OCED
Office of Clean Energy Demonstrations

THE OFFICE OF
CLEAN ENERGY DEMONSTRATIONS

Industrial Demonstrations Program
Mid-Atlantic and Appalachian Regional Community Briefing

04/16/2024

Office of Clean Energy Demonstrations

U.S. Department of Energy

Webinar Logistics

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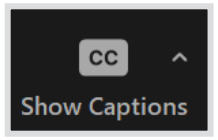

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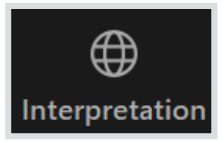

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Is this webinar being recorded?

No, this webinar is not being recorded.

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

Mid-Atlantic and Appalachian Regional Briefing Agenda

- **(6:00-6:30 pm ET) DOE and Industrial Demos Program Overview**

- **(6:40-7:10 pm ET) Project Overview Group 1**
  - Wieland North America Recycling, Shelbyville, KY
  - Diageo Americas Supply, Shelbyville, KY
  - ISP Chemicals, LLC an Ashland Company, Calvert City, KY
  - Century Aluminum Company, Mississippi River Basin
  - Constellium, Ravenswood, WV

- **(7:10-7:25 pm ET) Q&A**

- **Project Overview Group 2 (7:25-8:00 pm ET)**
  - Cleveland-Cliffs Steel Corporation, Lyndora, PA
  - Kraft Heinz, Winchester, VA
  - Roanoke Cement Company, LLC, Troutville, VA
  - Owens-Brockway Glass Container, Inc., Toano, VA
  - Summit Materials, Port Deposit, MD
  - Unilever, Covington, TN

