Collaborative solutions for energy efficiency technologies

New technologies cannot be developed in isolation. They require collaboration with others who are immersed in the field: the companies on the ground, the government agencies supporting research, and other academics from across the country and the world working on different aspects of basic research.

To address this need, the Institute launched its Technology Roundtable series in 2010. Technology Roundtables bring together leading stakeholders from industry, government, and academia for a facilitated discussion to accelerate the development of a target energy efficiency technology. Discussions are highly interactive, focus on major technology roadblocks and potential solutions, and aim to inform and expedite research.

The Institute’s roundtables have tackled these challenges:

**DATA CENTERS AND CLOUDS**

The challenge: Worldwide data is projected to grow 1000 times within the next 13 years, and data centers and clouds will soon face a mountain of information. With projected improvements in computation power lagging at least 40 times behind the growth in data, significant improvements are needed in both computation power and energy efficiency to avoid a rapidly increasing demand for energy.

The goal: To inform and expedite technology research to enable the energy-efficient scaling of data centers and clouds to exascale and beyond.

**BUILDINGS**

The challenge: Buildings consume 40% of all US energy, but waste most of it. Existing building control systems provide simply a dashboard from which building operators must manage a complex array of data; human error, inefficiencies and data overload leave building performance below intended levels.

The goal: To expedite the development of fully integrated building control systems for energy efficiency. Integrated systems offer the potential for a building to operate on cruise control, allowing heating, ventilation and air conditioning systems (HVAC), lighting, shading, and smart building technologies to function automatically and efficiently.

**LED LIGHTING**

The challenge: Despite impressive theoretical efficiencies, LED lighting has not been widely adopted, both due to the high cost and cool lighting quality of currently available products. If further improved and heavily adopted, LED lighting could offer the potential to save the equivalent of 50 one gigawatt coal-fired power plants in the US.

The goal: To identify the technical and market barriers constraining widespread adoption of LED lighting and identify needed solutions for both.
IMPACT
Each Roundtable culminated in a report identifying the group's key findings, which the Institute distributed across the field to inform and expedite research. The Roundtables have shaped research directions, secured research funding commitments, resulted in a proposed industry research collaboration, secured new Industry Partners for the Institute, and provided a valuable opportunity for the development of cross-industry networks.

COMMENTS FROM PAST PARTICIPANTS

One of the best forums that I have participated in.

Helpful insight into how others perceive industry challenges and the path forward.

Great exploration of ideas.

Brought the right people together. Well worth my time.