STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Case No. 07-M-0548 - Proceeding on Motion of the Commission Regarding an Energy Efficiency Portfolio Standard

Responses of the City of New York to Department of Public Service Staff Questions

July 11, 2007

The City of New York (City) hereby provides responses to the questions in the above-captioned proceeding that were posed by Department of Public Service Staff on June 13, 2007. The Staff questions and City responses thereto are set out below.

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?*

Fully 33% of New York State's electricity is expected to be consumed within New York City and some 35% of the summer peak load is also located in the City.[1] With such a significant proportion of the State's electric demand, any plan to achieve a 15% reduction in electricity consumption by 2015 must pay particular attention to New York City. The City's long term sustainability plan, called PlaNYC, sets forth ambitious goals in land use, water, transportation, energy, air quality, and climate change. One important component of many of these goals is to reduce New York City's energy consumption. In fact, PlaNYC sets forth fourteen initiatives related to energy and six of them are specifically focused on reducing energy demand. According to the analysis done in PlaNYC, New York City's electric load will grow by 17% by 2015 but with the implementation of all of the energy initiatives in PlaNYC, the City can reduce its electricity consumption by approximately 14-15% by 2015. As the consumer of a third of the State's electricity, New York City holds the greatest potential for contributing towards the "15 by 15" goal, and PlaNYC provides a roadmap for getting there.

The "15 by 15" energy savings goal is well beyond what New York State has been achieving. For example, in 2004, NYSERDA electricity savings were 1.2% of non-residential sales and 0.2% of residential sales, while LIPA achieved were 0.3% of nonresidential sales and 0.5% of residential sales. If New York is to meet the 15% goal in eight years, it needs to average about 2% savings each year; requiring a doubling of NYSERDA's non-residential results and increasing other categories by several times.

Some other states have achieved deeper savings with more intensive energy efficiency investments, particularly in the residential sector; if New York wants larger energy savings, it should expect to spend more to get them.[2] For 2004, for example, the statewide Efficiency Vermont effort achieved residential savings of 1.4%, while Pacific Gas & Electric achieved 1.2%. While NYSERDA led the pack in nonresidential savings, both Vermont and California came in close behind, at around 1%.

But Vermont and California are also planning significantly increased efficiency investment over the next 2 to 5 years, as are several other states, such as Oregon and Wisconsin. Efficiency

[1] New York Independent System Operator, 2007 Gold Book, 2007 load forecast

[2] More spending does not guarantee greater savings; some states have spent more on DSM and gotten lower saving levels than New York.

Vermont plans to reduce nonresidential sales by 1.9% and residential sales by 2.3% in 2008. Comparable figures for PG&E are 0.8% and 2.7%, respectively. NYSERDA will need to increase its savings rates by 60% to match Efficiency Vermont's 2008 non-residential target and by over ten times to match PG&E's residential target.

Additionally, achieving deeper savings from cost-effective efficiency investments requires some or all of the following performance improvements in New York's administration of its energy efficiency portfolio:

- Deep market penetration in efficiency markets and segments not targeted by the State's existing efficiency portfolio
- Higher market shares of high-efficiency technologies and practices in markets and market segments currently targeted by New York's existing program portfolio
- Increased electricity, non-electric energy, and other resource savings by individual program participants through more comprehensive investment and higher efficiency levels
- Greater operational efficiency in program administration and implementation to minimize costs and maximize effectiveness as New York scales up its efficiency investment portfolio in the years ahead

Improving efficiency portfolio performance will require New York to make the following changes to its current approach to program design and implementation:

- Design new programs for markets not currently targeted using the market strategies shown by successful experience elsewhere with "best practices"
- Employ more aggressive market strategies with new or improved designs in markets currently targeted
- Improve consistency in program designs serving the same markets and market segments throughout the State, within upstate and downstate regions, and between electricity and gas efficiency programs
- Coordinate and consolidate portfolio management functions as much as possible to reduce administrative duplication and overlap

Further examination of program performance is necessary before drawing definitive conclusions about specific opportunities for increasing cost-effective savings in markets addressed by existing programs. Nevertheless, the current state of existing electric and gas energy efficiency programs strongly suggests significant opportunities for additional cost-effective savings in the following areas:

- New residential and nonresidential construction
- New equipment, appliance, and product purchases by residential and nonresidential customers
- Retrofit of the existing stock of housing and nonresidential buildings and facilities

In each of these areas, most if not all of the changes in approach identified above will be necessary to deepen savings sufficiently to meet the 15% savings goal as cost-effectively as

possible. Answers to questions below address further the changes needed to exploit the additional savings in these unserved or under-served efficiency markets.

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

Conceptually, the goal for natural gas energy efficiency programs—like the goal for electric efficiency programs—should be to minimize the costs of energy services for consumers and the State. Energy efficiency programs should not be treated as a peripheral charitable or public-relations activity, but as a key part of utilities services to their service territories and customers.

New York City does not have specific numerical recommendations at this time. In 2006, NYSERDA conducted two studies of cost-effective natural gas efficiency potential, one for Con Edison and one statewide. Neither of those studies actually estimated reasonable and achievable implementation rates for gas energy efficiency, only the savings to be expected from a program that was capped at a relatively modest budget.

The recent proposed settlement in the Con Edison gas rate case[3] provides funding for extension of the NYSERDA studies to develop estimates of annual achievable economic potential. The Commission should mandate a similar extension for the rest of the state. The resulting analysis would provide a basis for reasonable numerical goals for natural gas energy efficiency programs.

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)?

