



**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY - RESPONSE TO STAFF'S QUESTIONS**

*EarthKind Energy respectfully provides the following comments and answers to the questions posed by staff in the June 15 Ruling on Scope and Schedule for the above-captioned proceeding. EarthKind Energy will respond to Judge Stein's questions outlined in her June 22, 2007 letter to the parties in a separate filing by July 20.*

**General Comments**

EarthKind Energy believes that the incorporation of solar thermal technologies for hot water and space heating can substantially reduce the use of electricity, natural gas, propane and/or fuel oil. Our interests include program development, market transformation, and aggregation of peak load reduction. We wish to see the development of a method to track carbon offsets for renewable energy technologies that reduce on-site energy consumption.

In response to your request, EarthKind Energy is interested in providing additional support to the staff to properly utilize Solar Thermal as an energy efficiency measure, and would be willing to take the lead in the development of incentive programs involving utilities or ESCO's.

Solar Thermal technologies integrate with virtually all existing fossil fuel hot water and space heating systems, and provide a cost-effective mechanism to reduce energy consumption and emissions.

**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY RESPONSE TO STAFF'S QUESTIONS**

---

In 2006, Germany - with a population 4 times greater but with 25% less solar insolation compared to New York State - installed over 140,000 solar thermal systems.

Germany's market transformation - initially jump-started by a broad coalition of public and private interests, a targeted public education campaign, and reasonable, declining incentives - is now producing an annual \$1.6 billion in solar thermal sales and is supporting over 18,000 jobs.

Germany's 6,300 MW<sub>T</sub> of installed Solar Thermal capacity in the last 10 years (with the majority of installations occurring in the last 5 years, in annual escalations, unsupported by additional incentives) is now reducing energy consumption by 4.3 TWhs (4.3 Million Megawatt Hours) per year.

By creating the proper market conditions, New York State can utilize Solar Thermal technologies to help achieve the energy reduction goals of the EPS. Simultaneously, New York State can position itself as the Solar Thermal Leader in the region, where the 90 million person population in a 500 mile radius has a market potential greater than Germany.

GOALS:

1. *What approaches hold the greatest potential to contribute to New York achieving the overall target of 15% electricity consumption reduction by 2015? Are there any energy consuming sectors and markets that are currently underserved by the existing available portfolio of energy efficiency programs and services in New York State? How should those deficiencies be addressed in implementation initiatives?*

1A. Solar thermal technologies are vastly under-utilized in New York (and throughout the U.S.). Since Solar Thermal technologies do not include the generation of electricity, they are not covered by the RPS. Residential, commercial, and industrial consumers - as well as the trades (plumbing, HVAC) - are not familiar with the technology, nor with the fact that solar thermal technologies can generally provide paybacks between 7 and 12 years without any public incentives. This deficiency in public perception can be remedied through activities such as a public education and marketing campaign, similar to NYSERDA's performance-based wind energy marketing PON that successfully created the voluntary green power market in New York State (and helped build broad public support for the RPS).

In addition, low income persons are under served since they do not have the cash outlay for installing measures. Programs can be created that would allow the installation of solar thermal measures to be paid by third parties, with low income consumers paying for the systems as they use the energy.

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2. *What is a reasonable goal for natural gas energy efficiency programs?*

2A. 15%+ is a reasonable goal. Solar thermal technologies alone can save at least 15% for an average residence and commercial facility.

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**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY RESPONSE TO STAFF'S QUESTIONS**

---

3. *What are the most appropriate methods and processes for establishing program specific goals and for measuring progress towards long term goals (including program monitoring, measurement, and evaluation)?*

3A. Progress toward the goal should be monitored, with advantage given to products that are performance tested and are likely to meet predicted levels. Actual performance should be monitored through normalized records of actual usage.

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4. *What load forecasting models and methodologies should be used in developing and refining the objectives of the EPS Proceeding?*

4A. No response.

