



**OCED**  
Office of Clean Energy Demonstrations

# THE OFFICE OF CLEAN ENERGY DEMONSTRATIONS



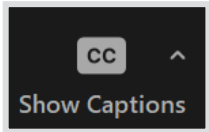
## Industrial Demonstrations Program Northeastern Regional Community Briefing

04/23/2024

Office of Clean Energy Demonstrations  
U.S. Department of Energy

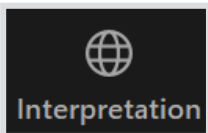
# Webinar Logistics

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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.

# Northeastern Regional Briefing Agenda

- **(6:00 – 6:30 pm ET) DOE and Industrial Demos Program Overview**
- **(6:30 – 7:00 pm ET) Project Overview**
  - Kraft Heinz, Lowville, NY
  - Unilever, Albans, VT; Waterbury, VT
  - Sublime Systems, Inc., Holyoke, MA
  - Skyven Technologies, TBD
- **(7:00-7:30 pm ET) Q&A**
- **(7:30 – 7:35 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 CO<sub>2</sub>e 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**

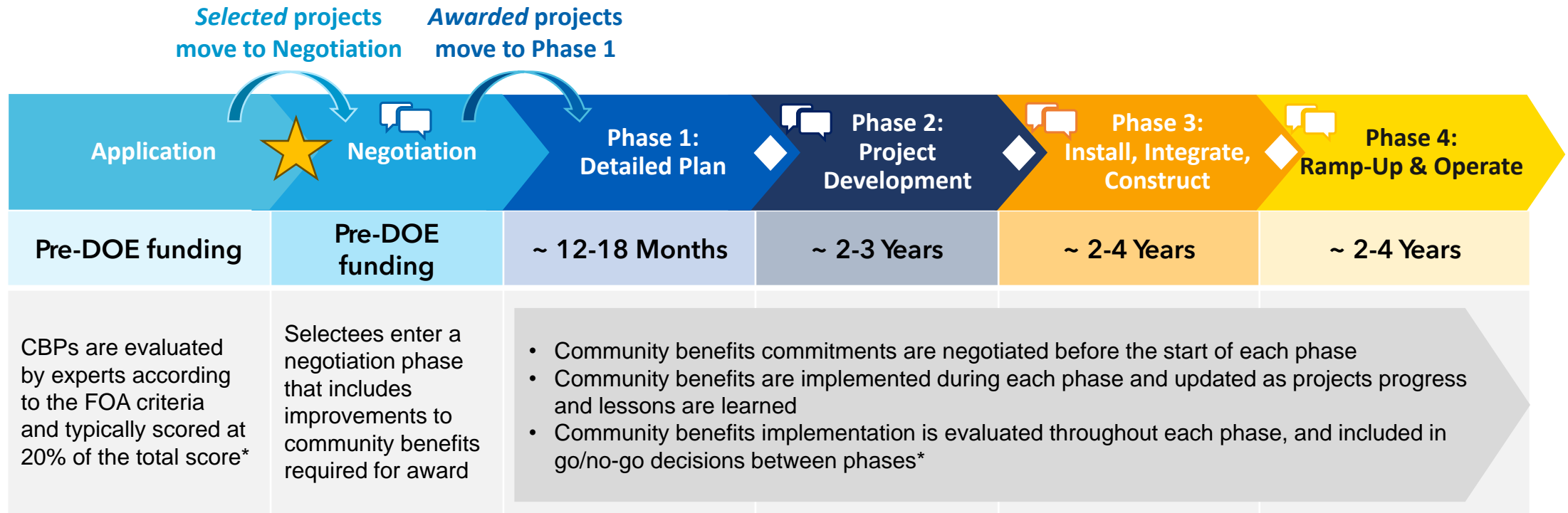


**Justice40 Initiative**







# 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 →

Project selected

WE ARE HERE

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

Project awarded

1  
~12-18 months

When are the project-specific briefings being held?

