



ARRA State Energy Program Guidelines

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Ecos welcomes the opportunity to offer comments to the California Energy Commission on the Preliminary Application Guidelines for the State Energy Program funded by the American Recovery and Reinvestment Act of 2009 (ARRA). The State Energy Program Preliminary Application Guidelines reflect the significant efforts of the California Energy Commission in drafting a detailed set of guidelines for well constructed programs. The California Energy Commission should be commended for producing such a thorough plan on such an aggressive delivery schedule.

Ecos has been a longtime innovator in researching energy efficiency technologies and designing effective delivery programs. ARRA funding provides a unique opportunity to leverage existing energy efficiency programs offered by California utilities and other entities. Ecos offers the following suggestions to the California Energy Commission based on our significant experience implementing weatherization programs and the expertise we have developed with Ecos Air solutions for compressed air systems.

California Comprehensive Residential Building Retrofit Program

Ecos agrees with California Energy Commission's assessment that it will be necessary to conduct a significant number of Third Tier comprehensive retrofits to achieve the energy, climate and air quality goals set forth by the state of California. The deeper, comprehensive retrofits that are described in the plan will realize much more significant savings for each home by identifying the appropriate upgrades and formulating them into a whole house system approach that will capture savings for both the individual measures and symbiotic system efficiencies. The HERS II and Home Performance with ENERGY STAR® methodologies provide accurate assessments of the most beneficial upgrades to make in individual homes.

Ecos recommends that the California Energy Commission also consider a whole house characterization approach for Third Tier assessment. Whole house characterization looks at certain vintages and construction types of homes and identifies common opportunities and endemic issues. The whole house characterization strategy has two distinct functions:

- 1) It identifies "common" groups of homes to tailor testing/diagnosis protocols
- 2) It identifies total energy saving opportunities for the home to ensure homeowners take a comprehensive, systems-based approach to insulating, replacing windows, duct sealing, air sealing and upgrading heating and cooling systems

As a result, home characterization offers significant cost savings in program administration and delivery while achieving significantly higher savings per home than traditionally delivered programs. As the use of home characterization becomes more common, entire neighborhoods or subdivisions can be targeted for delivery of energy efficiency solutions. Subsequent economies of scale will reduce the cost of each individual upgrade by allowing contractors to reduce travel time, buy materials in larger quantities and develop pre-fabricated solutions for similar issues.

While Ecos supports the use of HERS ratings and HPwES techniques in some circumstances, we do not feel that they are necessary for all homes in order to achieve significant energy savings. We recommend that the emphasis be placed on the most cost-effective program delivery; in some cases, this means less

programmatic infrastructure so that more funds can go toward incentives, enabling the homeowner to afford installation of all available measures in their home. The challenge is not necessarily to identify the needed measures but rather to gain commitments from contractors capable of delivering those measures and soliciting participation from customers able and willing to afford the upgrades.

Pitfalls to avoid include:

- 1) Use of software is not calibrated to the customer's actual energy use to describe the energy use in a home and the potential energy savings opportunities
- 2) Required testing in every home when it may be possible to use Whole House Characterization, which looks at certain vintages and construction types of homes and identifies common opportunities and endemic issues

The answer to getting more measures per home may include HERS ratings and performance testing for some homes, but for others it may be possible to streamline this process. In either case, the key to getting more measures installed is a combination of the following:

- 1) Incentive design and financing that makes it very unlikely that measures will be left undone in the home. It is critical to "finish the job" when the opportunities are known and the customer is engaged.
- 2) Program delivery methods that overcome customer hurdles and reduce costs for the homeowner. Examples include:
 - a. Quality Assured Duct Sealing Program that we are piloting in the Northwest that includes training, requirements for every home, prescriptive sealing (including new areas and techniques) and careful quality assurance testing to ensure energy savings.
 - b. Work with window manufacturers and dealers to introduce triple pane windows at costs very comparable to double pane windows.
- 3) Program approaches that consider the local market conditions. For example, if many homes have already been weatherized, base load measures, triple pane windows and behavior could form the basis for streamlined programs in one area.
- 4) Utilize or develop local training facilities (e.g. community college training of installers) along with other blended learning options (in-person, at labs, online, on-the-job training).

Municipal and Commercial Building Targeted Measure Retrofit Program

Ecos supports the targeted measure approach to the municipal and commercial retrofit program, as there are widely understood technologies that can garner significant savings when applied to a large number of sites. Compressed Air, often referred to as the "fourth utility," is the energy source that drives many systems in applications as varied as agriculture, manufacturing, high-tech electronics, heavy industrial (lumber, chemicals, petroleum, stone/clay/glass, primary metals and industrial machinery) and municipal waste water treatment plants. It is not uncommon for a typical compressed air system to lose 90 percent of its capacity from input to actual output power. Over 75 percent of the cost of owning a compressed air system is the electricity needed to run it.

Ecos has responded to this tremendous savings opportunity by developing Ecos Air, an innovative program that works with customers to audit entire compressed air systems, identify inefficiencies and implement system solutions. Pacific Gas and Electric Company selected Ecos Air for its third-party innovative rebate program to realize substantial energy savings. The audit teams and infrastructure are already in place to bring projects to fruition by the March 31, 2012 deadline. Although the auditing teams are not comprised of "entry-level" positions, the skill set has been developed and the stimulus funds

would arguably help further develop skills that will have continued market value after the stimulus funds are exhausted. The magnitude of savings could offer relief by providing a significant decrease in utility expenditures for years to come. The relationship that Ecos Air has established with the utility programs would help to leverage available rebate funds to make the best use of available stimulus dollars.

Ecos encourages the California Energy Commission to include compressed air systems on its list of targeted measure retrofits. The significant opportunity for energy savings would support California's climate, energy efficiency and air quality goals. Compressed air efficiency would also reduce the utility burden on municipalities and industry, provide highly skilled green jobs and improve the reliability of the aging compressed air systems that are currently utilized. There are projects that are "shovel ready" that could rapidly be brought online to demonstrate early, measurable savings from the allocated stimulus dollars.