The most appropriate method for establishing program goals is to analyze the economically achievable program potential savings for each market. Program potential analysis is predicated on multi-year projections and comparisons of program benefits and costs for specific program designs and applying best-practice design elements to each targeted market. This approach develops annual program budgets, projections of market penetration of efficiency technologies and practices within targeted market segments over the future years of a program with a fixed end date – here, 2015. Additionally, this method uses the most successful program designs from other jurisdictions to inform judgment about expected future outcomes.

Economic analysis should follow the approach recommended in the answers to Question 6 below. Program costs and savings projections should be made assuming the most effective administrative mechanism for marketing, managing, and delivering newly designed or re-designed programs.

A collaborative design and oversight process should be established to use the results of program potential analysis to set multi-year performance goals for individual programs and for the entire portfolio. Ongoing monitoring and measurement of program costs and outcomes should be the responsibility of the portfolio administrator. Performance evaluation research should be specified and overseen in a process not under the program administrator's exclusive control. Public or customer representatives should also be involved in the process of specifying contractor scopes of work, soliciting and selecting contractors, and supervising their work.

[3] Joint Proposal in Case No. 06-G-1332 (June 1, 2007)

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

Currently, load forecasting is the responsibility of the utilities and the New York Independent System Operator. Unless it is determined for some reason that changes are necessary, load forecasting should remain the responsibility of these entities, which have considerable experience and expertise in the field.

Reasonable load forecasting is important for the estimation of avoided costs, and hence the economic evaluation of energy efficiency programs, and for planning for new construction, retro-commissioning, audit and retrofit programs. But as forecasts are highly uncertain, energy efficiency programs must be able to respond with resources if new construction and renovation demands are higher than expected.

The City has no position at this time about the most suitable forecasting models and methodologies, which may vary among portions of the State and the purpose of each analysis (*e.g.*, budgeting, contracting for resources, targeting programs, estimation of avoided costs).

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?*

On April 22, 2007, Mayor Bloomberg unveiled a long term sustainability plan for the City of New York called PlaNYC. One primary focus of PlaNYC is on energy and the City goal of providing cleaner, more reliable power for every New Yorker by upgrading our energy infrastructure. Six specific energy initiatives in PlaNYC are targeted at reducing New York City's energy consumption:

1. Reduce energy consumption by City government
2. Strengthen energy and building codes for New York City
3. Create an energy efficiency authority for New York City
4. Prioritize five key areas for targeted incentives
5. Expand peak load management
6. Launch an energy awareness and training campaign

Efforts are already underway to fully implement these initiatives. The City has committed $80 million in the fiscal year 2008 budget towards energy efficiency measures in City government buildings. Nine universities have signed on to the Mayoral Challenge of achieving 30% CO_2 reduction in just 10 years, which is also the goal established in PlaNYC for the New York City government. The City has launched an energy awareness campaign called GreeNYC to get individual New Yorkers involved in "greening" New York by reducing their energy consumption. These are just a few examples of the work that is already underway as part of New York City's effort to bring advanced demand side management methods to our region.

The statewide goal of "15 by 15" and the New York City PlaNYC energy and climate change goals are consistent in purpose. Accordingly, a partnership and close collaboration between the City and State are essential to advancing their mutual objectives.

6. *The Commission instituted a pilot natural gas efficiency program within Consolidated Edison Company of New York, Inc.'s (Con Edison) service territory.*[4] *As part of that pilot program, the Commission directed the New York State Energy Research and Development Authority (NYSERDA) to prepare a study of the natural gas energy efficiency potential within Con Edison's service territory. NYSERDA filed that study on June 22, 2006, and it was then issued for comment.*[5] *Subsequently, NYSERDA prepared a study entitled "Natural Gas Efficiency Programs Resource Development Potential in New York," which was issued on October 31, 2006 and is available on both the Commission's and NYSERDA's web sites. In considering issues associated with a Con Edison electric efficiency/demand management program, the Commission specified how the total resource cost test should be applied to measure the cost effectiveness of measures under that program.*[6] *In the statewide study, NYSERDA 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?*

The City believes that the Commission precedent on the interpretation of the total resource cost (TRC) established in Case 04-E-0572 is generally reasonable, as long as the Commission explicitly allows the inclusion in some fashion of market price effects and environmental externality costs in the screening of measures and programs. The Commission defined these costs as being outside its definition of the TRC, but found it appropriate "to take note of factors other than those that are captured by the total resource cost test in deciding which programs should go forward" (Order at 32). The Commission also allowed the inclusion of three years of market price effects in screening of programs (Order at 33).[7]

Considering the importance to New York State of moderating generation prices and meeting environmental standards (initially for traditional air pollutants, and now increasingly for greenhouse gases), ignoring prices and emissions in evaluation of energy efficiency programs would be counter-productive. The Commission may prefer to call this broader view the "societal test" or the "TRC with price effects and externalities." The City supports the precedent in Case 04-E-0572 of requiring estimation of cost-effectiveness under the traditional TRC, while

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[4] Cases 03-G-1671 and 03-S-1672, Consolidated Edison Company of New York, Inc. – Gas and Steam Rates, Order Adopting the Terms of a Joint Proposal (issued September 27, 2004).

[5] Case 03-G-1671, *supra*, Notice Soliciting Comments (issued August 14, 2006) (Con Edison Notice)

[6] Case 04-E-0572, Consolidated Edison Company of New York, Inc. – Electric Rates, Order on Demand Management Action Plan (issued March 16, 2006).