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5. *What other national, state, and municipal government and private initiatives would help New York meet the objectives of the EPS Proceeding? In what ways can we leverage the impact of these initiatives to help us meet the objectives of the EPS Proceeding? How should the impact of these initiatives be counted and measured?*

5A. The Federal Government provides a tax credit for Solar Thermal technologies, and the state provides tax credits for residences. These programs can be leveraged by a public education and marketing program (discussed in #1A) and by creating a solar thermal tax credit for businesses. The EO 111 program encourages energy efficiency of the various agencies. Increased funding for EO 111 would enable these institutions to avail themselves to technologies that have longer paybacks with out the tax credits available to private institutions.

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

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6. *The Commission instituted a pilot natural gas efficiency program within Consolidated Edison Company of New York, Inc.'s (Con Edison) service territory... In the statewide study, NYSEDA used a different benefit/cost approach to measure cost effectiveness.*
- a. *Please comment on the appropriateness of the approach used in the statewide study.*
  - b. *If a different test of cost effectiveness should be used (i.e., other than the total resource cost test), what test should be adopted and why?*

6A. The study did not adequately assess the potential to assess solar thermal technologies for DHW or space heat. As mentioned previously, Germany's 6,300 MW<sub>T</sub> of installed Solar Thermal capacity in the last 10 years is reducing energy consumption by 4.3 TWhs per year. By not including this technology, the study both understates the potential benefits and results in inadequately designed programs that do not allow customers to utilize solar based technologies that provide long term energy reductions.

In the report, there is a mention of using solar thermal to heat domestic hot water in the residential section, but there is nothing on solar thermal technology in Appendix 1, which provides the detail of the residential assessment, nor is there any reference of solar thermal in the commercial or industrial sections. The Con Edison program incentives ignore Solar Thermal technologies. This should not be repeated on a statewide basis, and the ConEd program should be revised to remedy this oversight.

Solar thermal technologies are available and are being effectively used worldwide to preheat water for residential, commercial, and industrial applications. Solar thermal technologies are also being used to provide space preheating for residences, commercial, and industrial buildings, as well as industrial process heat. The strategy to assess gas efficiency should include these technologies.

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

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PROGRAM ELEMENTS:

7. What role should building codes and appliance standards play in reaching New York's energy efficiency goals and should such standards vary by geographical area (i.e., metropolitan New York City versus upstate)?

7A. Codes and standards should be used to reach the objective statewide. Green building and LEED techniques should be mandated. Buildings should be required to utilize renewable solar technologies as part of the design, with exceptions only for real limitations to solar access.

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8. What role should outreach and education play in an enhanced energy efficiency effort and what changes in approach should be made in various demographic or market segments from the methods now being used?

8A. The most effective outreach can be accomplished through marketing support. While some general educational should be done on a state wide basis, funds for marketing that are tied to sales are the most effective measures. The green marketing program that launched the renewable energy programs in the state included initial milestones but was primarily focused on payments for performance based upon the annual energy usage of sales contracts. Since energy efficiency measures are long lasting - up to 20+ years for solar thermal - the benefits from the marketing support are long lasting. Since payments are only based on performance, they are cost effective. Utilities and energy providers should be required to allow periodic bill inserts to enable a cost effective method of delivering targeted messages and provide low-cost sign up opportunities.

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

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9. *What role could innovative rate design play in enabling greater penetration of energy efficiency and how might this vary by market segment? Should energy tariffs recognize and differentiate between the relative level of energy efficiency designed into new buildings?*

9A. Buildings that incorporate energy efficiency and renewable energy technologies should be afforded a lower rate tariff compared to a building that does not incorporate long term lasting measures. Levels of BTU's per square foot could be used as the basis for determining preferential rates.

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10. *What programmatic and outreach efforts, within and beyond the current scope of the Commission's jurisdiction, that have not been generally considered as energy efficiency programs, should be integrated into overall strategies and plans to reach energy usage reduction targets?*

10A. Renewable energy efficiency measures should be mandated for all new construction. Efficiency measures, especially solar thermal, should be provided with incentives for customers who use oil and/or propane as their space and/or hot water heating source. Lastly, Municipal Electric Coops should also be required to fulfill the EPS standards.