Learn more and register here →

Ongoing community engagement throughout each phase

Phase 1: Project Planning

Community Benefit Commitments Public

Phase 2: Project Development

Community Benefit Commitments Public

Phase 3: Install, Integrate, Construct  
Community Benefit Commitments Public

Phase 4: Ramp-Up & Operate

Community Benefit Commitments Public

Anticipated phases

4  
~2-4 years

3  
~2-4 years

2  
~2-3 years

Learn more about project phases →

How do I stay informed?

Sign up for updates →



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Office of Clean Energy Demonstrations



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](mailto:engage_industrialdemos@hq.doe.gov)

- OCED Website & Newsletter Sign-up [energy.gov/oced](https://energy.gov/oced)

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# IDP Resources

## Industrial Demonstrations

- [Program Page](#)
- [Press Release](#)
- [Overview of Selected Projects](#)
- [Local Engagement Opportunities](#)
- [OCED CBP fact sheet](#)

## Justice40 Resources

- [Justice40 Initiative](#)
- [Energy Justice Dashboard \(BETA\)](#)
- [Climate and Economic Justice Screening Tool](#)

## Additional Resources

- [NEPA Resources](#)
- [Industrial Decarbonization Pathways to Commercial Liftoff Reports](#)
- [DOE Industrial Decarbonization Roadmap](#)



# Projects in the Northeastern 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



6:30 – 7:00 pm ET

- Kraft Heinz, Lowville, NY
- Unilever, Albans, VT; Waterbury, VT
- Sublime Systems, Inc., Holyoke, MA
- Skyven Technologies, TBD



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




The Kraft Heinz Company

## Lowville, NY

- 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 1970**. Home to **Philadelphia Cream Cheese Brand**, Mozzarella String Cheese also produced on site
- US Net Zero DOE project (10 sites) accounts for over **40%** of GHGs for NA Manufacturing

## Technology Snapshot


- Move away from generating hot water via natural gas produced steam
- Heat pumps and heat exchangers will be used to recover waste heat from air & ammonia compressors and chillers
- Transition natural gas assets to electric units (boilers)
- Any culinary grade steam will be generated via electric boilers
- Transition all procured electricity to 100% renewable sources
- **KH cost share: 22.4 MM; KH share for the 10 DOE program sites : 180MM**
- 2024/2025: Eng. feasibility studies & project dev. Construction 2026-2029, Operational: 2029



**Federal Cost Share**  
~ \$21.5 MM

## Value and Impacts

- BL year 2022 emissions: ~**22,580 MT CO2e**, will be reduced by **close to 100%**
- Decarbonization design/approach can be replicated at our other KH cream cheese plant
- Findings will be shared with broader F&B industry to inform net zero strategies in that sector



**Carbon Emission Reductions**  
~**100%** of CO2e emissions will be reduced (**22,580 MT CO2e**)

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

Community Benefits – this project will allow us to:

- Generate **65 construction jobs and 1-2 permanent jobs**, while also enhancing workforce development and training centers.
- Create a **Community Engagement Steering Committee** at the Lowville 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**:
  - Lewis County aims to reduce GHG emissions and transition toward clean renewable energy
  - Lewis County aims to source local workforce, particularly local Veteran population at Fort Drum, for skilled positions and to support trainings/internships that lead to full-time positions
- Expand and enhance **existing community partnerships**:



	Lewis County Chamber of Commerce board member; Naturally Lewis Commission, a business development group working to improve the economy and livability; Department of Public Works; coordination with EPA for distribution of waste on local farms
	Lewis County Coop partnership for sourcing milk from local farmers; internship program with Fort Drum (US Army Base) to provide opportunity for veterans; Lewis County Health System
	Lewis County Board of Cooperative Educational Services (BOCES) partnership for skilled positions; Jefferson County Community College to utilize classrooms for employee training



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

Contact Information

**KraftHeinz**  
The Kraft Heinz Company

## Project Email

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## Person of Contact

Julio Quintana-Castillo

## [Other Method of Contact]

[Media@KraftHeinz.com](mailto:Media@KraftHeinz.com) (Press contact Information)

