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## Fraunhofer Center for Sustainable Energy Systems names 37 partners for Building Technology Showcase

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According to the Fraunhofer Center for Sustainable Energy Systems (CSE), 37 industry partners are participating in the center's Building Technology Showcase, a research and demonstration building for sustainable technologies in the city's Innovation District. These partners are contributing a combined total of \$2.7 million in advanced energy technologies and services for the building, and committing to working with Fraunhofer CSE on research projects to be deployed and integrated into the new "living laboratory."

Technologies contributed by industry partners range from building-integrated solar photovoltaics to radiant flooring; high-efficiency building envelope components such as roof membrane, windows, doors, and insulation; an advanced, efficient 200-ton chiller system; and others.

Fraunhofer CSE will showcase these technologies in an exhibition and educational space open to the public, using innovative applications to call attention to energy saving and/or sustainable construction attributes.

"We are excited to play a central role in Fraunhofer CSE's Building Technology Showcase with the contribution of our building automation system—which will optimize the operation and efficiency of the many innovative technologies being deployed in this unique facility," said Dave Hopping, vice president, Building Automation Solutions, Siemens Building Technologies Division. Siemens is also providing life safety & security systems for the building. "The systems we are installing will generate real-world data to help developers and building owners understand the reliability and effectiveness of advanced building technologies for achieving efficiency, sustainability, and safety goals."

Fraunhofer CSE is performing a deep energy retrofit and renovation of the historic, 100-year-old building at 5 Channel Center in Boston to transform it into a sustainable energy R&D facility. The Center's goal is for the Building Technology Showcase to play an important role in accelerating the adoption and acceptance of cutting-edge building energy technologies in Massachusetts and the United States. CSE researchers will evaluate the reliability and effectiveness of the technologies incorporated into the building, helping technology developers prove out their products with building-integrated and other applied research. The building will be Fraunhofer CSE's new headquarters, housing its advanced research labs and staff.

"Fraunhofer CSE's diverse list of participants shows that companies from around the world are drawn to Massachusetts' vibrant and growing clean energy sector," said Massachusetts Clean Energy Center (MassCEC) chief executive officer Patrick Cloney. "We are thrilled to see three companies—Pythagoras Solar, Oree and TIGI—who have either participated in the Governor's trade mission to Israel or in MassCEC's Global Clean Energy Week, sign on to use this facility because they see the value of doing business in Massachusetts."

"We are delighted that Fraunhofer CSE's research will be implemented in Boston," said Boston

mayor Thomas Menino. "We were the first city in the nation to require green building, and Fraunhofer CSE's research partnerships mean we can continue to push ahead here with even more cost-effective and advanced building energy technologies" while fostering the growth of our clean energy workforce."

"Developing sustainable technologies will improve energy efficiency and create jobs," Congressman Stephen Lynch said. "I commend Fraunhofer CSE for bringing together such a diverse group of partners to take this project beyond a research lab, developing it as a learning environment for the next generation of clean energy leaders."

As part of its vision for making the building a center of learning that promotes clean energy workforce development, Fraunhofer CSE also announced its commitment to collaborating with numerous Massachusetts and regional institutions and businesses on workforce development initiatives once the new building is completed. Working with these organizations and others, CSE will bring in student groups and workers entering the clean energy sector for technology demonstrations and training, seminars, and other events.

"In addition to making the Building Technology Showcase the premier research and demonstration laboratory for clean energy technologies, we are committed to making the building a venue where everyone"from seasoned architects and construction executives to students still deciding their future career paths"can visualize the performance and potential of the technologies incorporated into the building," said Nolan Browne, managing director of Fraunhofer CSE. "Our goal is to present the information in innovative ways that engage visitors and create demand for these energy-saving systems and sustainable products in the market."

One of these innovative visualization tools is "augmented reality," new technology enabling users of mobile devices and tablets to view a superimposed, realistic graphic of a system or component by pointing the device at a marker (similar to a QR code). For example, pointing an iPad at a marker on the floor of the building could reveal a graphic of the radiant heating system underneath, making an otherwise invisible system visible. Researchers at Tufts and the Harvard Graduate School of Education are providing insights for the development of this technology for the building.

In addition to support from industry partners, government agencies including the US Department of Commerce's Economic Development Agency, Massachusetts Development Authority, and the City of Boston have provided assistance. The Massachusetts Housing Investment Corporation and the Metropolitan Area Planning Council also helped CSE secure funding. Founding support for Fraunhofer CSE from the Massachusetts Clean Energy Center and National Grid has made this project possible. Commonwealth Ventures is the developer of the building, Gilbane Building Company is renovating and constructing the building core and shell, DiMella Shaffer is the architect, and BR+A is the engineering firm.

Fraunhofer CSE invites building energy product and system manufacturers and integrators to join those on the list of current industry partners. Please contact the Center with ideas for additional technologies to incorporate into the Building Technology Showcase.

Industry Partners Contributing to the Building Technology Showcase:

Controls and Building Management:

Siemens, Cimetrics and OutSmart Power Systems

Interior Products and Systems:

Dorma, ThyssenKrupp Elevator, nora systems, Inc., DuPont, Curava and Artaic

Envelope:

Guardian Industries, Roxul, Cooley Group, Dow Corning and Erie Architectural Products

Solar Energy Systems:

Pythagoras Solar Windows, Schuco USA and TIGI

HVAC:

Price, Baltimore Air Coil Company (BAC), Multistack, Taco, Inc., Viega, Clearwater Systems Corp., Watts Water Technologies, Inc., Smith's and Emerson Swan

Lighting and Shading Systems:

Hunter Douglas, Osram Sylvania, Philips, Entech Solar, TerraLUX, ByteLight and Oree

Audio / Visual and Controls:

Crestron Electronics, Inc., The Sextant Group, Signature-AV and Infocomm International

Workforce Development - Collaborating Organizations (Preliminary List):

Babson University, City of Boston, Citizens' Housing and Planning Associations, HeatSpring Learning Institute, Massachusetts Association of Vocational Administrators, Massachusetts Clean Energy Center, Massachusetts Community Colleges Executive Office, Meidh Technologies, Metropolitan Area Planning Council, NextStep Living, Northeast Sustainable Energy Association and Tufts Center for Engineering Education and Outreach.

New England Real Estate Journal - 17 Accord Park Drive #207, Norwell MA 02061 - (781) 878-4540