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11. *Should customers of natural gas utilities served under value of service or market-based rates, such as interruptible customers, be included in the overall efficiency program? If so, what types of programs are appropriate for these customers? In what ways would a natural gas efficiency program affect the oil and propane competitive markets and what steps could be taken to eliminate or minimize such impacts (e.g., limiting the program to non-dual fuel customers)?*

11A. Energy Efficiencies measures that reduce energy consumption - regardless of the fuel being used - should be promoted for these customers. Programs that provide incentives for fuel switches should not be included. Solar thermal technologies are an example of fuel neutral technologies as they provide long term and consistent reductions in energy requirements, regardless of the fuel.

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**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY RESPONSE TO STAFF'S QUESTIONS**

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12. *What role should a) distributed generation, b) demand response, and c) combined heat and power play in reaching New York's energy efficiency goals?*

12A. The role of distributed generation should be limited to situations where they can provide energy savings, either on site or by reducing transmission losses.

Demand response should continue to be supported through programs for the benefit they provide to the grid. However, they should not be given further incentives in this program. Energy efficiency measures that provide measurable reductions should be recognized for their reduction to the peak load. A mechanism should be established that enables aggregation of residences and small businesses to be compensated for their contribution to peak load reduction.

Combined heat and power should continue to be given incentives based on their overall reduction in energy consumption. Care must be taken to insure that inefficient generation is not promoted, and inefficient technologies should not be included. Combined heat and power systems that employ renewable technologies should be promoted since they offer an advantage over traditional combined heat and power systems that rely on fossil fuels.

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13. *How can gas efficiency programs best compliment electric efficiency programs? Similarly, how can electric efficiency programs be adapted to serve the needs of gas customers?*

13A. There are technologies that are suited to both electric and gas customers. Programs should fund the same measures consistently, on an energy source neutral basis. Electric and gas customer interests are linked, since electric rates on the margin are based on the cost of natural gas, and power plants on the margin



compete with other sectors for natural gas. Electric customers benefit from the reduction in consumption of gas customers, since the price of natural gas will decline. Similarly, reduction in gas consumption in the non-power generation area will reduce the price of gas for the generation sector.

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**IMPLEMENTATION:**

14. *What could be an appropriate role for utilities with respect to the delivery of energy efficiency programs within their service territories? How might that role vary by market segment?*
- 14A. Utilities have unsurpassed name recognition with their customers. Despite changes in regulatory structure and changes in staffing, they are still the customer's first source of information on energy matters. While this is more prevalent with residential customers, utilities still have account representatives that are available to - and relied on - by larger customers, even when the customer utilizes an ESCO for their energy supplier.

Utilities are unique in that they serve all customers in a specific area. The history of the role of utilities during the Demand Side Management programs is not one that should be replicated, as it encouraged unnecessary costs. Decoupling of revenue from energy usage is an excellent first step. Further adjustment of the rate structures should be considered in the form of a carrot and a stick. Each utility should have a minimum load reduction that should occur with current customers and business activities. If they do less than that, there should be a penalty imposed; if they exceed the threshold, they should be rewarded.

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

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The utility's role should not be in the implementation. Instead, it should be in coordination, promotion, and assisting with the implementation of the technology. In situations where there are measurable long-term benefits that can be monitored, utilities should be encouraged to finance these energy efficiency measures.

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15. *What role should key stakeholders play in an enhanced energy efficiency effort (e.g., Staff, Departments of State and Environmental Conservation, utilities, NYSERDA, Division of Housing and Community Renewal, NYPA, LIPA, NYISO and energy service companies), and how should they coordinate their efforts? What factors should be taken into account in determining how the implementation of various program elements should be managed and monitored?*

15A. It is critical that the interests of participating stakeholders be aligned in achieving the program objectives. State staff, agencies, and their regulated entities should all be provided incentives for performance - or penalized for non-compliance.

