

Cycle 5 – Energy Research Grants

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***Residential Electricity Management and Control Mediated by  
Occupancy Sensor Networks***

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ABSTRACT:

The purpose of the project is to develop residential electricity monitoring, management and control technology that will manipulate selected residential electrical loads when houses are vacant.

The work has three components. The first component involves the development of a residential electrical load taxonomy that defines whether or not, and when, specific residential electrical loads can be switched off, and when they should be switched back on again-with all switching actions occurring in response to occupancy. The second component is the deployment of occupancy sensor networks along with electrical switching and control technology in residences that will enable electrical loads to be switched off when houses are unoccupied. This component will ensure that both energy and demand savings are achieved, and more importantly, maintained over a longer time period. The prototype monitoring and control systems developed in this project will establish the feasibility of this approach to the management of residential electricity consumption, providing pilot data that will be used in future proposals. Thus, the third component of the work involves the development of proposals to electrical utilities, federal funding agencies and other partners, devoted to the study and optimization of single and multi-family residential energy consumption.