- **(8:00-8:15 pm ET) Q&A**

- **(8:15-8:20 pm ET) 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

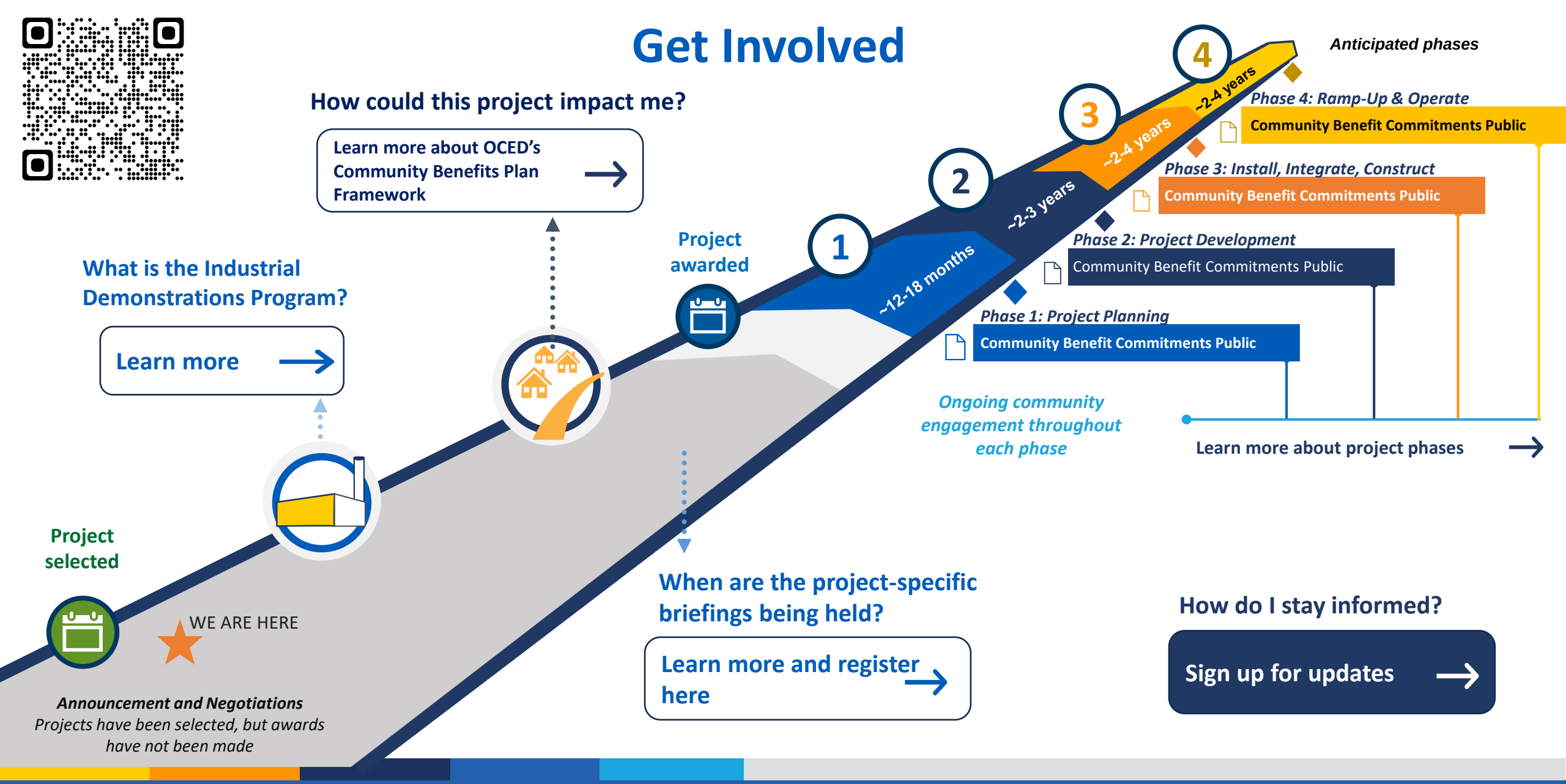
Get Involved

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

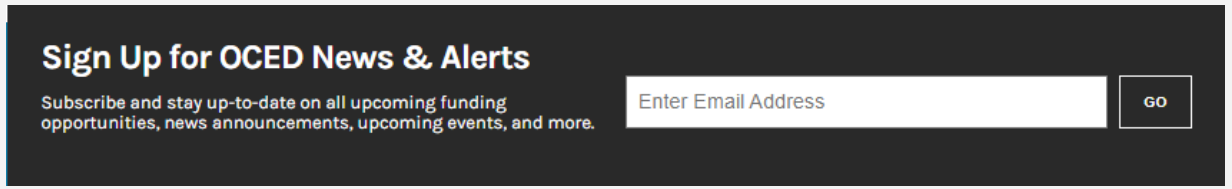
Award Negotiations: OCED will begin the negotiations process with project selectees.

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 Mid-Atlantic and Appalachian Region

Ground Rules for Discussion

- The projects are grouped into one set of five and one set of six so attendees can participate for the projects they are specifically interested in learning about.
- Representatives have 5 minutes each to cover their projects.
- After each set of projects, 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 Set 1

6:40 – 7:10 pm ET

- Wieland North America Recycling, Shelbyville, KY
- Diageo Americas Supply, Shelbyville, KY
- ISP Chemicals, LLC an Ashland Company, Calvert City, KY
- Century Aluminum Company Mississippi River Basin
- Constellium, Ravenswood, WV

Advanced Copper Recycling Facility

Wieland North America Recycling, Shelbyville, KY

Project Overview

Wieland Shelbyville

- Advanced manufacturing technology for recycling of copper and copper alloys
- Supplying lowest carbon footprint feedstock to enable U.S. market growth
- Enable domestic industrial growth: electric vehicles, data centers, semiconductors, and the defense industrial base

Technology Snapshot

- Advanced manufacturing technology for recycling of copper and copper alloys, from sorting through casting (solid and liquid metal processing)
- Conversion of low-grade metal scrap into valuable input for greener products
- Phase 1 launching in 2024

Federal Cost Share

Up to $270 million

Value and Impacts

- Potential creation of up to 200 highly-skilled manufacturing jobs
- Expansion of U.S. recycling capabilities to strengthen domestic supply chain and increases competitiveness, especially vs. China
- Development of innovative technology for minimized carbon emissions solutions addressing the growing e-scrap market
- Utilization of green energy (solar power generation)

Carbon Emission Reductions

Reduces emissions by 75-80% vs. mined copper

Advanced Copper Recycling Facility

Wieland North America Recycling, Shelbyville, KY

Community Benefits

- Significant construction jobs over 5-7 years, plus up to 200 high-quality permanent jobs
- Expansion of renewable energy infrastructure; wastewater treatment
- Partnering with local community colleges and HBCUs to encourage STEM education
- Community Advisory Board & Engagement Meetings
  - Outreach and involvement
  - Workforce development, providing a quality living wage and benefits, educational partnerships
  - Support for local small businesses
  - Targeted employment outreach to disadvantaged communities, minorities, women, and veterans
  - Advanced Manufacturing Industry Tour to drive interest in STEM
  - Apprenticeship / Pre-Apprenticeship Programs
  - Local Classroom Demonstrations with Shelby County Public Schools

