Project Overview

National Cement Co. of California – Lebec Cement Plant

- State of the art cement plant – modernized with technologies that lower emissions and ensure energy-efficient production
- Serving Southern CA and Central Valley with high quality cement
- 125 employees at the Lebec site (with its affiliates employing over 700 employees in California and over 1,300 in the US)

Technology Snapshot

- Comprehensive stacked approach to reach full carbon neutrality
- Fuel switching (biomass), blended cement (LC3), carbon capture and storage
- Active gradual deployment of emissions reduction technologies until 2030
- Carbon neutrality by 2031

Federal Cost Share

Up to $500 million

Value and Impacts

- First fully decarbonized cement produced and sold in California
- Marketable and economically viable - meeting the expectations of a growing number of customers who wish to use concrete that has the lowest carbon footprint
- Additional benefit of air quality improvement by substantially reducing Nox emissions
- Replicable approach to decarbonize the cement industry in the US

Carbon Emission Reductions

Avoiding close to 1,000,000 tpa equal to 300,000 cars per year

Lebec Net Zero (LNZ) Cement Plant project

National Cement Co. of California, Lebec, Kern County, CA

Community Benefits

- Strategic partnership with Kern Community College District (KCCD) to develop and deploy a comprehensive Community Benefit Plan
- Generate hundreds of construction jobs and 20-25 permanent high-quality jobs.
- 100% of NCC's California workforce is represented by the United SteelWorkers
- Support-the promotion of DEIA initiatives including working with Women In Mining and Advancing Women Executives
- Establish a working relationship with Helmets to Hard Hats to support veterans transitioning out of active duty into the civilian workforce
- Engage with the local Tejon Indian tribe, a major stakeholder within the region
- Fund and offer diverse opportunities, including no fees certifications programs, noncredit courses, paid courses, internships, and job training opportunities Partner with local educational Institution
- Improve air quality for surrounding communities (Nox emissions reduction)
- Substantially comply with Buy America Requirements
- Engage with the business community & find opportunities to support small businesses and local entrepreneurs
- Engage with community organizations to find opportunities to provide resources for the local community
- Work to gain support from local governments and their agencies

Image Credit: National Cement Co. of California

Lebec Net Zero (LNZ) Cement Plant project

National Cement Co. of California, Lebec, Kern County, CA

Contact Information

Project Email

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Person of Contact

Ms. Linda PARKER

Project Website

www.natcem2045.com

To contact OCED about this project, please email us at

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Image Credit: National Cement Co. of California

Question & Answer

6:10 – 6:40 pm PT (9:10 – 9:40 pm ET)

Thank you!

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For more information; please visit energy.gov/OCED