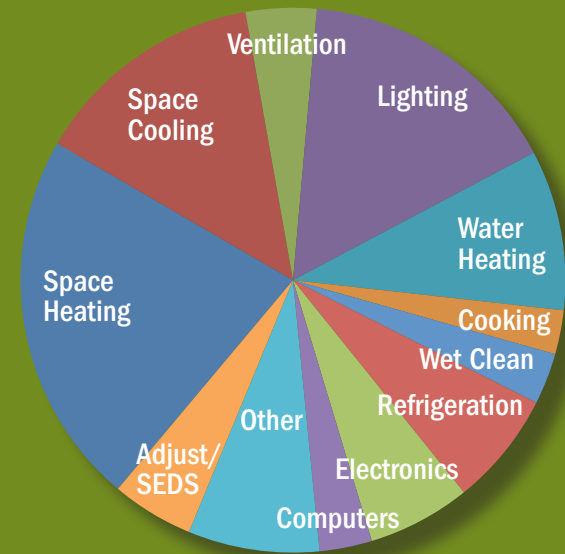


The Precourt Energy Efficiency Center promotes economically efficient reductions in energy demand through research, education and dissemination of information. PEEC is an independent research lab at Stanford, making us part of the university as a whole and enabling us to work with resources from all seven schools. We are also part of a Stanford umbrella organization, the Precourt Institute for Energy, which engages in energy research and education on a broad scale.



The Precourt Energy Efficiency Center was founded in 2006 with a gift from Jay Precourt, '59, MS '60, and his family.

*"Learning to more effectively manage energy consumption at the individual, corporate and government level is critical to our national security, to our environment and to our economy."*

JAY PRECOURT

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**Precourt Energy Efficiency Center**  
STANFORD UNIVERSITY



**ENERGY EFFICIENCY:  
THE BRIDGE TO OUR  
LOW-CARBON FUTURE**

While scientists work to invent the low-carbon energy technologies of the future, for the next 10 to 20 years the largest reductions in greenhouse gases will come from our more efficient use of electricity, oil and natural gas. In modern economies, energy efficiency could reduce greenhouse gas emissions by as much as 25 percent. Meanwhile, many of the ways we can cut energy waste would provide a boost to our economies by reducing costs without limiting our productivity or comfort.

However, improving energy efficiency has not proven easy. Some steps we can take need more technological development. Other steps depend on better government policies. A third group has the technologies and policies in place, but institutional, market and behavioral barriers have so far prevented widespread implementation.

One part of the problem is a lack of knowledge. Most people do not know that one compact fluorescent light bulb can save \$70 in electricity, or that aggressive driving can reduce highway gas mileage by 33 percent. Improving knowledge, though, is not enough to change behavior. People respond to financial incentives, but maybe even more so to social expectations and norms. Effectiveness varies among different groups.

Nobody knows which low-carbon supplies will be most successful in the future, but all can agree that more efficient consumption is our top energy priority. We can — and we will — figure out the technologies, policies and behavioral interventions necessary to improve efficiency.

JAMES L. SWEENEY  
Director  
Precourt Energy Efficiency Center  
Stanford University



## RESEARCH

Research teams include scholars and analysts from across the university, bringing expertise from many different disciplines, in a problem-solving environment. PEEC provides funding in six focus areas that we think will help create workable solutions for energy efficiency.

## Buildings

The heating, cooling, lighting and use of electrical appliances in commercial and residential buildings emit about a third of the greenhouse gases in modern economies. Many energy saving technologies can have quick payback on investments for both old and new construction, yet they have not been fully implemented. PEEC research seeks to reduce energy waste through improved building design, construction and operation.

One PEEC-funded study, for example, showed that integration of supply chains from manufacture through maintenance can help overcome the barriers of the decentralized U.S. building industry. This represents a business opportunity for penetrating mature markets with integral innovations.

## Transportation/Vehicles

PEEC seeks to improve vehicle electrification, transportation systems analysis, congestion management, and the regulation of passenger cars and light duty trucks. One study found a playful way to reduce congestion in India, based in part on the finding that people are more motivated by a chance at a bigger prize over a certain small reward. The research was expanded to Singapore and to Palo Alto, with support from the U.S. Department of Transportation.