Image Credit: Wieland

Advanced Copper Recycling Facility

Wieland North America Recycling, Shelbyville, KY

Contact Information

Project Email

Christy.Kleinhenz@wieland.com

Person of Contact

Christy Kleinhenz (Director, Corporate Communications)

Other Source of Information

www.wieland.com

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

Image Credit: Wieland

Heat batteries for deep decarbonization of the beverage industry

Diageo Americas Supply, Inc.

Project Overview

Diageo Americas Supply, Inc. (Diageo)

- Diageo is a global premium drinks company, with production operations in North America
- Project will be implemented across production sites in Shelbyville, Kentucky (Bulleit Bourbon and Rye Whiskeys) and Plainfield, Illinois (spirits and ready-to-drink cocktails)

Technology Snapshot

- By partnering with Rondo Energy, Diageo will install heat battery technology to electrify production sites in Kentucky and Illinois.
- Rondo Heat batteries will providing low-cost, zero-carbon heat and power, and eliminating reliance on natural gas for boilers used in heating processes.

Federal Cost Share

Up to $75 million

Value and Impacts

- The electric thermal energy storage (ETES) that will be deployed for this project is a new, more cost-effective path to industrial decarbonization that has potential to deliver firm, reliable clean energy for decades. This project will demonstrate an industrial heat and power model system that could be replicated in many other sectors, as well as food and beverage more broadly.
- The project aims to create approximately 144 construction jobs across the two locations.
- Diageo is committed to sharing facility air and water quality monitoring results with the public to inform local communities about reductions in criteria air pollutants as a result of this project.

Carbon Emission Reductions

Eliminate nearly 17,000 metric tons per year, equivalent of taking more than 4,046 gasoline-powered cars off the road a year

Heat batteries for deep decarbonization of the beverage industry

Diageo Americas Supply, Inc.

Community Benefits

- **Community & Labor Engagement:**
  - Hire a Community Benefits Manager to execute and evaluate CBP and be key point of contact for community partners.
  - Use a portfolio of engagement methods (e.g. town halls, focus groups, surveys, multi-lingual) to offer broad and accessible opportunities to get community feedback, inputs on project progress support objectives of two-way engagement.
  - Work to negotiate and design appropriate agreements with local community partners.
- **Support Quality Jobs:**
  - Estimate creating approximately 144 full-time equivalent jobs across the two sites in Kentucky and Illinois during construction and continue to work in good faith with represented workforce.
  - Support local and regional workforce development, investing in training, job readiness and sector-specific skilling, to support a diverse talent pipeline for growth in food and beverage sector.
- **Advance Diversity, Equity, Inclusion & Access:**
  - Explore with local partners how to develop a supplier technical assistance and capacity building program to improve diverse supplier base.
  - Invest in accessibility resources and infrastructure in regional parks.
- **Environmental Benefit for the Greatest Number:**
  - Support conservation and restoration efforts of local forests and critical landscapes to enhance biodiversity aligned with equity and access principles.
  - Invest in community recycling and explore reduction of hauling emissions.

Diageo production facility in Plainfield, Illinois
Image Credit: Diageo

Heat batteries for deep decarbonization of the beverage industry

Diageo Americas Supply, Inc.

Contact Information

Project Email

community.engagement@diageo.com

Person of Contact

Andrew Jarrick, Director, Environmental Sustainability, Diageo North America

Diageo production facility in Plainfield, Illinois
Image Credit: Diageo

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

decarbonizing process heat with the Joule Hive™ thermal battery

Ashland Inc., Calvert City, Kentucky

Project Overview

ISP Chemicals LLC, An Ashland Company

- Specialty additives and ingredients manufacturing in Calvert City, KY
- Additives used in pharmaceuticals, personal care products, industrial commodities
- Largest manufacturing facility with Ashland (total number of employees, energy footprint)

