



CALIFORNIA EVALUATION STUDY BRIEF: NONRESIDENTIAL SECTOR

PROCESS EVALUATION OF THE 2004-2005 STATEWIDE BUILDING OPERATOR CERTIFICATION & TRAINING PROGRAM

Background

This report presents the results of an evaluation of the 2004-2005 Statewide Building Operator Certification and Training (BOCT) Program, sponsored by Pacific Gas and Electric Company, Southern California Edison, Southern California Gas Company, and San Diego Gas and Electric Company. The BOCT teaches commercial and industrial facility staff how to operate

and maintain building systems for energy-efficiency, optimal performance, and occupant comfort. The BOCT curriculum was developed by the Northwest Energy Efficiency Council, which implements the program in California, and is currently offered in 20 states. The training comprises a seven-course Level I series and a six-course Level II series.

Evaluation Approach

The 2004-2005 evaluation focused on the Level I training component, as the Level II training had been assessed the previous year. The evaluation had four main areas of inquiry:

- ➔ Satisfaction with the Level I training
- ➔ Value of, and barriers to, O&M training
- ➔ Need for additional training locations
- ➔ Indicators BOCT training effectiveness

The evaluation collected and assessed information from three sources:

- ➔ **Participants:** Fifty-eight of the 449 Level I students in 2004-2005 and 25 of their supervisors were interviewed to assess their satisfaction with the training, to elicit their assessment of the influence of training on students'

O&M behaviors, and to determine current O&M practices.

- ➔ **Nonparticipants:** Fifty-eight building operations and maintenance (O&M) staff who had received program marketing materials but had not sent staff to the BOCT training (nonparticipants) were interviewed to assess their interest in staff training to improve building operations, to assess market barriers to such training, and to determine current O&M practices.
- ➔ **Utility program managers and BOCT staff and instructors:** three utility program managers, two BOCT staff, and ten BOCT instructors were interviewed to assess implementation activities and explore the instructors' teaching objectives.



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Findings

Findings on **satisfaction with the training** included:

- ➔ Students and their supervisors expressed high levels of satisfaction with the BOCT, even though students enter the course with considerable experience (60% had more than ten years of O&M experience; 60% were supervisors).
- ➔ Two-thirds of students planned to attend the Level II training and two-thirds of both students and supervisors expect their facility will send additional staff to the BOCT.

Findings on the **value of, and barriers to, O&M training** included:

- ➔ The greatest barrier to outside training for the nonparticipants was time away from the job.

- ➔ One-third of nonparticipants reported lack of budget available to send O&M staff to outside training, although most nonparticipants thought the cost of the training seemed reasonable.
- ➔ Participants and nonparticipants value the credibility of certification; over half of nonparticipants or their supervisees had received training leading to certification in the last three years.
- ➔ Utility involvement in the training enhances the credibility of the program for about one-half of nonparticipants.

Findings on **training locations** included:

- ➔ Ninety percent of students traveled less than one hour to training sites.

Agreement that BOCT Training Leads To Specified Outcomes

OUTCOME	PERCENT AGREEING*	
	STUDENTS (N=58)	SUPERVISORS (N=25)
Have Used or Applied Concepts Taught	93%	88%
Have Greater Confidence in Ability to Respond to a Request for Demand Response	81%	—
Have More Productive Contributions to O&M Discussions	65%	76%
Have More Productive Interactions with Contractors	62%	56%
Actions Have Increased Comfort	—	76%
Actions Have Generated Energy Savings	—	72%
Actions Have Generated Money Savings	—	72%

* Each row reports responses to a single question. The percent agreeing are those who rated the item a “4” or “5” on a five-point scale.



