NEWS RELEASE

Johnson Controls Introduces Open-Source Energy Analysis Software For Targeting Building Efficiency Retrofits

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CORK, Ireland, July 9, 2020 /PRNewswire/ -- Johnson Controls (NYSE:JCI) and Lawrence Berkeley National Laboratory (Berkeley Lab) announced the release of the Building Efficiency Targeting Tool for Energy Retrofits (BETTER) to the public today. The easy-to-use, open source BETTER tool allows building owners and managers to rapidly convert readily available monthly building energy consumption data into specific, recommendations for improvement. In this unprecedented time of a global pandemic, creating a safe environment in schools, commercial and government buildings is more important than ever. This analysis can be performed without the need for on-site audits or inspections, allowing many currently unemployed energy efficiency workers to continue to plan and develop building retrofit and commissioning projects.

Johnson Controls, a global leader in smart building technologies and solutions, developed the core energy analysis technology over the past eight years and has used the tool to analyze retrofit opportunities in over 700 buildings. Beginning in 2016, under a cooperative research and development agreement (CRADA), Berkeley Lab partnered with Johnson Controls to automate and improve the energy analysis capabilities of the tool and create an open-source version of the tool for public use.

"Over 400,000 energy efficiency workers in the U.S. currently unemployed due to the COVID-19 pandemic because they can't get into buildings to do energy audits," said Clay Nesler, vice president of global sustainability and regulatory affairs, Johnson Controls. "This tool can help the efficiency industry get a jump start of identifying and developing projects that show the greatest opportunities for cost effective savings."

"We are pleased to partner with Johnson Controls to introduce BETTER and advance the science of data-driven, remote, and low-cost building energy analysis to improve building energy efficiency at speed and scale worldwide," said Nan Zhou, staff scientist and head of the International Energy Analysis Department of the Energy Analysis and Environmental Impacts Division at Berkeley Lab.

An earlier version of the tool has already been used to analyze a number of buildings around the world including:

- Energy Resources Integration LLC (ERI) is analyzing and benchmarking almost 450 client sites to prioritize and streamline energy efficiency efforts and select ideal buildings for performing detailed energy audits.
- Prince William County Public Schools, the second largest school division in Virginia, is using the tool to quantify the energy and cost savings potential and target efficiency improvements.
- The World Resources Institute and other Building Efficiency Accelerator (BEA) partner organizations are providing technical assistance and training on the BETTER tool to the BEA network of 55 cities in 25 countries around the world.
- Florida Gulf Coast University is incorporating BETTER's energy analytics into its sustainability-focused Environmental and Civil Engineering curriculum, providing basic training for the next generation of cloud and field based comprehensive energy workers.
- Energy General LLC of Connecticut is using BETTER to target building retrofits in under-served communities at scale.

There are also pilot initiatives using the tool by the City of Cambridge, MA and the C40 Cities Climate Leaders Group.

"BETTER has helped our school division identify substantial energy cost savings, which can be redirected into the classroom. With its simple data inputs and powerful analytics, we believe BETTER is poised to help hundreds of school districts across the country to improve their energy, financial, and environmental performance," said Bryan Conrad, energy education coordinator for Prince William County Public Schools.

"Building Efficiency Accelerator partner cities are using BETTER to assist local governments, building owners, and energy service companies to target the best opportunities for improving public and private building energy efficiency," said Jennifer Layke, global energy director, World Resources Institute.

The tool will be previewed during a public webinar on July 15, 2020.

Please register for the webinar here: https://register.gotowebinar.com/register/842394539169519630

For more information about Johnson Controls support for the BETTER tool visit: https://www.johnsoncontrols.com/better

For more information on the BETTER tool visit: https://better.lbl.gov/how_it_works/

The beta version of the BETTER tool is available at https://better.lbl.gov/, and the source code is on GitHub at https://github.com/LBNL-JCI-ICF/better

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About Johnson Controls:
At Johnson Controls, we transform the environments where people live, work, learn and play. From optimizing building performance to improving safety and enhancing comfort, we drive the outcomes that matter most. We deliver our promise in industries such as healthcare, education, data centers and manufacturing. With a global team of 105,000 experts in more than 150 countries and over 130 years of innovation, we are the power behind our customers' mission. Our leading portfolio of building technology and solutions includes some of the most trusted names in the industry, such as Tyco®, YORK®, Metasys®, Ruskin®, Titus®, Frick®, Penn®, Sabroe®, Simplex®, Ansul® and Grinnell®. For more information, visit www.johnsoncontrols.com or follow us @johnsoncontrols on Twitter.

About Lawrence Berkeley National Laboratory:
Lawrence Berkeley National Laboratory addresses the world's most urgent scientific challenges by advancing sustainable energy, protecting human health, creating new materials, and revealing the origin and fate of the universe. Founded in 1931, Berkeley Lab's scientific expertise has been recognized with 13 Nobel Prizes. The University of California manages Berkeley Lab for the U.S. Department of Energy's Office of Science. For more information, visit www.lbl.gov.

About Energy General LLC:
Energy General is a 43-year-old energy audit company focused on rapidly reducing building energy costs and fossil fuel emissions in buildings where energy improvements will also enhance quality of life and address climate injustice. For more, email tom@energygeneral.com.

About Energy Resources Integration LLC:
Energy Resources Integration LLC is based in San Francisco, California and provides engineering services including energy efficiency engineering, sustainability planning, and energy management support. More information at https://www.eripacific.com/.

About Florida Gulf Coast University:
Florida Gulf Coast University is a public research university in Fort Myers, Florida. The U.A. Whitaker College of Engineering offers degrees in civil, environmental, bioengineering, and software engineering. For more, visit https://www.fgcu.edu/eng/ or email skomisar@fgcu.edu.

About Prince William County Public Schools:
Prince William County Public School Division is the second largest school division in Virginia. Its Energy Management Team has earned U.S. Environmental Protection Agency (EPA) certifications in 60 schools and has an average annual cost avoidance of $5.6 million due to its energy conservation efforts. More information at https://bit.ly/2NURQZn.

About World Resources Institute:
World Resources Institute (WRI) is a global research organization that spans more than 60 countries, with international offices in Brazil, China, India, Indonesia, Mexico and the United States, regional offices in Ethiopia (for Africa) and the Netherlands (for Europe), and program offices in the Democratic Republic of Congo, Turkey and the United Kingdom. Our more than 1,000 experts and staff turn big ideas into action at the nexus of environment, economic opportunity and human well-being. More information at wri.org.

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