Technology Snapshot

- Upgrading natural gas boiler to utilize electrified thermal storage
- Electrification with added benefit of off-peak charging and heat storage
- Scalable technology uses “E-bricks” to directly convert electricity to heat and store it within the bricks

Federal Cost Share

$35,180,000

Value and Impacts

- Decreased scope 1 emissions through electrification
- Off peak charging avoids grid stress
- Long term utility decarbonization efforts to bring scope 2 emissions to 0
- Scalable solution for industrial decarbonization projects

Carbon Emission Reductions

- Eliminates estimated 52,753 tpy CO_2 emissions, 32.6 tpy NOx emissions

decarbonizing process heat with the Joule Hive™ thermal battery

Ashland Inc., Calvert City, Kentucky

Community Benefits

Increased Contracting for MBEs/DBEs

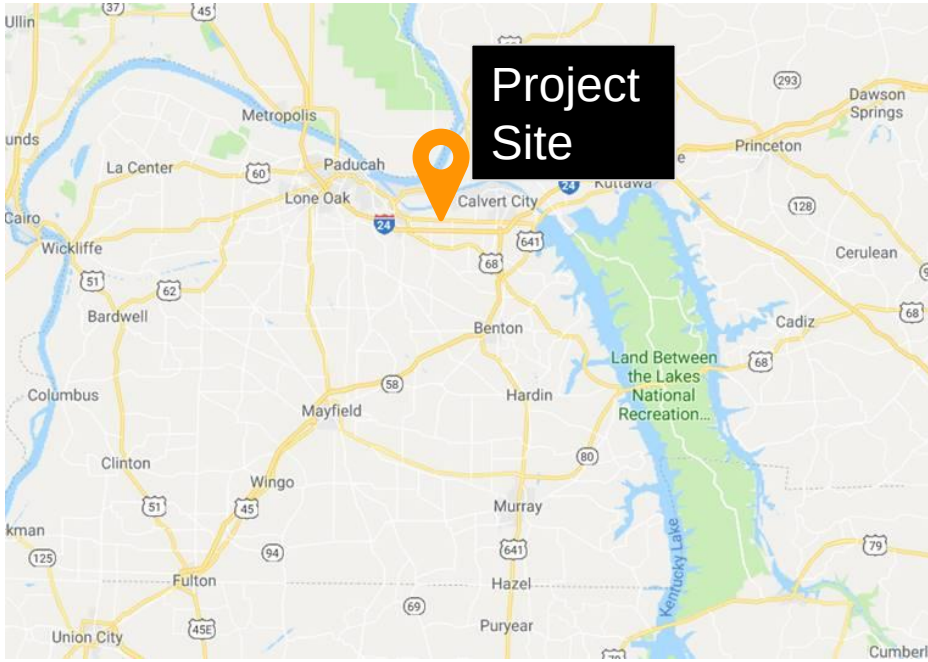
- Targeting 40% of total subcontracting dollars to MBEs/DBEs
- TVA's national top 10 Diversity Impact Award winning practices will be mentored into the full team

Increased Quality Jobs

- New jobs in the local DACs through supply chains
- Strong IAMAW union partnership upskills existing workers
- 10 yearly trades apprentices trained by regional community college
- 5 graduate students trained in design by TSU and UK

Regional STEM education efforts

- Outreach through Discovery Education targeting STEM content to over 1,000 kids in Paducah and throughout the most underserved areas in the Tennessee Valley
- New content will be created around the clean energy transition and industrial decarbonization



Calvert City and nearby Paducah are disadvantaged communities per DOE Dashboard

decarbonizing process heat with the Joule Hive™ thermal battery

Ashland Inc., Calvert City, Kentucky

Contact Information

Project Questions

ccbrown@ashland.com

Person of Contact

Carolmarie C. Brown
Vice President Corporate Affairs, Global Marketing,
Brand and Business Communications

500 Hercules Road
Wilmington, DE 19808

www.Ashland.com

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Green Aluminum Smelter

Ohio/Mississippi River Basins

Project Overview

Greenfield Primary Aluminum Smelter

- Century Aluminum is vertically integrated from bauxite mining to aluminum production
  - Operates three smelters in the U.S. and one in Iceland
  - Owns a controlling interest in a bauxite mine and refinery in Jamaica
- Century is the largest primary producer of aluminum in the U.S.
- This project creates the first new U.S. aluminum smelter in 45 years
  - The facility will double the size of the U.S. primary aluminum industry

