



CASE 07-M-0548 - EPS PROCEEDING
EARTHKIND ENERGY - RESPONSE TO JUDGE STEIN'S QUESTIONS

EarthKind Energy respectfully provides the following comments and answers to the questions posed by Judge Stein's questions outlined in the June 22, 2007 letter to the parties.

For All Parties:

1. *Can you please identify any inventories in New York State of existing building stock, appliances and fixtures that might be used to identify and target efficiency opportunities?*

The United State's Census provides data on heating fuel type for NYS residences by county. Assuming that in general the household uses the same fuel to heat their hot water, the data provides an inventory to target for space heating and water heating energy efficiency measures.

(U.S. Bureau of the Census, 2000 Census of Population and Housing; material compiled by Empire State Development, State Data Center. TABLE I-12 Occupied Housing Units by Type of House Heating Fuel. New York State by County, 2000.)

The data shows that there are a significant number of households who are use propane and fuel oil, since lower cost natural gas is not available. A program with a goal of 15% energy reduction - especially one with an aim to reduce carbon emissions - should be fuel-neutral and include all energy sources.

2. *Can you please identify any specific methods used in this or other jurisdictions of creating inventories of existing building stock, appliances and fixtures that might be used to identify and target efficiency opportunities?*

Renewable energy systems/appliances that displace energy for less than the current cost are viable efficiency opportunities for virtually every existing situation. In general, buildings that use electricity for hot water or heat would be the most likely targets; propane and fuel oil fired systems would provide the second most cost-effective opportunities; with natural gas having the longest payback. In all cases, solar thermal renewable energy appliances provide paybacks are within the life of the equipment.

3. *Can you please identify any specific energy efficiency programs targeted to existing building stock, appliances and fixtures rather than to new construction? If possible, provide a description, cost per MWh or Decatherm, and total resource cost test score for each such program.*

Solar thermal systems that produce hot water or space heat are systems that can be part of any cost effective program targeted toward existing or new buildings. Solar thermal systems for space heat generally use solar thermal energy to heat recovered room air, as well as fresh air entering the building. These systems have useful lives of at least 20 year lives. Costs and performance vary depending upon the site and installation complexity.

The INCREMENTAL COST of installing solar hot water and solar space heating in new construction can provide paybacks of less than 3 years (since there is already an allocated budget for materials and labor, and there is only an incremental addition for solar thermal systems).

Amortizing the current **TOTAL INSTALLED RETROFIT COST (without tax credits)** for preheating fresh air for commercial systems is \$11-18 per MWhr over the life of the system, while heating air with modular solar thermal panels in residences is \$105 per MWhr over the life of the system.

The lifetime costs for using solar thermal energy to preheat hot water for residential and commercial installations range from \$70 to \$82 per MWhr.

Each of these technologies is eligible for Federal tax credits, and the residential systems also qualify for NY State tax credits that reduce the cost of energy avoidance.

EarthKind Energy believes that a MARKET TRANSFORMATION STRATEGY could be successful with State investments in programs that, over 7 years, would cost less than 10% of the total installed retrofit costs.

While these technologies provide long term financial benefits and acceptable total resource costs, customers do not have a sufficient incentive to install technologies even with the lower energy production costs due to the up front capital costs, even when there are tax credits available.

EarthKind Energy is proposing that New York State adopt a Solar Thermal Market Transformation Strategy that would reduce the already cost effective solar thermal installation costs by 50%.

We offer to work with DPS Staff to create cost-effective programs, and look forward to other opportunities during this proceeding to identify and develop program tools that create the market mechanisms and enable the industry to be self-sufficient no later than 2015. These programs could achieve 10 to 25% of the EPS goal by reducing barriers and building demand for solar thermal technologies.

4. *Can you please identify any specific energy efficiency programs targeted to participants lacking available capital to invest in energy efficiency measures? If possible, provide a description, cost per MWh or Decatherm, and total resource cost test score for each such program.*

EarthKind Energy participates in projects that provide solar thermal to businesses and institutions which require no capital investment, but are either "Performance Contracts" or "Power Purchase Agreements" where the customer pays for the energy as it is produced.

These projects are based on the customers' current cost of heating hot water. The resulting long term contracts are tied to a fixed price or a fixed discount from their current cost. The key is the length of the contract - 10 to 15 years - rather than requiring a premium over current costs. In addition to guaranteed energy performance over the contract, the system is also monitored and maintained by a 3rd party.

Similar arrangements could be developed for residential customers. However, residential programs need to address

these issues: 1) cost of monitoring systems; 2) Periods of limited use; 3) revenue grade meter requirements and 4) System maintenance.

The cost of a monitoring system is only a few percent of a commercial institution's installation. However, it could be 30% or more of a residential system, and there are issues about qualified revenue-grade utility BTU meters. Single family residences can be on vacation during the summer's peak hot water production times, which would eliminate a revenue stream based on system output. Lastly, while long term commercial contracts provide enough annual revenues to pay for system maintenance, residential systems do not.

5. *Are you aware of any specific market transformation energy efficiency programs that are not already being pursued in New York? If possible, please provide a description, cost per MWh or Decatherm, and total resource cost test score for each such program.*

Please see answers to No 3 above which describes solar thermal as an energy efficiency program component.

Germany's market transformation was achieved with a 5 year, \$10 million marketing campaign and an incentive program that started with significant rebates that were reduced over time.

6. *What entities would be most appropriate and effective in delivering:*

A. **MARKET TRANSFORMATION TYPE PROGRAMS**

These would be most effectively pursued by renewable energy marketing firms geared to advancing technologies that are under-represented in the market. Market transformation programs that provide incentives for the installation of long-lasting technologies that have not been previously tried would be the most appropriate.

B. **PEAK SHAVING/DEMAND RESPONSE TYPE PROGRAMS** Utilities, ESCO's and energy efficiency providers that can aggregate and bring value to the smaller customers

C. **END-USER REBATE TYPE PROGRAMS** Utilities and ESCO's

D. **ENERGY AUDIT TYPE PROGRAMS** Utilities and ESCO's.

E. **WEATHERIZATION TYPE PROGRAMS** Community Action Programs and other low income weatherization providers.

F. **PROGRAMS FOR PARTICIPANTS LACKING CAPITAL** Banks and credit unions, with guidance and support.

G. **PROGRAMS TARGETED TO NEW CONSTRUCTION** Economic development agencies and utilities

H. **PROGRAMS TARGETED TO EXISTING BUILDING STOCK, APPLIANCES AND FIXTURES** Utilities, ESCO's, energy efficiency providers

8. *Is your entity or organization interested in being a provider of energy efficiency programs? If so, what types?*

Yes, specifically solar heat and solar hot water systems. EarthKind Energy is the New York State distributor for a range of renewable energy efficiency measures which produce space heat or preheat hot water for domestic and commercial uses. We have a dealership network across the state that can install these systems in residences, and relationships with contractors that provide solar thermal products and installation services to commercial and industrial customers in every region.

9. *Is your entity or organization opposed to being a provider of energy efficiency programs? If so, what types?*

EarthKind Energy currently limits activities to the utilization of renewable resources.

Thank you for the opportunity to participate in this historic proceeding!