[7] The Commission should also remain open to more sophisticated analyses of the duration and magnitude of market-price effects, and allow for improvements on the three-year rule.

allowing the pursuit of initiatives that would fall outside the traditional TRC, as long as they pass the enhanced test.

In addition, the PSC should mandate the inclusion in estimates of avoided costs of:

- Quantifiable benefits for consumers in the reduction of price risk and volatility
- The costs of renewable energy credits under the renewable portfolio standard avoided due to lower energy consumption
- An estimate of CO_2 allowance costs, based on the marginal costs of measures that would be necessary to meet foreseeable state, regional and national greenhouse gas mitigation targets. As an interim step, the City suggests that the Commission adopt the presumption that utilities and other parties use the values from the avoided-cost study performed for the New England utilities, including National Grid, KeySpan and Energy East:[8]

Year	Allowance Prices for CO2 (2007$/ton)
2007	$0.00
2008	$0.00
2009	$2.21
2010	$2.37
2011	$2.53
2012	$9.46
2013	$11.56
2014	$13.66
2015	$15.76
2016	$17.86
2017	$19.96
2018	$22.06
2019	$24.16
2020	$26.27
2021	$27.32
2022	$28.37

If you have not already commented on this previously, please provide your observations, critiques, and other comments on the data, assumptions, methodologies, and analyses used to develop the estimated potential savings and benefits in the statewide study.

So far as the City is aware, the assumptions, methodologies, and analyses in the statewide study of gas-efficiency potential were reasonable. However, the study was limited in that it did not estimate maximum achievable economic potential, only the potential of a modest program that was arbitrarily capped at a particular level.

[8] Avoided Energy Supply Costs in New England: 2007 Final Report; Hornby, R., *et al*.; prepared by Synapse Energy Economics for the Avoided-Energy-Supply-Component Study Group, Draft - July 2, 2007, Figure 5-11.

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)?

Building codes and appliance standards are an important component in reaching the New York State's and New York City's energy efficiency goals. The first major revision to New York City's building code in nearly 40 years was approved by the City Council on June 27, 2007 and updates to the code will now be made on a three-year cycle. This is a critical step in moving New York City closer to its PlaNYC goal of reducing energy consumption and will also be important to achieving the "15 by 15" goal at the state level. The new City building code contains some green building features such as requirements for cool (white) roofs, energy code certification and more stringent ventilation standards. As part of PlaNYC, the City is committed to making the next revision to the building code even more focused on incorporating energy efficiency requirements.

Emphasis will be put on efficiency upgrades, including retro-commissioning or audits and retrofits, for large commercial and industrial buildings (>100,000 sq. ft) and large residential buildings (>50 units). Also, streamlining the process for incorporating new, sustainable technologies in construction, and adaptation to climate change will become part of the next revision.

These amendments at the City level should be considered when revisiting the State's own building code. In particular, the State should consider making improvements to the New York State Energy Conservation Construction Code, which is a portion of the State Building Code. Enforcement standards need to be strengthened to ensure statewide implementation of the code and higher standards, particularly on lighting requirements, should be set.

After lighting, the largest source of energy consumption is from inefficient appliances (notably including air conditioners, which dramatically affect peak consumption) and therefore, reforming appliance standards is critical to achieving the State's energy efficiency goals. There is a need to strengthen existing federal standards and promulgate appliance standards pending action before NYSERDA and the New York State Department of State. In order to truly make an impact, the process for adopting enhanced appliance energy efficiency standards should be modified to allow state agencies to use their regulatory powers to set appliance efficiency standards, as opposed to the involvement of the legislature that is currently required. This change will allow appliance standards to keep pace with technological progress.

Due to differences in avoided costs, building stock, climate and possibly other factors, different standards may be appropriate in different parts of the state. For example, with the shorter cooling season and lower costs of electric energy and capacity, the optimal efficiency level for cooling equipment in Rochester might be lower than in New York City. Optimal furnace efficiency may be higher in Buffalo than on Long Island. Economic evaluation of potential improvements in the New York State Energy Conservation Construction Code should consider regional differences and--if clearly justified--set different requirements for different portions of the state. California (which has wide climate variations) has followed this practice for many years.

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?

Implementation of an aggressive energy efficiency target requires the understanding of not only the issues but also the cost savings and details of the programs available. If New York is to realize a 15% energy savings target in the next eight years, education will be a key component. In analyzing how to achieve widespread demand side management within New York City, education was seen as critical. With the vast number of customers and building professions located in New York City, each with a different profile and level of energy awareness, coordination and widespread education is fundament to successful implementation of energy efficiency measures. PlaNYC advocates the establishment of a New York City Energy Efficiency Authority (NYCEEA), which will be responsible for reaching the City's demand reduction targets. Among other initiatives, NYCEEA would undertake an energy awareness and training campaign that is designed specifically for the unique and varied New York City market.

While NYCEEA has yet to be established, the City has already launched a public campaign called GreeNYC to inform individual New Yorkers about improving their energy usage. We are also working to partner with schools, marketing professionals and non-profit organizations to develop customized awareness campaigns tailored to specific sectors. Training programs for building operators, builders, designers, retailers and energy service providers will need to be expanded and enhanced to ensure that building practices reflect the most energy efficient strategies.

Other areas that should be targeted for expanded programs and marketing campaigns are new construction, retro-commissioning, audits and retrofits and also purchases of new equipment, appliances and products. Much more focused business development will be needed, involving sustained, one-on-one engagement with customers and upstream market actors. This is especially critical if New York is to realize the incontrovertibly vast potential for additional cost-effective savings. Unfortunately, up to now there has been a reliance on a largely passive approach to recruiting delivery contractors and an indirect approach to recruiting customers.

