



California Energy Commission
2009 Integrated Energy Policy Report Staff Workshop
August 11, 2009 9:00 am – 5:00 pm Hearing Room A
PIER Industrial / Agricultural / Water End-Use Energy Efficiency Research

The Public Interest Energy Research (PIER) Industrial/Agricultural/Water End-Use Energy Efficiency (IAW) Research, Development and Demonstration (RD&D) program seeks to improve the energy efficiency of industrial processes, agricultural operations, and water and wastewater treatment plants. These sectors are also sensitive to the reliability and quality of electric power. Therefore, other than improving energy efficiency, the program also strives to research, develop, and demonstrate technologies that help these sectors deal with power quality and power supply reliability issues. The following PIER-RD&D priorities were developed in response to the challenges and needs of the industrial, agriculture and water sectors.

Industry

California has a substantial industrial base. The energy reliability of these industries is critical not only for California's economy but for the national economy as well. The major industries - such as food processing, electronics and e-commerce, petroleum refining and production - all depend on continued low cost and reliable energy.

- The PIER-IAW staff will work in collaboration with industry representatives to identify RD&D options to overcome energy-related problems.
- The PIER-IAW program will focus its research on activities that will help industries attain its requirement of keeping low operating costs while maintaining environmentally clean and energy-efficient operations.

Agricultural

Agriculture is highly dependent upon electrical energy for irrigation and post-harvest processing. Electrical costs and power reliability are critical for a successful and sustainable agricultural operation.

- RD&D activities will continue in developing techniques for advanced irrigation and other load management practices that will help this sector cope better in the electric market.
- The program will continue to manage funded projects in the area of advanced irrigation practices for water conservation and water recovery.

Water

The availability of low-cost clean water is essential to California's economy and continued prosperity. The state depends heavily upon the transportation of a large volume of water across the state. The treatment of large volumes of substandard and saline water is also important because both of these activities rely heavily on electric power.

- RD&D research will focus on activities that help improve the energy efficiency of processing water for urban, industrial and agricultural consumption and an energy-efficient wastewater recovery.
- The program will continue to manage contracts with the consortium of water utilities and will work with them for transferring the technologies developed through these projects to potential end users.

Issues and Challenges

Issues and challenges common to industrial, agriculture and water sectors exist and the RD&D solutions to them are listed below; however, the importance of each issue might vary with the characteristics specific to each sector. The PIER-IAW will focus its RD&D on:

- Technologies that facilitate on-site generation, access to competitive electrical markets and auxiliary services, and electric power substitution
- Reducing the power quality problems and managing the resulting energy inefficiencies
- The development and demonstrations of technologies for on-site generation distributed generation; electricity storage and controls that allow for smooth transition to backup power
- Developing energy efficient technologies and processes that normally would not be developed by the private sector.
- New technologies and improvement of existing ones that enhance energy economics and efficiency for water treatment.

The achievements of individual research projects and the accomplishments of the program can be found by reading the IAW area reports located at <http://www.energy.ca.gov/research/iaw/reports/index.html>.