

(4) Closing the Gap: Getting Full Performance from Residential Central Air Conditioners

This two-year project includes the development of next-generation central air-conditioning performance ratings, development and demonstration of a central air conditioner for hot/humid climates, and HVAC contractor training.

Total project cost: \$1,534,716

Funding request: \$683,179

Project Lead: New York State Energy Research and Development Authority

Project Participants: Florida Solar Energy Center; Advanced Energy; Energy Center of Wisconsin, American Council for an Energy-Efficient Economy; CDH Energy; Wisconsin Energy Conservation Corporation, Lawrence Berkeley National Laboratory

Publications/Presentations: None

Patents: None

Progress in Past Quarter and Current Status:

Task 1 Improve central air conditioner performance ratings

- Task 1.1 Review present standards and method of testing
- Task 1.2 Field performance data review
- Task 1.3 Develop population weighted temperature bin-hour distributions
- Task 1.4 Preliminary proposed rating procedures
- Task 1.5 Simulate benefits of alternative metrics for diverse climates
- Task 1.6 Analysis and recommendations

(Status—ongoing) The Center had no activity in this area during the reporting period.

Task 2 Robust Feature Set for Residential Air Conditioners

- Task 2.1 Develop trial specification sets**
- Task 2.2 Draft specification**
- Task 2.3 Consensus-building workshop**
- Task 2.4 Coordinate with manufacturers**

(Status—ongoing) Task 2 will be primarily completed by other project partners (NYSERDA and its subcontractors). WECC staff provided comments on draft documents prepared by other team members during the reporting period.

Task 3 Field Performance Data and Innovation

- Task 3.1 Ratings and Field Performance**
- Task 3.2 Benefits of proper sizing**
- Task 3.3 Research using 2-stage systems**

(Status—ongoing) The Center initiated recruiting and field monitoring under Tasks 3.1, 3.2 and 3.3 during the reporting period. Testing and installation of monitoring equipment was performed for 23 (of 50 total) sites under Task 3.1, 2 sites (of 4 total) under Task 3.2, and 4 sites (of 20 total) under Task 3.3 (including three sites that were also monitored last year).

Task 4 Develop New Climate-Sensitive Air Conditioner Designs

Task 4.1 System Configuration: identification, simulation and cost-benefit analysis

Task 4.2 Prototype System: design, construction, laboratory and field testing

The Energy Center has no role in this task.

Task 5 Information Dissemination and HVAC Contractor Training

(Status—not started) The Center had no activity in this reporting period. The Center's portion of this task is scheduled to be completed later in the project.

Plans for Next Quarter:

In the next quarter, the Center expects to continue recruiting and implementation of field testing and monitoring under Task 3.