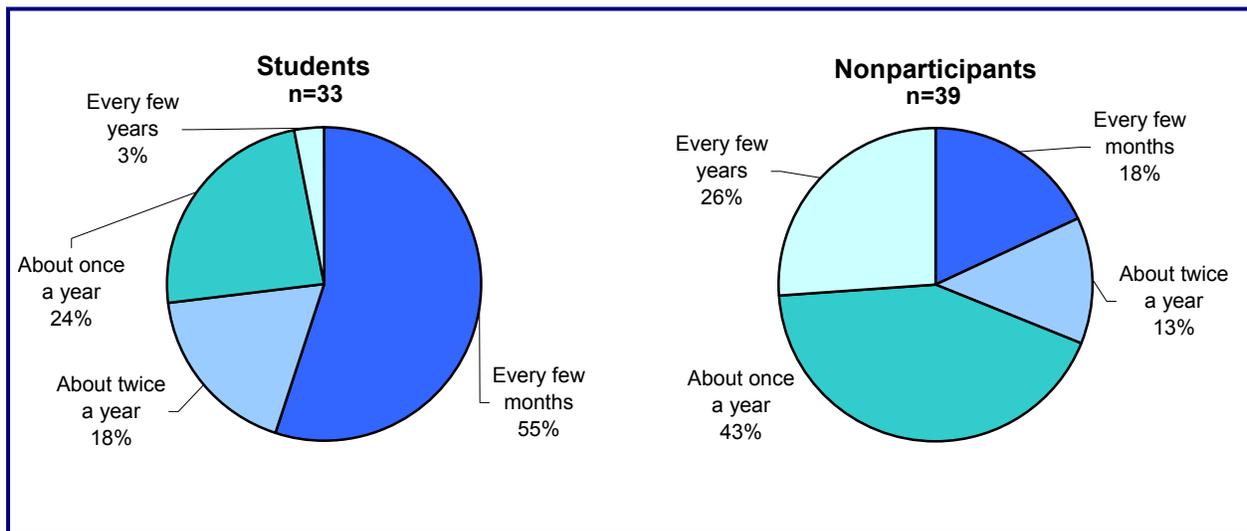
Indicators of **BOCT training effectiveness** included:

- ➔ Over 90% of students said they had used or applied the BOCT concepts taught.
- ➔ Over 80% said as a result of the BOCT they have a greater

confidence in their ability to respond to a request for a demand response.

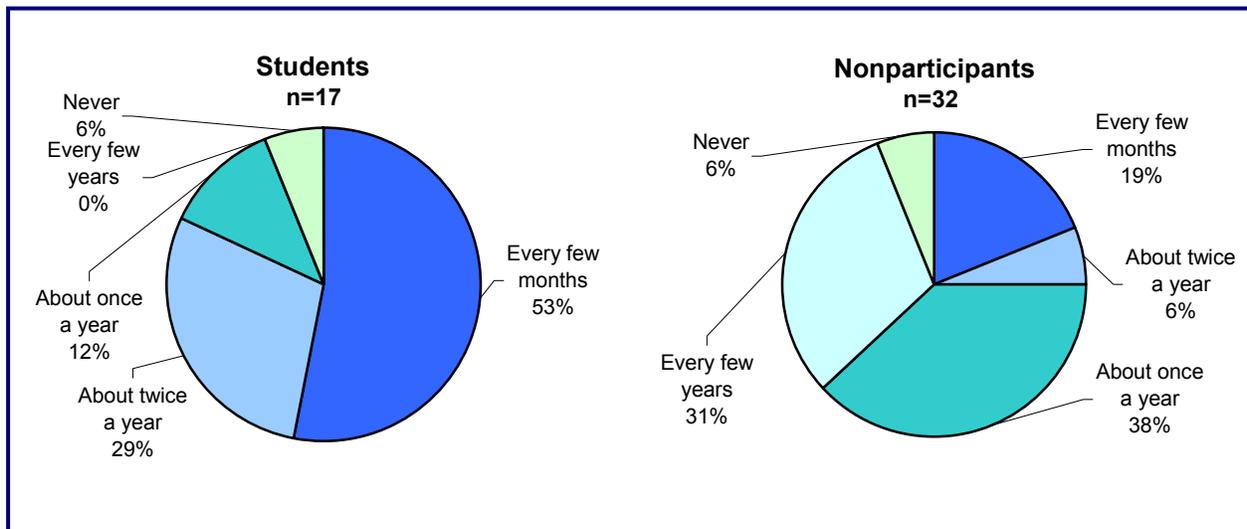
- ➔ Students were more likely than nonparticipants to be frequently engaged in eight specific O&M efficiency actions taught by the BOCT.

Students Check the Boiler Combustion System More Frequently than Nonparticipants



Note: Chi squared test of frequency data, $p = .002$.

Students Inspect Steam Traps More Frequently than Nonparticipants



Note: Chi squared test of frequency data, $p = .003$.



Recommendations

- ➔ Offer BOCT in Bakersfield and other locations within one-hour's drive of commercial areas anticipated to be able to support cost-effective training.
- ➔ Increase the utilities' presence at trainings held away from the utilities' energy resource centers.
- ➔ Continue efforts to offer training at the workplaces of large employers and other approaches to reduce the barrier of lack of staff time for training; consider offering a "swing shift" training from 3:00 to 9:00 p.m.
- ➔ Change the program name from BOCT to BOC, the term used elsewhere in California and the rest of the nation, as well as on the program Web site.
- ➔ Conduct the research necessary to estimate energy savings for the program.