Reliable and "actionable" information is vital as well to maximizing cost-effective savings. Programs will need to make access to such information easier to customers and upstream market actors. Free, high-quality technical assistance, for example, should be made available to those considering efficiency upgrades in new construction or renovation. The same is true for retrofit projects.[9]

None of these strategies, individually or together, is an effective substitute for the other essential elements of successful program design: aggressive financial strategies and seamless delivery. Rather, better outreach, education and training should be treated as complementary to these market strategies.

[9] Fees for technical assistance would be waived in whole or in part, depending on the extent to which participants accept cost-effective technical assistance recommendations.

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?*

The major opportunity for rate design to promote greater penetration of energy efficiency is in increasing marginal energy prices (where feasible, differentiated by time of use) and reducing customer charges and demand charges, which are impossible or difficult for customers to avoid with energy efficiency investments. The Commission should direct utilities to move their rate designs in that direction.

While a discount on utility charges for efficient new buildings would probably have some effect in encouraging participation in energy efficiency programs, owners, developers and other parties involved in new construction tend to concentrate more on initial costs. The eventual building occupants who will pay the utility bills may not be involved in the construction process in any way. Hence, energy efficiency programs for new construction should concentrate on reducing the costs and barriers to high efficiency in those buildings, by providing technical design support, cash incentives for energy efficiency construction, and commissioning services to ensure that the building operates as designed.

One helpful change in utility policy, related to rate design, would be to tie the computation of contributions in aid of construction (CIAC) to efficiency and economic development, rather than expected utility bills. Currently, a utility will generally determine an allowance for the costs of distribution extensions and upgrades for new loads as a function of expected distribution revenues from the load and then all additional utility costs are charged to the customer as CIAC. Instead, the distribution allowance could be determined by the number of housing units, square footage of retail space, or other measure of desired economic development, augmented by credits for participation in the new-construction program. The interconnection cost would then be in proportion to the customer's acceptance of program recommendations.

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?*

Traditionally, converting customers from oil to natural gas or lowering the sulfur content of oil have not been considered within energy efficiency programs. However, applying these strategies can accomplish two important goals that are similarly associated with energy efficiency: reduced carbon dioxide emissions and improved air quality, especially with regard to particulate matter. For example, with respect to air pollution, lowering the sulfur content in oil from 2000 parts per million (ppm) to 500 ppm results in approximately an 85% reduction in sulfur dioxide and roughly a 50% reduction in particulate matter of 2.5 microns – a pollutant associated with asthma, heart attacks and lung cancer.[10]

[10] PlaNYC at pp. 127-128, citing NESCAUM, American Lung Association, Environmental Defense Fund, and US DOE Energy Information Administration

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)?

The inclusion of interruptible customers in gas energy efficiency programs is important to maximize the potential for those programs, including the reduction of costs, emissions, and avoiding adverse effects on competitive markets. Contrary to the implication in the question, "limiting the program to non-dual fuel customers" would be anti-competitive; customers would need to abandon their dual-fuel capability to participate in the energy efficiency programs. A competitively-neutral program would deliver the same services to all customers, regardless of their choice of fuel supply (the gas utility, a gas retailer, or an oil or propane dealer). The question arises as to how the costs of services to dual-fuel or interruptible customers (or for that matter, oil and propane users) should be recovered. The best solution might be the creation of a fee for oil users similar to the SBC charge in order to fund energy efficiency programs for oil customers. For dual-fuel customers, fuel choices would thus be unaffected by energy efficiency charges that are the same in $/MMBtu for oil and gas.

Other options for funding of energy efficiency programs for dual-fuel customers should be considered if the oil-fee option is not enacted. Possibilities include an energy efficiency charge per MMBtu for all fuel used by dual-fuel customers, as part of the interruptible rate schedule or offering dual-fuel customers the opportunity to opt into the program.

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?

Clean distributed generation is a more efficient form of energy production because the electricity travels a shorter distance to its destination and therefore retains up to 8% more energy. Clean DG is particularly efficient when used in conjunction with combined heat and power (CHP) technology. CHP can reduce total energy use, by using less primary energy (*e.g.*, natural gas) for heating (space heating, water heating, and in some cases absorption cooling) and electric production than would be required with conventional heat sources and central generation. This efficiency arises from the use of the waste heat from electric generation for other purposes, as well as the reduction in line losses from the generator to load.[11] Promotion of CHP projects should be incorporated into energy efficiency programs for new construction and major renovation, and into targeted programs to reduce loads in constrained transmission and distribution areas. Additionally, on a larger scale and where appropriate, district energy should be considered as it offers many of these same benefits.

[11] Combined heat and power can provide most of the benefits of distributed peaking generation (T&D avoidance, reliability, price reductions), but over many more hours of the year.

Demand response is an important resource to improve the reliability of the electric transmission and distribution systems and ensure capacity. Additionally, clean demand response measures should be used to reduce market capacity and energy prices.

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?*

Electric and gas utility programs should be designed in a coordinated and consistent approach so as to assess buildings and other opportunities in a holistic manner. Similarly, these programs should be delivered jointly or in a coordinated fashion to minimize administrative costs and maximize savings. In new construction, many efficiency technologies and practices will save gas heating and electric cooling energy. Many of these measures will be found to be cost-effective only if savings from both energy sources are captured in the economic analysis. Pursuing gas and electric efficiency opportunities jointly can justify more aggressive market strategies, as it is typically more cost-effective to treat gas and electric efficiency retrofit opportunities in a consolidated analysis and delivery approach.