Technology Snapshot

- Large scale, modern and efficient smelter primarily powered by carbon-free energy
- State-of-the-art energy efficient design
- Multi-phase planning/construction process; 3-5 year construction period

Federal Cost Share

Up to $500 million

Value and Impacts

- Strengthens domestic supply chains for materials critical for green energy transition
  - Electric vehicles
  - Renewable energy production and storage
  - Building and construction
  - Sustainable packaging
- Protects national security interests

Carbon Emission Reductions

Avoid 75% of emissions vs. world average smelter

Green Aluminum Smelter

Community Benefits

- **Economic impact**
  - 5,500 construction jobs
  - 1,000 permanent jobs represented by the United Steelworkers
  - Expected salary and benefits package to exceed $100,000 annually

- **Community impact**
  - Collaborate with job training organizations and local technical colleges
  - Recruit / train employees from local smelter community/region
  - Create programs to encourage minority / female workforce participation
  - Facilitate employment for workers displaced through energy transition

- **Emissions impact:** ~75% reduction compared to the world average

Image Credit: Century Aluminum

Green Aluminum Smelter

Contact Information

Project Email

greensmelter@centuryaluminum.com

Persons of Contact

Ryan Crawford, Head of Investor Relations

Image Credit: Century Aluminum

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Low Carbon SmartMelt Furnace Conversion

Constellium, Ravenswood, West Virginia

Project Overview

Constellium Ravenswood

- Constellium is a global industry leader in the **production and recycling of aluminum products**, with 12,000 employees worldwide and ~$8bn in revenue
- Constellium Ravenswood facility, employing over 1,100 employees, is one of the **world's largest rolled products facilities**, and one of the two largest U.S. aluminum facilities serving the **aerospace** and **defense** industries.

Technology Snapshot

- Replace 3 legacy cast centers with 2 new cast centers utilizing **SmartMelt technology,** a single remelt system capable of operating across a range of low-NOx reduced-CO2 emission natural gas to carbon-free hydrogen as fuel
- First cast center to ramp-up in **2026**, second cast center to ramp-up in **2028**

Federal Cost Share

Up to $75 million

Value and Impacts

- Improve **workers' safety** with hands-free casting technology
- Maximize **equipment efficiency** and increase **recycled input**, leading to additional GHG reduction
- Demonstrate technology that can be **replicated** to other aluminum facilities
- Establish early industrial off-take opportunity for **regional clean hydrogen economy**

Carbon Emission Reductions

Initial reduction of 30% (and initial energy intensity reduction of 50%), on a pathway to 100% decarbonization with the introduction of clean hydrogen

Low Carbon SmartMelt Furnace Conversion

Constellium, Ravenswood, West Virginia

Community Benefits

The Community Benefit Plan will provide new opportunities for our employees and the community in an economically disadvantaged region.

Initiatives include:

- A new Community Benefits Building for employees and their families including:
  - An **onsite childcare facility** for working parent employees, with capacity of up to 80 children
  - A dedicated **onsite training facility**
  - **A Wellness center**
- Expand existing educational programs, focusing in priority on under-represented and low-income groups
  - Skilled Trades Scholarship program with WVU-Parkersburg
  - Local STEM Programs

Labor and community representatives will be engaged in regular collaborative meetings. A dedicated dashboard will be developed and shared with labor representatives, community leaders, and educators.

Low Carbon SmartMelt Furnace Conversion

Constellium, Ravenswood, West Virginia

Contact Information

Project Email

engage.ravenswood@constellium.com

Person of Contact

Adam Caswell, Engineering Manager

Other Method of Contact

Facebook: @Constellium
Instagram: @Constellium
X(twitter): @Constellium
LinkedIn: @Constellium

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Question & Answer Set 1

7:10-7:25 ET

Project Set 2

7:25-8:00 pm ET

- Cleveland-Cliffs Steel Corporation, Lyndora, PA
- Kraft Heinz, Winchester, VA
- Roanoke Cement Company, LLC, Troutville, VA
- Owens-Brockway Glass Container, Inc., Toano, VA
- Summit Materials, Port Deposit, MD
- Unilever, Covington, TN

