

Northwest Energy Efficiency Alliance

Selecting Targets for New market Transformation Initiatives in the Northwest

Executive Summary

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Northwest**

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Executive Summary

This report documents the results of a study conducted by the American Council for an Energy-Efficient Economy (ACEEE) for the Northwest Energy Efficiency Alliance (the “Alliance”). The study’s primary purpose is to analyze a range of technologies and practices, collectively referred to as “measures” for their potential as regional market transformation initiatives.

Approach

The following multi-step process was taken to assess potential market transformation targets. First, we *developed a list of measures*, focusing on technologies and practices suitable for full-scale market transformation programs at some point in the near term (i.e., during the 1998-2000 period). Second, we *collected data*, and updated or modified data collected for a previous PG&E study to reflect new and regional information. Additional measure analyses were added based on prior assessments of measures in the Northwest and discussions with Alliance staff. And third, we *developed and implemented a method for ranking* and presenting comparative information on different measures.

Measure characterizations

Detailed measure characterizations are presented for each of the 36 measures selected for analysis. These characterizations include a one to two page write-up and a data sheet that documents the data and assumptions used in estimating key variables.

Ranking measures

From the data collected on each measure, three factors were selected as our principal means for comparing, ranking, and presenting potential measures for new market transformation programs: (1) potential energy savings, (2) cost effectiveness; and (3) likelihood that a market transformation initiative will be successful. A variety of rankings were then performed.

Weights were applied to the three factors and an overall ranking based on these weights performed. Weighting factors (45 percent for potential energy savings; 35 percent for likelihood of success; and 20 percent for cost of saved energy, i.e., the “basecase scenario”) were chosen by ACEEE and the Alliance. For comparison, we conducted two sensitivity analyses on the basecase rankings. The first case weights each factor evenly (i.e., 33 percent each) and the second case reverses the weightings on energy savings potential and likelihood of success (energy savings potential is weighted 35 percent and likelihood of success 45 percent).

Results

The top 15 measures from the basecase ranking scheme as well as measures that made the top 15 under alternative scenarios are shown in Table E-1 below. This basecase ranking includes 8 residential measures and 7 non-residential measures; 10 of the measures are technologies and 5 are practices.

Table E-1: Summary of Rankings Under Alternative Weighting Schemes

	Base Weighing	Even Weighing	Reverse Weighing
Potential Energy Savings	45%	33%	35%
Cost of Saved Energy (CSE)	20%	33%	20%
Likelihood of Success	35%	33%	45%
1. Tumble- action clothes washers *	1	1	1
2. High-efficiency electric storage water heaters	2	2	2
3. Commercial building retro-commissioning	3	5	5
4. Low energy/water residential dishwashers	4	4	4
5. Optimization of microelectronics HVAC system	5	6	6
6. Commercial/industrial exit signs	6	3	3
7. Industrial pups, fans, and blowers	7	8	14
8. Residential duct sealing	8	10	10
9. High efficiency packaged commercial refrigeration equip.	9	7	8
10. Screw-in compact fluorescent lamps	10	22	18
11. Premium efficiency motors	11	11	12
12. Manufactured housing	12	16	11
13. Industrial compressed air system improvements	13	14	15
14. Residential fluorescent lighting fixtures	14	15	16
15. LED traffic signals (red and green)	15	12	7
LED traffic Signals (Red)	18	19	9
Agricultural scheduling systems	19	13	17
Improved building code implementation	20	9	13

* Note: These measures have negative costs and have been ranked assuming a zero CSE.

Twelve of the 15 measures are common to all scenarios: the basecase, even weighting, and the reverse weighting scenarios, although their order differs somewhat. Thus, the high-ranking measures are quite robust across a wide range of weights.

The Alliance now has initiatives underway to promote several of the measures presented in Table E-1, including tumble-action clothes washers, building retro-commissioning, efficient microelectronics industry HVAC systems, residential duct sealing, compact fluorescent lamps and residential lighting fixtures, manufactured housing, premium efficiency motors, improved building codes, and agricultural scheduling. In addition, the Alliance is conducting market research to evaluate opportunities for an expanded building retro-commissioning initiative and for beginning new initiatives in the areas of industrial compressed air, pump, fan and blower systems.

Of the remaining measures, several are currently addressed by national initiatives, including the EPA and DOE ENERGY STAR[®] programs for efficient commercial and industrial exit signs and high efficiency dishwashers. EPA and DOE are also in the process of developing an ENERGY STAR[®] program for efficient refrigerated vending machines. The Consortium for Energy Efficiency (CEE) is developing qualifying levels for the very efficient dishwashers and is investigating the potential for a national LED traffic signals initiative. Finally, DOE is revising its minimum efficiency standards for electric storage water heat