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?*

Utilities should be heavily involved as their typically large workforce has daily interaction with customers and other market participants (e.g., architects, engineers, plumbers, equipment dealers). Utilities also have unique information on load and supply conditions in T&D-constrained areas, and can help in the targeting of programs to areas with the highest line losses and avoidable T&D investments. Consumer representatives are in an excellent position to understand customer needs and can provide unique expertise that would clearly complement efforts made by NYSERDA or other entities involved in the provision of efficiency services.

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?*

As stated in PlaNYC, there is a clear need for more comprehensive, coordinated and aggressive planning. While this statement refers to the needs of New York City, it is applicable throughout all of New York State. As the question indicates, there are numerous entities that deal daily with energy issues and thus, the very nature of decisions in this area is highly fragmented. In order to correct this problem, it is necessary to streamline and centralize the planning and decision making process through the creation of New York City Energy Planning Board. This Board would work with the State and utilities to centralize planning for the city's supply and demand initiatives. Specifically related to reducing demand, the Board would set demand reduction targets for implementation by the NYCEEA. NYCEEA's role would be to direct all New York City specific energy efficiency and demand reduction efforts in coordination with NYSERDA,

Con Edison and KeySpan. This type of close collaboration currently does not exist between the City, State and utilities. The formation of NYCEEA would improve the customer experience and bundle the resources and talent of these important stakeholders to achieve the aggressive goals established by both the State and City.

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?

The private sector (even beyond the privately-owned utilities) should be involved in several ways in program development and implementation, including:

- Energy-service contractors, plumbers, HVAC contractors, electricians and other trades personnel should be direct participants in program implementation, either as contractors to the program administrator, or in responding to incentives offered by the program
- Financial institutions should be encouraged to offer discounted and/or simplified financing for any investment costs that program participants must bear directly (In general, program designs should aim to avoid requiring such financing)
- Educational institutions and other non-profit community organizations should be encouraged to increase participation in energy efficiency programs, through their networks of members and other contacts with residential and small commercial customers
- Program administrators (utilities, NYSERDA, NYPA, LIPA and potentially others) should consult with all of the above parties to determine whether proposed program designs would operate efficiently, allowing the parties to support them without inappropriate complexity or difficulties. The parties should also be encouraged to propose program innovations to better leverage their capabilities, and program administrators should seriously consider these suggestions, altering programs or implementing pilot programs as appropriate

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?

Utilities should be heavily involved in administering energy efficiency programs and when energy efficiency programs are successful, they should receive an appropriate incentive. Performance awards should be capped at a fixed percentage of program spending in the range of 5 percent, so that the vast bulk of expenditures flow to benefits consumers, rather than shareholders, and established aside from portfolio budgets for payment based on performance against the goals set as discussed in response to Question 3 herein.

Such a range approximates the administrative overhead of NYSERDA associated with program management. It may need to be adjusted to take into account the realities of utility participation in promoting efficiency, but that range appears to be generally reasonable unless it is demonstrated that there are valid reasons for departing from such a percentage.

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

The best way to ensure that low-income customers receive and have access to efficiency programs is to establish minimum requirements for low-income participation, expenditures, and/or economic benefits that must be carried out by the implementing entity or entities.

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

Customers who have suffered disproportionately from environmental damage or the risk of same should be given priority to participate in programs. More aggressive market strategies may be appropriate if these strategies are inadequate to ensure that environmental justice communities are receiving their fair share of benefits from energy efficiency investments.

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

See the response to Question 13.

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?

Yes. More aggressive marketing, stronger financial strategies, intensive technical assistance and hassle-free delivery would raise market penetration. In addition to the program design improvements discussed in the answers to Questions 1, 8, and 13, New York could significantly improve market penetration by standardizing program design in key markets such as new residential and nonresidential construction across service areas between NYSERDA and LIPA. This is especially important for new construction. Standardization need not be statewide. Indeed, differences between upstate and downstate markets suggest uniform program designs in upstate vs. downstate markets may not be advisable. In particular, Con Edison, Keyspan, LIPA,

NYPA, Orange and Rockland, and Central Hudson should move rapidly in this direction. Joint delivery would be most effective in the long run; meanwhile, coordinated delivery of uniform program designs should be the near-term goal.

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?

The primary objective in designing an energy efficiency program or portfolio should be to maximize net benefits to customers and New York. Hence, comparisons among designs should rely primarily on net benefits in millions of dollars, rather than benefit-cost ratios. Other factors may also be relevant to the comparisons, including an equitable distribution of program benefits

among consumer segments and capturing transient efficiency opportunities, as for example in new construction.

Estimating the costs, energy savings, and other benefits of alternative program designs must rely primarily on extrapolation of experience from programs with similar designs in New York and other jurisdictions. In some cases, bids and other estimation procedures may be useful as well. The quantification of externalities is generally difficult and contentious; implementation of energy efficiency programs should not be delayed until the resolution of this issue. In principle, the Commission should:

- Include in direct avoided costs reasonable expectations of the market price of allowances under all existing and likely future trading programs, for NOx, SO_2, mercury and greenhouse gases (primarily CO_2),
- Include as externalities estimates of the effects of emissions not subject to cap-and-trade systems, including particulates, and the incremental damages due to local release of capped emissions (NOx, SO_2, and mercury), compared to emissions at potential trading sites,
- Include as an externality the difference between the CO_2 allowance price and the cost of meeting foreseeable state and regional targets for emission reductions, and
- Include (whether as an externality or otherwise) the benefits to consumers from reduction in prices due to reduced demand. The consumers for this computation should include at least all New York energy consumers and those in other jurisdictions which similarly take these price benefits into account in screening energy efficiency programs.[12]

Incentives to consumers are generally transfer payments (unless the consumers are accepting lower service quality, such as interruptible service), and should be excluded from the TRC cost-benefit analysis. The cost of measures and payments to contractors are not generally transfer costs and should be included in the analysis. On the benefit side, reductions in payments to power suppliers are benefits to consumers, except for payments that flow back to consumers through utility supply resources (including NYPA and LIPA).