Photo courtesy of Maricardo

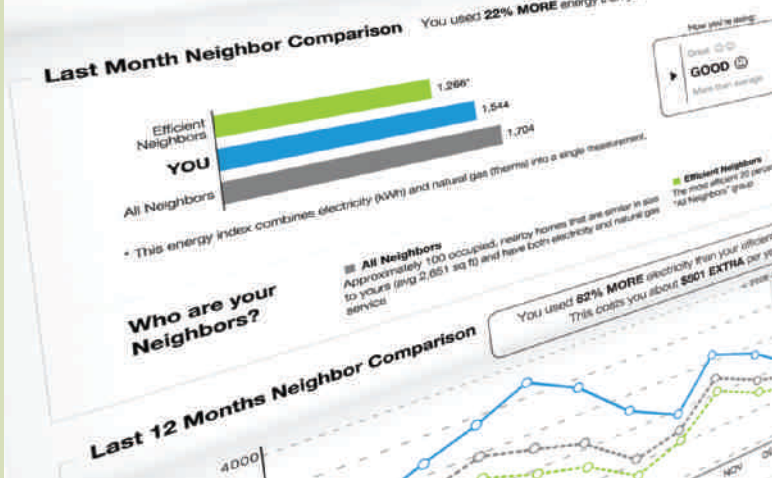


Photo courtesy of OPOWER

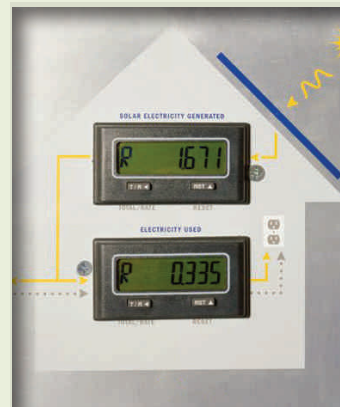
## Behavior

Improved human decision making, habits and behavior are essential to improving energy efficiency. PEEC develops and analyzes behavioral interventions that educate and motivate people to save energy.

Our “Large Scale Energy Reductions through Sensors, Feedback and Information Technology” study, in conjunction with Stanford’s Human Sciences and Technologies Advanced Research Institute, is a broad-based behavioral research project. The work is funded by the Advanced Research Projects Agency for Energy, housed at the U.S. Department of Energy. Based on original PEEC research, the project is developing information and communication practices, technology, incentive programs, and community interventions for behavioral change in energy use.

## Systems

Businesses and residents are not only consumers of energy, but can help utilities manage high demand, support the grid, supply power and provide energy storage. PEEC research seeks to develop the mathematical analysis, distributed generation systems and storage options to support such innovations.



## Modeling

Forecasting the future demand for electricity, natural gas and oil is critical to understanding the potential impact of technological and policy innovations. PEEC research models energy systems, institutions and economic impacts, using state-of-the-art econometric, data mining and other statistical techniques.

## Energy Policy

PEEC funds research on policy design and analysis, including pricing policies, policy interventions, and policies on research and development. For example, one study provided guidance to the California legislature regarding the implementation of the state’s “Global Warming Solutions Act.”



## EDUCATION

At the core of PEEC are faculty-led research teams that include graduate and undergraduate students, as well as post-doctoral fellows. PEEC has helped fund the education, training and dissertation research of nearly 100 such students. In addition, more than 200 students from high schools, colleges and universities around the world have received **Precourt Fellowships** to attend the annual Behavior, Energy & Climate Change conference.

In 2011, PEEC launched the weekly **Sustainable Transportation Seminar** to foster a community of faculty, researchers and students from Stanford and beyond around the theme of sustainable transportation policy, systems and solutions.

## CONFERENCES

PEEC research is communicated broadly through two major conferences we organize each year, as well as through participation in various conferences and workshops. Such interaction ensures that PEEC remains closely linked with industry, government, non-governmental organizations and other research institutions.

PEEC convenes the annual **Behavior, Energy & Climate Change** conference, jointly with University of California-Berkeley and the American Council for an Energy Efficient Economy. More than 600 participants from industry, government and academia attend the conference every year.

Our annual **Silicon Valley Energy Summit** discusses workable solutions with businesses in the San Francisco Bay Area, attracting a broad range of company executives, energy managers, business organization representatives and California policymakers.

PEEC also hosts and participates in other meetings. Recent examples include the U.S.-Australian Dialogue on Energy Efficiency, in conjunction with the Australian government, and the Vail Global Energy Forum.