BUTLER WORKS STEEL SLAB ELECTRIC REHEAT FURNACES

Cleveland-Cliffs, Butler, Pennsylvania

Project Overview: Replace Natural Gas Slab Heating with Electrical Induction Heating

Cleveland-Cliffs Butler Works Steel Mill

- Electric Arc Furnace based specialty steel production facility
- 1,100 union workers represented by UAW Local 3303, 200 salary workers, and numerous union trades people
- Only American supplier of Grain Oriented Electrical Steel (GOES) used to manufacture electrical power and distribution transformers

Technology Snapshot

- Replace two natural gas fired high temperature steel slab reheating furnaces with four electrical induction reheating furnaces
- 100% reduction in GHG scope 1 emissions for the high temperature reheat furnaces; 74% reduction in energy consumption
- Hot commissioning target Q2 2027 / Expect project complete Q2 2028

Federal Cost Share

$75 million

Value and Impacts

- Enable a 12.5% increase in GOES shipments by improving slab quality
- Provide data and experience needed to evaluate electric slab reheating at hot rolling mills across Cleveland-Cliffs' footprint and other steelmaking facilities
- Investment in domestic source of highly efficient electrical steel needed to maintain and upgrade electrical grid

Carbon Emission Reductions

Eliminate 100% of the Scope 1 CO_2e emissions associated with the high temperature slab reheat furnaces

BUTLER WORKS STEEL SLAB ELECTRIC REHEAT FURNACES

Cleveland-Cliffs, Butler, Pennsylvania

Community Benefits

- Secure the viability of Butler Works steelmaking facility in Butler, PA and Zanesville Works finishing facility in Zanesville, OH, which collectively employ 1,470 individuals (1,240 hourly workers represented by the UAW)
- Employ an estimated 220 trade union craftspeople during peak construction
- Cliffs will keep community members apprised of project development via dedicated project website that will communicate stakeholder engagement opportunities
- Cliffs will proactively initiate discussions with community stakeholders regarding a Community Benefits Agreement
- Cliffs will solicit input on community initiatives that can be supported through a dedicated Cleveland-Cliffs Butler Fund
- Cliffs will work with UAW Local 3303 and local educational institutions to ensure training opportunities for the operation and maintenance of the new technology, as well as other skills needed at Butler Works
- Reduced environmental impact of high temperature slab reheat furnaces:
  - Eliminate scope 1 CO_2e emissions
  - Estimated 74% reduction in energy consumption

Contact Information

Project Email

Cleveland-Cliffs_Projects@iprglobal.net

Person of Contact

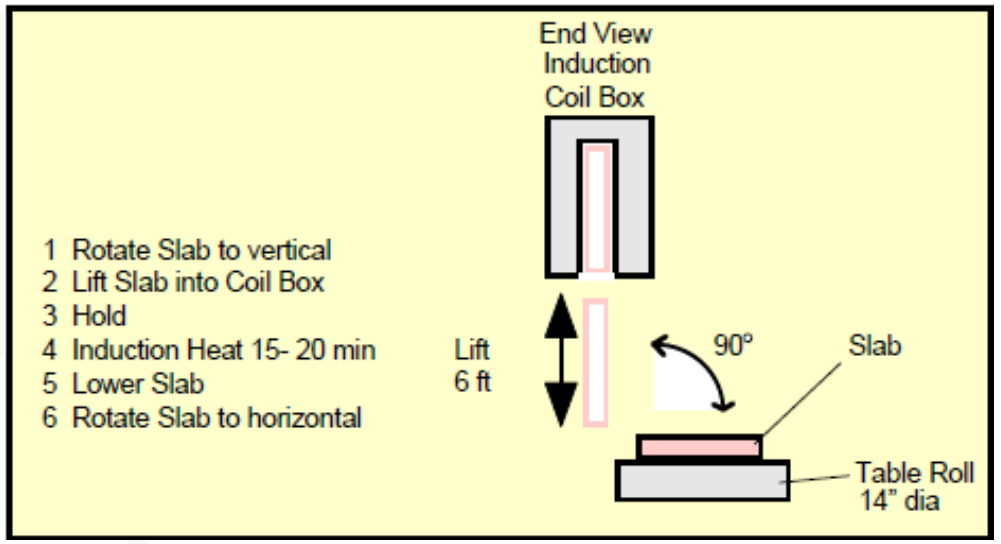
Martin Mulhall, Sr. Director – Engineering
Cleveland-Cliffs Steel Corporation

Project Website

https://airtable.com/apppH7ps234IxSSOM/pag8cDteWqPIpGUd8/form

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov



Delicious Decarbonization: Integrated Electrification for KH Plants in the U.S.