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?

In New York City, program design, evaluation and administration should be the responsibility of NYCEEA as discussed in question 15.

Collaborative processes generally lead to the most transparent and technically sound approaches to all of these issues. Some statewide issues may be best dealt with through statewide collaborations chaired by NYSERDA or by DPS Staff.

The structure of collaborations for program design, evaluation and administration for other regions should be developed as appropriate to the geographic distribution, competency and roles of the various utilities and governmental bodies.

[12] The common set of avoided costs for New England utilities includes these effects for electric energy and demand. (Hornby, *et al*., *op cit*.)

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

Process evaluation is a well-developed area of expertise within the energy efficiency field.[13] The appropriate collaborative should develop and review existing evaluation processes and determine the appropriate measure for the programs, or each program if necessary.

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?

A reasonable level of funding for electric and gas efficiency programs to reach the 15% savings goal is however much it costs to support the program portfolio designed to meet them as cost-effectively as possible. Among competing alternative portfolios designed to meet the targets, the one that produces the maximum net benefits should be selected and implemented.

Program expenditures should be recovered from individual rate classes in proportion either to the benefits they receive or to the costs for which they are responsible. Common costs of supporting program administration should be allocated to individual programs in proportion to the share of total benefits generated by each.

Like any capital-intensive electricity resource, cost recovery of long-lived efficiency investments should be timed in accordance with the pattern of benefits generated. Existing efficiency portfolio costs are recovered currently rather than over the life of the asset, as is normal ratemaking practice for supply procurement to ensure inter-generational equity. Consequently, existing practice therefore imposes high rate impacts as efficiency investments are placed in service. This places cost-effective supply substitutes like energy efficiency investments at a comparative disadvantage. The Commission should therefore institute amortization to recover the costs of efficiency portfolio over the average life expectancy of planned investments. This will alleviate the upward pressure on rates associated with expanding New York's efficiency portfolio. This approach is especially recommended for all efficiency resource procurement programs pursuing retrofit investments to meet savings goals in each utility service territory.

Finally, plans by Efficiency Vermont and Pacific Gas & Electric provide an approximate indication of the funding levels likely to be required to meet the 15% goal. Table 5 in Figure 1 shows that in order to match Efficiency Vermont's planned 2008 performance annually for the next eight years, NYSERDA would need to more than triple its 2004 funding levels for residential and nonresidential programs.

[13] See "California Evaluation Framework," prepared for California utilities as required by the California Public Utilities Commission (2004). Accessible at www.cee1.org/eval/CEF.pdf

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Respectfully submitted,

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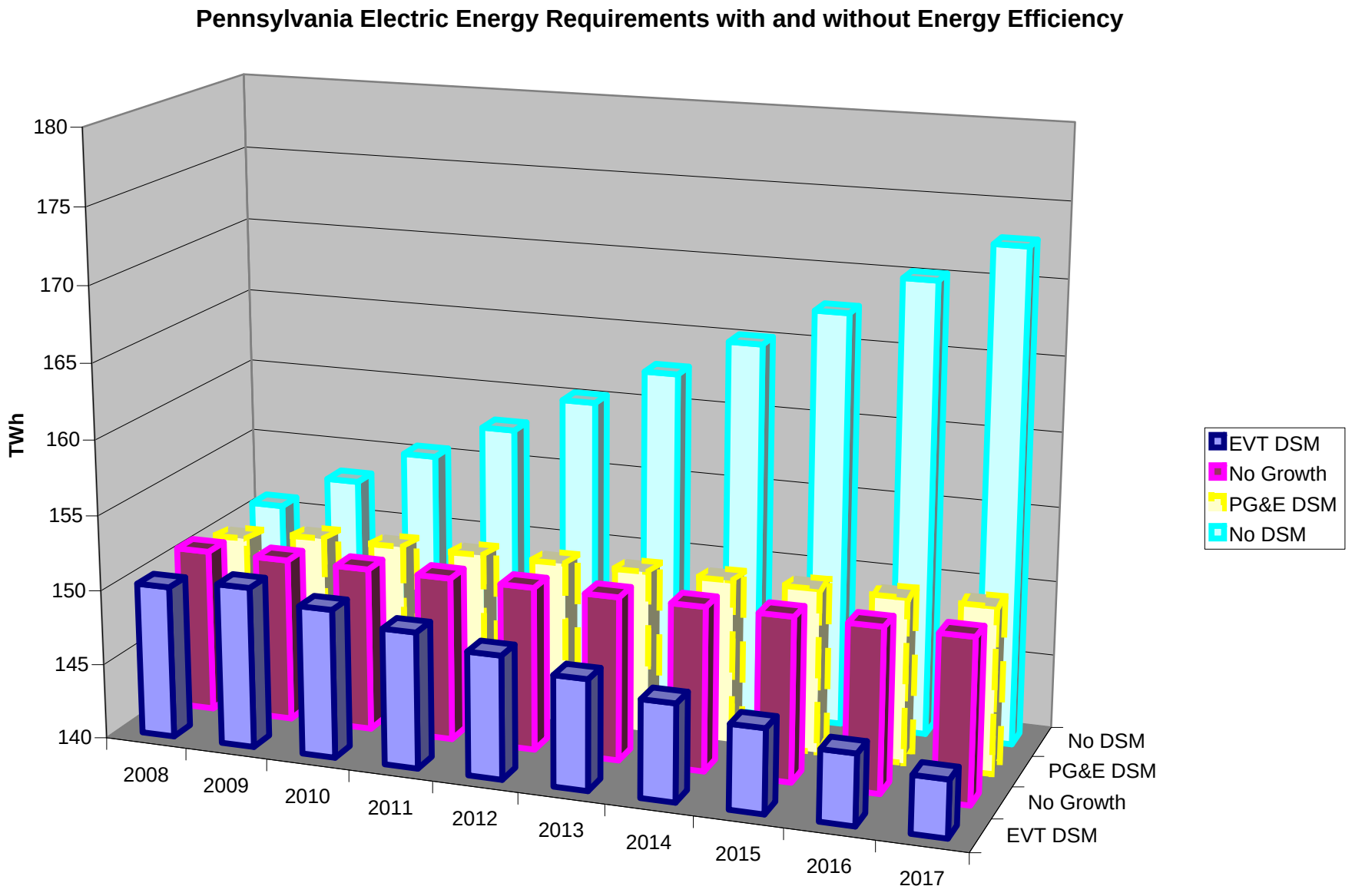
Pennsylvania Electric Energy Requirements with and without Energy Efficiency
TWh
180
175
170
165
160
155
150
145
140
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
No DSM
PG&E DSM
No Growth
EVT DSM
EVT DSM
No Growth
PG&E DSM
No DSM

