For Immediate Release

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California Utilities Explore Smart Controls for Controlled Environment Agriculture

CalNEXT selects study on energy savings in greenhouses and indoor farms

SAN FRANCISCO, CALIFORNIA, March 8, 2024 – CalNEXT, a statewide initiative to identify, test, and grow electric technologies and delivery methods to support California's decarbonized future, has selected Energy Resources Integration (ERI) to study the benefits of integrated lighting, HVAC, and irrigation control systems for greenhouses and indoor farms. The study will produce a technology roadmap for California's electric utilities. ERI's "Smart Controls for Data-Driven Indoor Agriculture Field Evaluation" will identify new rebate programs for utilities to support growers with smart environmental controls. The project focuses on automated, integrated, and intelligent environmental control technologies and investigates energy savings potential and barriers to adoption across the California controlled environment agriculture (CEA) industry.

The goal of the study is to establish a baseline of controls and operations in existing California greenhouses and indoor farms, understand the barriers to technology adoption, demonstrate the performance of smart controls technologies, and identify key solutions to accelerate technology transfer and maximize energy savings.

A market assessment will explore the market potential and evaluate the impact of smart controls technologies on CEA, which involves the cultivation and manufacturing of food, floriculture, and cannabis products. Grower surveys, interviews, and site visits will be conducted March 2024 – June 2024. Manufacturer partner Microclimates will support four field demonstrations to showcase energy savings from smart control strategies from July 2024 – February 2025.

This project is funded by CalNEXT and will be implemented by Energy Resources Integration and Microclimates with support from the Cornell University Greenhouse Lighting and Systems Engineering (GLASE) consortium. Collaborations with industry leaders such as Microclimates and GLASE are crucial to support the field demonstrations and ensure the research team produces research-based insights utilities can use to create new programs.

“CalNEXT’s vision is to identify emerging technology trends and bring commercially available technologies to the energy efficiency program portfolio. We are looking forward to supporting this project and sharing the results,” said the CalNEXT Program Implementers. “CalNEXT is a great opportunity for programs to see their full potential, to get the evaluation and implementation support they need, and for good ideas to come to life and make major impacts to support California’s decarbonized future.”

“The ERI team is thrilled to lead this groundbreaking project aimed at revolutionizing the indoor agriculture industry in California. Our study on integrated lighting, HVAC, and irrigation control systems underscores our commitment to creating lasting change by significantly reducing energy expenditure in CEA facilities. This project marks ERI's first collaboration with the CalNEXT initiative, and we are eager to contribute to innovative advancements in energy efficiency in greenhouses and indoor farms. This project will help forge a new path for efficient controls in these energy intensive facilities and creates a new target for the industry,” shares Eric Noller, Principal and Founder of ERI.

“Given the imperative of ensuring food security, technology companies are poised to provide significant influence and we feel immensely privileged to contribute to this pivotal project. At Microclimates, we are committed to championing this cause by backing initiatives aimed at scientifically validating the efficacy of integrated controls and energy reduction measures. As an environmental automation company rooted in the seamless integration of environmental systems within operations, we can offer nuanced insights into energy consumption patterns. Engaging in this study represents a natural progression for us,” said Neda Vaseghi, CEO and Founder of Microclimates.

About CalNEXT

CalNEXT identifies, tests, and grows electric energy technologies and delivery methods that have the potential to make major impacts on achieving California’s climate goals. The goal is to provide support and resources for 170 projects over the next six years. CalNEXT’s team of experts identify and resource ideas to advance the state’s priorities for decarbonization through electrification, utility grid priorities such as load flexibility, new measures for utility programs, and engaging hard-to-reach customers and disadvantaged communities. Project categories include research and development addressing appliances, HVAC, lighting, process loads, water heating, and whole buildings. Selected projects are tested and potentially incorporated into investor-owned utility programs. The initiative is funded by California

ratepayers. The CalNEXT team is led by Energy Solutions, and includes expert partners AESC, VEIC, UC Davis, TRC, and The Ortiz Group.

CalNEXT is also dedicated to removing barriers so that all Californians have access to the benefits of clean and healthy environments. Through this initiative, we hope to engage members of the community to provide insight into how to support equity and inclusion in delivering these technologies.

To learn more, visit the CalNEXT website.

About ERI

Founded in 2011, Energy Resources Integration (ERI) is an energy engineering firm based in San Francisco. ERI is known for helping clients meet energy and sustainability goals, while bridging the gap between utility programs with customer needs. Specializing in energy efficiency engineering, ERI provides a range of services including energy action plans, utility incentive program support, and emerging technology studies. ERI has a diverse team of engineers and energy professionals dedicated to reducing energy consumption and greenhouse gas emissions. Notably, ERI excels in efficient controlled environment agriculture (CEA) strategies, offering tailored solutions for facilities such as greenhouses and vertical farms. Recent CEA projects include technology assessments, utility incentive program implementation, and market studies. ERI's commitment to environmental responsibility and operational efficiency ensures sustainable solutions that benefit both clients and communities. Contact the project manager of the study at gretchen@eripacific.com.

About Microclimates

Microclimates is a software platform that offers controls, automation, and data analytics for various aspects of controlled environment agriculture (CEA), including lighting, climate (HVAC), watering, nutrient dosing, energy monitoring, & maps. Our solution aims to address the current scenario where most CEA systems operate independently, functioning as isolated entities. In response to the challenges posed by the fragmented nature of these systems, Microclimates has developed a software platform that seamlessly integrates and unifies them. This integration provides users with a centralized software interface, simplifying management by reducing the number of controllers to oversee. Additionally, it brings about cost savings through labor reduction, mitigates risks associated with the use of multiple control systems, harmonizes data across various components, and facilitates informed, data-driven decision-making for operators. Contact us for a demo - support@microclimates.com