The Kraft Heinz Company

Winchester, VA

- Kraft Heinz is one of the largest Food and Beverage companies in the world with an unparalleled portfolio of iconic and new brands
- **2021: Commitment to achieve Net Zero by 2050, 2021** KH was named 'Industry Mover' by S&P Global Sustainability Yearbook
- Site built in **1990**, Home to ready to drink (RTD) **Capri Sun**, **Kool Aid** and **MiO** brands
- 12% of GHG emissions on our Net Zero DOE project which encompasses 10 sites

Technology Snapshot

- Completely move away from generating hot water via natural gas produced steam
  - Natural gas currently accounts about 63% of total energy use
- Heat Pumps and Heat Exchangers will be used to recover waste heat from compressors, packaging equipment, chillers
- Incorporate onsite solar thermal and solar PV technology
- Transition all procured electricity to 100% renewable sources
- KH cost share for Winchester project: 26.2 MM; For the 10 U.S. site program: 180MM
- 2024/2025: Eng. feasibility studies & project dev. Construction 2026-2029, Operational: 2029

Federal Cost Share

~ $25.2 MM

Value and Impacts

- BL year 2022 emissions: **33,179 MT CO2e**, will be reduced by 100%
- Decarbonization design/approach can be replicated at our other two RTD plants (43,260 annual MT CO2e emissions:) ; Findings will be shared with broader RTD industry to inform net zero strategies in that sector

Carbon Emission Reductions

~100% of CO2e emissions will be reduced (33,179 MT CO2e)

Delicious Decarbonization: Integrated Electrification for KH Plants in the U.S.

Community Benefits – this project will allow us to:

The Kraft Heinz Company

- Generate **82 construction jobs and 1-2 permanent jobs**, while also enhancing workforce development and training centers.
- Create a **Community Engagement Steering Committee** at the Winchester Plant to solicit and act on feedback from community stakeholders and plant employees regarding any concerns about the project.
- Invest in and continue to support the promotion of **DEIA initiatives** for hiring and services through inclusive candidacy and job types.
- Compliment **local ESG goals**:
  - **City of Winchester Environmental Sustainability Taskforce** encourages collaboration among various entities in the Shenandoah Valley to preserve the environment
  - **Rappahannock Electric Cooperative**: (State-wide goal) Achieve 100% zero-carbon energy generation by 2050
- Expand and enhance **existing community partnerships**:

	Frederick County Chamber of Commerce; strong ambition by new plant leadership to build out community outreach
	Full Circle Marketing partnership for local businesses; participation in Apple Blossom Festival;
	Laurel Ridge Technical College: strong ambition by new plant leadership to build out additional relationships and internship programs with local technical colleges and high schools

Delicious Decarbonization: Integrated Electrification for KH Plants in the U.S.

Contact Information

The Kraft Heinz Company

Project Email

Julio.Quintana@KraftHeinz.com

Person of Contact

Julio Quintana-Castillo

Other Method of Contact

Media@KraftHeinz.com (Press contact Information)

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

First-of-a-Kind Calcined Clay Cement Production

Roanoke Cement Company LLC, Troutville, Virginia

PROJECT OVERVIEW

Roanoke Cement Plant

- *We have provided building materials and jobs to the community since ca.1953.*
- *We are building on our Energy Star and TRUE Zero Waste expertise to create low-carbon cement with higher performance and durability.*

Technology Snapshot

- *Manufacture calcined clay as a new component for lower carbon cement for typical construction applications.*
- *Proposed construction start is 2025, and startup of the operation is expected by 2028.*

Federal Cost Share

Up to $61.7 million

Value and Impacts

- *Achieve market adoption of Limestone Calcined Clay Cement (LC3) products through the cement and concrete value chain across greater mid-Atlantic region.*
- *By validating this new manufacturing process, the industry can achieve wide adoption across the country to provide lower carbon cement products.*

