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Heliogen's demonstration tower in Lancaster, Calif.

Zero-Carbon Solar Technology Creates High-Temperature Heat

LANCASTER, CALIF.—Heavy industry is responsible for around 20% of global carbon emissions, yet there are few low-carbon options for creating the high-temperature heat needed for producing cement and steel.

But a new company, Heliogen, has developed a new zero-carbon technology that will produce such heat. Based on concentrating solar power (CSP), the technology uses a large number of mirrors in a field that are angled to reflect sunlight onto a tower, which contains a steam turbine. Heat from the sunlight then turns liquid to steam, which runs the turbine, which in turn generates power, according to an article on Vox.com. ■

Eight Finalists Vying for Prize

NEW DELHI, INDIA—A global coalition led by the government of India along with Rocky Mountain Institute announced the finalists of the Global Cooling Prize, an international innovation competition to develop super-efficient and climate-friendly residential cooling solutions for homes.

The finalist teams are led by some of the world's largest air-conditioner manufacturers, including Gree Electric Appliances Inc. of Zhuhai, Daikin AirConditioning India Private Ltd., and Godrej & Boyce Mfg. Co. Ltd.; start-ups and corporations, including S&S Design Startup Solution Pvt. Ltd., Transaera Inc., M2 Thermal Solutions, Kraton Corporation, and Barocal Ltd, a new spin-out from a University of Cambridge lab. The winner of the Global Cooling Prize will be announced in November 2020 and awarded more than U.S. \$1 million in prize money. ■



INDUSTRY ROUNDUP

First 3D Neighborhood Started in Rural Mexico

TABASCO, MEXICO—A 3D printed community is underway in Mexico, part of a project working to end global homelessness, according to USA Today. The nonprofit behind the project, New Story, told the newspaper that it's the world's first 3D printed neighborhood. Two homes have been completed, with plans to build 50 500 ft² 3D homes in Tabasco, which is located in a seismic zone and prone to flooding. ■

Dashboard Enabled for Healthcare Facilities

KENNESAW, GA.—Automated Logic Corporation, part of Carrier, is collaborating with the non-profit Powered for Patients to launch a first of its kind dashboard that addresses the technology challenges associated with providing real-time or near real-time status reports for emergency power supply systems in healthcare facilities. The dashboard harnesses the power of the WebCTRL® building automation system and allows government officials and utilities to quickly see the status of unfolding threats to emergency power. ■

Grading Energy Efficiency in NYC Buildings

NEW YORK—Starting in 2020, owners of midsize and large buildings in New York City will have to display a building energy efficiency score and corresponding letter grade near public entrances. An EPA tool will provide the letter grades for buildings of at least 25,000 ft² (2323 m²). The new grading system is part of the city's Climate Mobilization Act that seeks to reduce building greenhouse gas emissions by 40% by 2030. ■

Johnson Controls Opens HVAC Training Center

FIFE, WASH.—Johnson Controls celebrated the grand opening of a new Source 1™ HVAC Supply and YORK® NW Factory Direct training center in November. The opening marks the second training center Source 1 and YORK Factory Direct has opened as part of Johnson Controls' nationwide training initiative. The 2,450 ft² facility features a classroom space that can hold up to 24 students as well as a live lab with 12 YORK HVAC units to provide hands-on learning to help technicians become YORK-certified technicians. The training center also offers a variety of interactive and digital courses designed to educate and prepare the future workforce. ■

Steam Heat May No Longer Be Used

DENVER—As the City of Denver looks to use electric heat for commercial buildings and amid rate increases, the city could stop using its steam heat system—the oldest continuously operated system in the country, according to an article from Colorado Public Radio News.

The system is comprised of a 10-mile network of pipes with the primary purpose of heating buildings. The city and engineering firms are now challenged to decide if the natural-gas-powered steam heat system economically helps Denver meet its climate goals.

Neighborhood-sized steam heat systems exist in many U.S. cities, including New York and San Francisco. The system in Denver has been in operation since 1880. ■



Inside the Denver Steam Plant, natural gas is burned to boil water to serve about 120 downtown buildings with steam.

RESEARCH ROUNDUP

PNNL to Lead Grid Modernization Projects

RICHLAND, WASH.—Pacific Northwest National Laboratory (PNNL) will lead three new U.S. Department of Energy-funded projects to make the nation's power grid more resilient, flexible and secure. In addition to the three projects it will lead, PNNL will collaborate with other national laboratories and industry partners on eight more grid modernization projects. ■

NREL Updates Energy Integration Tool

GOLDEN, COLO.—The rising costs of weather and climate disasters have made resilience a top focus of building owners—one that is reflected in the latest updates to National Renewable Energy Laboratory (NREL's) REopt™ Lite energy integration and optimization web tool. The latest REopt Lite upgrades address users' growing focus on providing backup power to sustain critical load during outages. Expanded resilience capabilities enable users to optimally size new diesel generation and better understand the benefits and trade-offs of resilience. ■

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ORNL, Industry Collaborate to Develop Refrigerants

OAK RIDGE, TENN.—Oak Ridge National Laboratory (ORNL) and five leading building equipment companies will collaborate to improve the energy performance of HVAC systems and investigate climate-friendly alternative refrigerants.

Through collaborative research and development agreements, or CRADAs, scientists at the DOE's only designated national user facility for buildings research—the Building Technologies Research and Integration Center at ORNL—will conduct research and development with the National Automatic Merchandising Association, Taylor Commercial Foodservice, Emerson Climate Tech-

nologies, Enginuity Power Systems and Baltimore Aircoil Company.

“CRADAs are among the U.S. Department of Energy's chief instruments to connect the ingenuity of our national labs with industry's leading companies to produce innovations at the scale we need to make a difference,” David Nemtzw, building technologies office director, DOE Office of Energy Efficiency and Renewable Energy, said in a news release.

Improving the energy efficiency of buildings and equipment is a priority for DOE's Building



Aerial view of Oak Ridge National Laboratory.

Technologies Office because the 127 million buildings in the U.S. consume nearly 40% of the nation's total energy at a cost of \$415 billion annually, accounting for 36% of carbon emissions. BTO's goal is to create marketable technologies and design approaches that address energy consumption in existing and new buildings to reduce the average energy use in all U.S. buildings by 30% by 2030. ■

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