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16. *What role should the private sector (e.g., financing and educational institutions) play in program development and implementation? How should these efforts be coordinated with utility and government entities' programs? Are there additional incentives (or tax relief) that could be provided by Federal, State and Local governments which would enable greater penetration of energy efficiency initiatives?*

16A. Financial institutions should be utilized for pre-approved technologies to enable consumers to take advantage of the long term savings provided by technologies. NYS Pension Funds could be used as an underwriting vehicle for 15+ year financing of approved measures. A state business tax credit for solar thermal technologies - similar to the residential tax credit - should be instituted to stimulate business acceptance of the technology.

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**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY RESPONSE TO STAFF'S QUESTIONS**

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17. *Should utilities (or other entities) receive incentives for implementing successful energy efficiency programs? If so, what is the appropriate level and form that these incentives should take and should such incentives be performance based?*

17A. Utilities should be entitled to favorable rate treatment for achieving objectives, and unfavorable rate treatment if objectives are not achieved. Providers should be provided an incentive based on the life of the measure; for example, 2 years of savings for a device that has a life of 20 years.

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18. *What are the best methods for ensuring that low income customers have access to efficiency programs?*

18A. Current NYSERDA funding requires matching funds for low income homeowners. However, many do not have the funds to take advantage of this generous offer. Further support for these customers is required, including measures that require little (or no) out of pocket costs for certain measures, but instead let them pay for the energy over time.

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19. *How should environmental justice be considered in program design?*

19A. Incentive programs should be increased and special marketing funds should be allocated to communities that have traditionally suffered from environmental injustice.

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20. How should existing gas utility efficiency programs, and those under development in rate proceedings, be integrated into an overall energy efficiency effort?

20A. Existing programs should be folded into the overall effort, with the caveat that there should be a wide technology choice (that is not limited to the measures included in the Con Edison program).

**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY RESPONSE TO STAFF'S QUESTIONS**

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21. *Are there any modifications or adjustments that could be made in the current Systems Benefit Charge portfolio that would achieve higher levels of energy efficiency market penetration and saturation?*

21A. All customers should be eligible to reduce their household energy consumption. For example, an electric customer that uses propane, or fuel oil or natural gas should still be able to obtain incentives to reduce energy consumption. In addition, any licensed NYS business - not just NYSERDA certified contractors - should be able to file incentive claims for their customers.

**COSTS AND BENEFITS CALCULATION:**

22. How should the expected benefits and costs of various design options be measured and compared? What externalities should be included and why? What expenditures or benefits should be characterized as transfer payments and perhaps excluded from the analysis? Why?

22A. Long term, 20+ year solutions should be preferred. Improving the economy through reduced energy bills and reduction in peak load are two critical evaluation factors. Another factor should be economic development through the location of facilities in the state to provide the equipment and appliances for this initiative.

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23. *What are the best methods for ensuring transparent and technically sound methods for evaluation of program energy savings (gross and net), non-energy benefits (e.g., economic, environmental) and program performance and administration?*

23A. The methods used to ensure transparent and technically sound evaluation of program energy savings vary almost by measure. Some are difficult to measure, other are relatively easy.

**CASE 07-M-0548 - EPS PROCEEDING**  
**EARTHKIND ENERGY RESPONSE TO STAFF'S QUESTIONS**

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Products that are performance tested by independent testing agencies can avoid follow up performance testing; instead only proper installation needs to be verified. For others, meter readings will be required.

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24. *How should customer satisfaction and program design efficacy be assessed?*

24A. Survey forms should be submitted as part of installation confirmation.

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**FUNDING:**

25. *What constitutes a reasonable level of funding for the electric and gas energy efficiency programs? How, and from whom, should the various program costs be funded, allocated and recovered?*

25A. Investing 1 to 2 years of savings (5% to 10% of a 20 year efficiency measure) would be an appropriate incentive that should be provided to start the program. The costs should be allocated to all end users in an equal per energy unit basis, with the exclusion of low income customers.

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*We thank you for the opportunity to participate in this history-making proceeding, and look forward to next week's program.*