**To contact OCED about this project, please email us at**  
[engage\\_industrialdemos@hq.doe.gov](mailto:engage_industrialdemos@hq.doe.gov)

LET'S MAKE  
LIFE

**Delicious**  
KraftHeinz



# Decarbonization of Unilever Ice Cream Manufacturing

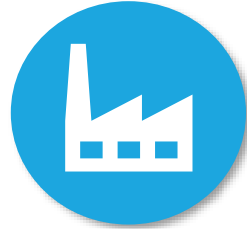
Unilever, Covington TN; Sikeston MO; St. Albans VT; Waterbury, VT

## 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

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### Point of Contact

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Aarushi Chopra

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[engage\\_industrialdemos@hq.doe.gov](mailto:engage_industrialdemos@hq.doe.gov)





# First Commercial Electrochemical Cement Manufacturing

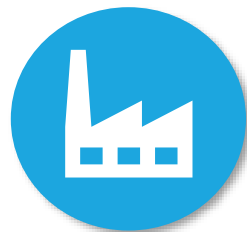
Sublime Systems; Holyoke, Mass.

## Project Overview



### First Commercial Electrochemical Cement Manufacturing Plant

- Sublime's fully electrified, true-zero cement manufacturing avoids both the fossil-fueled kilns and limestone feedstock that drive traditional cement's massive CO<sub>2</sub> footprint, while producing an industry-accepted cement
- The first commercial plant in Holyoke, Mass. will retire scale-up risks to enable broad market adoption of Sublime Cement™



### Technology Snapshot

- This facility is planned to electrochemically produce 30,000TPY of Sublime Cement™, a drop-in replacement for carbon-intensive OPC in concrete
- The plant is built as a module of Sublime's megaton facility, the size of a typical US OPC plant
- Construction is expected to begin in early 2025 for plant commissioning in 2026



#### Federal Cost Share

*Up to \$86.9 million*



### Value and Impacts

- Sublime's carbon-avoidance approach ultimately represents the most cost-efficient way to mitigate CO<sub>2</sub> emissions from cement making
- More than 50% of the capacity from the first three years of production is already reserved, demonstrating an eager customer base for this critical low-carbon building material
- De-risking scale-up will enable broad industry transformation, enhanced domestic low-carbon supply chains, and validated manufacturing technology that can address cement emissions around the globe



#### Carbon Emission Reductions

*Emissions avoided are equivalent to 4,300 vehicle emissions annually*



# First Commercial Electrochemical Cement Manufacturing

Sublime Systems; Holyoke, Mass.

## Community Benefits



- We are adding **hundreds** of construction jobs and **70-90** permanent manufacturing in this former paper manufacturing hub



- Our strategic partnership with USW supports future plant employees' right to **unionize** while training the needed workforce



- We are partnering with the Smithsonian on **STEM programming** to support **public educational goals** of the surrounding Pioneer Valley community (incl. Holyoke, Chicopee, Springfield)



Icon courtesy of flaticon.com

- Our electrochemical manufacturing **avoids** the **harmful fossil-fuel pollutants** from traditional cement kilns, thus bringing strong manufacturing **job growth** to the region with the smallest possible **environmental health impact**



*Image Credit: Sublime Systems  
(Holyoke site; smokestack will be demolished before construction)*







# First Commercial Electrochemical Cement Manufacturing

Sublime Systems; Holyoke, Mass.