TABLE 1

Energy Efficiency Portfolio Performance Comparison

Nonresidential		Spending Depth (4) / (5)	Savings Yield (6) / (4)	Savings Depth (6) / (5)	Data		
State	Year	(1) $ Spent (2005$) per Retail Sector MWh Sales	(2) Annual kWh Savings per $ Spent (2005$)	(3) Annual MWh Savings per Retail Sector MWh Sales	(4) Spending (Nominal $ millions)	(5) Retail Sector Sales (MWh)	(6) Annual MWh Savings
Connecticut	2004	$1.5	5.7	0.76%	$23.4	16,779,631	127,385
	2003	$1.2	6.1	0.63%	$18.6	16,756,800	105,700
	2002	$1.7	5.1	0.73%	$26.2	16,622,278	122,036
	2001	$1.7	5.5	0.76%	$26.1	16,867,301	128,200
Efficiency Maine	2004	$0.3	6.4	0.17%	$2.0	7,462,290	12,338
	2003	$0.1	8.5	0.05%	$0.5	7,462,290	3,909
	2002	-	-	-	NAV	NAV	NAV
	2001	-	-	-	NAP	NAV	NAP
Massachusetts	2004	$3.4	3.2	1.10%	$68.6	19,173,983	210,152
	2003	$2.9	4.7	1.18%	$56.2	21,030,110	247,488
	2002	$3.4	3.5	1.02%	$63.4	20,247,516	205,856
	2001	$3.4	5.2	1.44%	$60.5	19,728,983	284,286
New Hampshire	2004	$1.3	5.7	0.65%	$7.6	6,457,719	41,879
	2003	$1.2	6.7	0.70%	$6.9	6,241,509	43,412
	2002	-	-	-	NAV	NAV	NAV
	2001	-	-	-	NAP	NAV	NAP
New Jersey	2004	$0.7	7.8	0.50%	$27.2	32,295,198	204,144
	2003	$0.7	7.6	0.48%	$27.6	41,105,248	197,347
	2002	$0.9	4.5	0.32%	$35.4	45,129,424	144,635
	2001	$0.3	2.9	0.07%	$11.8	43,671,352	30,943
Long Island Power Authority (LIPA)	2004	$0.8	3.7	0.27%	$7.2	9,666,377	25,828
	2003	$0.9	2.8	0.22%	$7.9	9,593,209	20,884
	2002	$0.9	4.0	0.31%	$7.5	9,026,264	27,542
	2001	$0.9	3.0	0.22%	$7.3	9,002,154	19,510
New York State Energy Research and Development Authority (NYSERDA)	2004	$1.3	9.0	1.21%	$52.5	37,897,275	456,900
	2003	$0.6	12.3	0.69%	$24.7	41,500,182	284,500
	2002	$0.6	10.1	0.49%	$25.8	48,471,686	239,100
	2001	-	-	-	NAV	NAV	NAV
Efficiency Vermont	2004	$2.5	3.8	0.86%	$8.1	3,384,229	29,248
	2003	$1.9	5.7	0.93%	$5.4	3,069,837	28,453
	2002	$1.6	4.6	0.63%	$4.9	3,291,679	20,630
	2001	$1.3	5.5	0.56%	$3.8	3,293,986	18,572

Notes:

1. NAV = Information Not Available; NAP = Not Applicable (No Program)
2. 2001, 2002, 2003 and 2004 sector sales as reported by US EIA
3. Maine sales are from Bangor Hydro (2003), Central Maine Power (2004) and Maine Public Service (2002); in addition, all others are assumed to be 5% of these sales
4. U.S. Bureau of Labor and Statistics Consumer Price Index Inflation Calculator used to calculate present worth in 2005$
5. Connecticut programs were suspended for part of 2003
6. 2003 Connecticut savings are for United Illuminating only
7. New Hampshire annual savings = lifetime savings / assumed average 15 year measure life
8. Vermont data excludes Burlington Electric Department