Carbon Emission Reductions

Target reduction of CO2 intensity above 75%

ROANOKECEMENT™
A TITAN AMERICA BUSINESS

First-of-a-Kind Calcined Clay Cement Production

Roanoke Cement Company LLC, Troutville, Virginia

COMMUNITY BENEFITS

- Expect to generate 115 construction jobs and 25 permanent jobs.
- This project will build on RCC's successful, strong, existing community engagement.
- A Community Advisory Panel (CAP) will work with local subgroups to ensure community concerns and priorities are heard and addressed.
- Advance knowledge on low-carbon cement and foster equitable workforce development with a Training and Education Consortium (TEC).
- Leverage our DEIA initiatives for recruiting and services through inclusive candidacy and job types.
- The project impact is expected to extend community benefits to areas where the cement is produced as well as where it will be used.
- Overlay our Energy Star and other programs throughout the project for positive environmental local impacts to the greatest number of people.

ROANOKECEMENT™
A TITAN AMERICA BUSINESS

First-of-a-Kind Calcined Clay Cement Production

Roanoke Cement Company LLC, Troutville, Virginia

CONTACT INFORMATION

Project Email

Info@titanamerica.com

Person of Contact

Jennifer Aylor, Marketing & Corporate Communications Manager

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

ROANOKECEMENT™
A TITAN AMERICA BUSINESS

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

Low-Carbon Calcined Clay Cement Demonstration

Selectee:
Summit Materials, Inc.

Location:
Port Deposit, Maryland; McIntyre, Georgia; Elmendorf, Texas; Sulphur Springs, Texas

Federal Cost Share:
Up to $215.6 million

Image credit: Summit Materials

Proposed Activities:

- Will assess the construction of four new calcination facilities to demonstrate the viability of displacing high-emitting, limestone-based cement with a clay-based product
- Use the project's range of sites to showcase this demonstration's replicability with diverse clay sources and cementitious products around the country
- Reduce approximately 1 million metric tons of carbon emissions per year
- Create over 4,000 direct, indirect, and induced jobs across the four sites during the project lifetime
- Negotiate Community Workforce Agreement or Project Labor Agreement for the construction phases at each site
- Provide tailored local workforce training investments

Decarbonization of Unilever Ice Cream Manufacturing

Unilever, Covington TN; Sikeston MO; St. Albans VT; Waterbury, VT

Project Overview

Ice Cream Manufacturing

- With over 100 years of experience in delivering smiles, we plan to continue this for many more years to come, with our people and planet first.
- We make some of the most loved ice cream brands in the country including Ben & Jerry's, Breyers, Talenti, Magnum, Klondike, Good Humor, Popsicle and Yasso.

Technology Snapshot

- Replacing a natural gas boiler with electric boilers and industrial heat pumps using waste heat recovery across the 4 sites.
- Implement in a phased approach across the next 5 yrs

Federal Cost Share

Up to $20.9 million

Value and Impacts

- Create 240-300 construction jobs
- Pilot application of heat pumps in an industrial application across different geographies and loading requirements.
- Reduce emissions and create training and upskilling opportunities

Carbon Emission Reductions

Reduce emissions by more than 14,000 metric tons per year, with a pathway to address 100% of heat related emissions

Decarbonization of Unilever Ice Cream Manufacturing

Unilever, Covington TN; Sikeston MO; St. Albans VT; Waterbury, VT

Community Benefits

- Create 240-300 construction jobs and retain ~2200 permanent jobs including transitioning some existing jobs to clean energy jobs.
- Continue serving each site's local community through previous partnerships, such as Milk with Dignity (VT) and the Tipton County Manufacturing Council (TN)
- Develop and deliver training program with employees and OEMs while leveraging existing partnerships with local technical schools.
- Community engagement through local townhalls / community centers while leveraging partnerships with community leaders.
- Prioritize local small businesses/ minority owned/ women owned through bid processes
- Reduce air emissions such as particulate matter

Decarbonization of Unilever Ice Cream Manufacturing

Unilever, Covington TN; Sikeston MO; St. Albans VT; Waterbury, VT

Contact Information

Project Email

MediaRelations.USA@unilever.com.

Point of Contact

Mike Gilbert
Aarushi Chopra

To contact OCED about this project, please email us at

engage_industrialdemos@hq.doe.gov

Question & Answer Set 2

8:00-8:15 ET

Thank you!

OCED

Office of Clean Energy Demonstrations

For more information; please visit energy.gov/OCED