Contact Information

## Project Email

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## Person of Contact

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## Website

[Sublime-systems.com](http://Sublime-systems.com)

**To contact OCED about this project, please email us at [engage\\_industrialdemos@hq.doe.gov](mailto:engage_industrialdemos@hq.doe.gov)**



Image Credit: Sublime Systems



# STEAM-GENERATING HEAT PUMPS FOR CROSS-SECTOR DEEP DECARBONIZATION

Skyven Technologies, Inc. / Buffalo, NY and others

## Project Overview



### About Skyven

- Skyven is an Energy-as-a-Service company pioneering our Skyven Arcturus steam-generating heat pump (SGHP) technology at manufacturing facilities across the US



### Technology Snapshot

- Electrifies steam production to reduce dependency on natural gas boilers
- Generates boiler-quality steam at temperatures up to 420°F
- Multi-site portfolio designed to maximize environmental and community benefits
- Projects kick off in 2024 and will be operational and reducing emissions by 2028



#### Federal Cost Share

*Up to \$145 million*



### Value and Impacts

- **Cross-cutting:** Portfolio contains large steam users in chemicals, pulp and paper, and food and beverage
- **Financially attractive:** High efficiency enables production of steam at lower costs than natural gas
- **Ready for market liftoff:** Commitments from manufacturers representing over \$1 billion in potential projects



#### Carbon Emission Reductions

*Avoiding 400,000 metric tons per year, equal to emissions from 95,000 cars*



# STEAM-GENERATING HEAT PUMPS FOR CROSS-SECTOR DEEP DECARBONIZATION

Skyven Technologies, Inc. / Buffalo, NY and others

## Community Benefits

- **Improves air quality:** Reduces emissions of health-harming pollutants like SO<sub>x</sub>, NO<sub>x</sub>, CO, particulate matter, and volatile organic compounds
- **Develops workforce:** Creates more than 500 good-paying jobs across the US to develop a diverse and skilled workforce for industrial heat pumps
- **Engages key stakeholders:** Promotes two-way engagement through town halls, online surveys, and Community and Labor Agreements
- **Promotes DEIA:** Incorporates DEIA into all hiring and recruitment practices, including selection of local contractors
- **Provides greatest benefit:** Impacts more than 330,000 community members living within a 3-mile radius of project sites
- **Educates communities:** Transfers knowledge through publication of case studies, lessons learned documentation, and emissions reduction reports



Image Credit: Skyven Technologies





# STEAM-GENERATING HEAT PUMPS FOR CROSS-SECTOR DEEP DECARBONIZATION

Skyven Technologies, Inc.

## Contact Information

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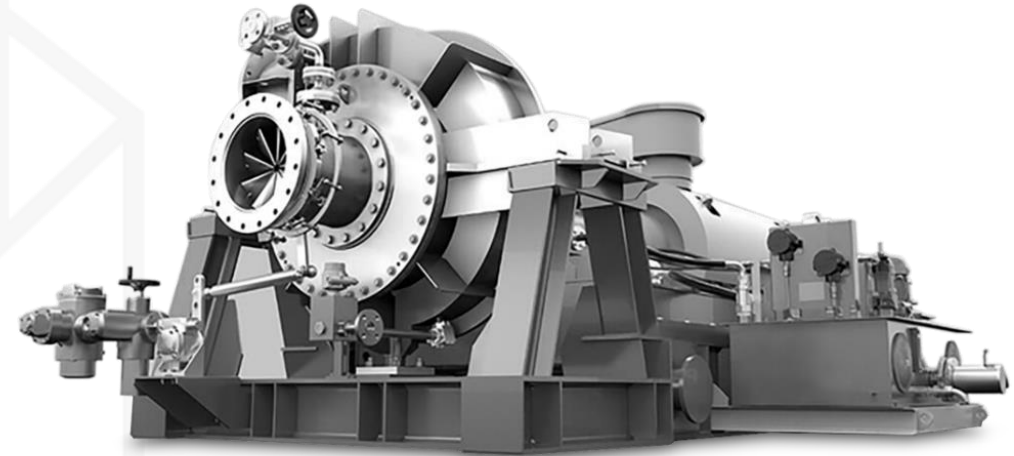
### Project Contact

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### Press and Marketing Inquiries

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*To contact OCED about this project, please email us at  
[engage\\_industrialdemos@hq.doe.gov](mailto:engage_industrialdemos@hq.doe.gov)*



*Image Credit: Skyven Technologies*



# Question & Answer

7:00 – 7:30 pm ET

# Thank you!



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