TABLE 2

Energy Efficiency Portfolio Performance Comparison

Residential		Spending Depth (4) / (5)	Savings Yield (6) / (4)	Savings Depth (6) / (5)	Data		
State	Year	(1) $ Spent (2005$) per Retail Sector MWh Sales	(2) Annual kWh Savings per $ Spent (2005$)	(3) Annual MWh Savings per Retail Sector MWh Sales	(4) Spending (Nominal $ millions)	(5) Retail Sector Sales (MWh)	(6) Annual MWh Savings
Connecticut	2004	$1.4	5.1	0.65%	$16.4	12,366,484	80,617
	2003	$1.2	1.9	0.20%	$14.4	12,331,116	25,000
	2002	$1.7	4.3	0.62%	$18.3	11,772,238	72,460
	2001	$2.0	5.1	0.81%	$20.2	11,446,846	92,550
Maine	2004	$0.4	4.0	0.13%	$1.5	4,359,020	5,580
	2003	$0.1	4.6	0.04%	$0.4	4,359,020	1,918
	2002	-	-	-	NAV	NAV	NAV
	2001	-	-	-	NAP	NAV	NAP
Massachusetts	2004	$3.3	4.3	1.29%	$51.7	16,430,880	211,781
	2003	$2.3	2.8	0.55%	$34.6	16,114,567	88,913
	2002	$1.8	2.3	0.36%	$25.9	15,522,546	55,241
	2001	$2.2	2.5	0.45%	$30.1	15,159,987	68,291
New Hampshire	2004	$1.7	2.3	0.35%	$6.9	4,218,015	14,896
	2003	$1.7	2.2	0.32%	$6.5	4,129,405	13,344
	2002	-	-	-	NAV	NAV	NAV
	2001	-	-	-	NAP	NAV	NAP
New Jersey	2004	$1.5	3.5	0.46%	$37.4	26,947,140	124,369
	2003	$1.5	2.6	0.33%	$36.7	26,384,718	88,230
	2002	$1.1	1.0	0.09%	$26.8	26,598,261	24,161
	2001	$1.0	1.1	0.09%	$23.0	24,783,958	22,882
Long Island Power Authority (LIPA)	2004	$2.0	2.8	0.51%	$16.1	9,182,520	43,312
	2003	$2.7	2.7	0.64%	$21.8	8,489,702	54,742
	2002	$2.8	2.3	0.54%	$21.6	8,489,702	46,102
	2001	$2.4	2.7	0.52%	$17.3	8,143,069	42,574
New York State Energy Research and Development Authority (NYSERDA)	2004	$1.4	1.9	0.24%	$44.8	33,582,007	80,900
	2003	$0.7	3.3	0.19%	$20.3	33,260,213	62,700
	2002	$0.6	3.5	0.17%	$17.9	33,305,596	57,800
	2001	-	-	-	NAV	NAV	NAV
Vermont	2004	$3.1	5.1	1.44%	$5.9	2,016,715	29,026
	2003	$3.4	3.3	0.99%	$6.1	1,917,142	18,969
	2002	$3.2	3.8	1.02%	$5.7	1,955,203	19,991
	2001	$2.7	4.4	0.99%	$4.7	1,919,617	18,917

Notes:

1. NAV = Information Not Available; NAP = Not Applicable (No Program)
2. 2001, 2002, 2003 and 2004 sector sales as reported by US EIA
3. Maine sales are from Bangor Hydro (2003), Central Maine Power (2004) and Maine Public Service (2002); in addition, all others are assumed to be 5% of these sales
4. U.S. Bureau of Labor and Statistics Consumer Price Index Inflation Calculator used to calculate present worth in 2005$
5. Connecticut programs were suspended for part of 2003
6. New Hampshire annual savings = lifetime savings / assumed average 15 year measure life
7. Vermont data excludes Burlington Electric Department

TABLE 3
PG&E Efficiency Spending and Savings

	Actual	Projected		
	2004	2006	2007	2008
Electric Efficiency Spending ($)				
Residential	$ 54,484,071	na	na	na
Non-Residential	$ 52,872,929	na	na	na
Total	$ 107,357,000	$ 236,675,907	$ 270,316,969	$ 332,188,355
		$ 178,515,402	$ 208,028,810	$ 260,727,704
		$ 66,081,674	$ 73,140,007	$ 86,654,810
		$ 244,597,076	$ 281,168,817	$ 347,382,514
Savings (GWh)				
Residential	251	581	674	793
Non-Residential	312	275	303	337
Total	564	856	977	1,130
Sales (GWh)				
Residential	21,389	25,186	27,331	29,657
Non-Residential	32,506	36,581	38,854	41,300
Total	53,895	61,768	66,185	70,958
Spending depth ($/MWh sales)				
Residential	$ 2.55	$ 7.09	$ 7.61	$ 8.79
Non-Residential	$ 1.63	$ 1.81	$ 1.88	$ 2.10
Total	$ 1.99	$ 3.83	$ 4.08	$ 4.68
Savings yield (kWh Savings/Spending $)				
Residential	4.62	3.25	3.24	3.04
Non-Residential	5.90	4.16	4.14	3.89
Total	5.25	3.70	3.68	3.46
Savings depth (kWh Savings/kWh Sales)				
Residential	1.2%	2.3%	2.5%	2.7%
Non-Residential	1.0%	0.75%	0.78%	0.82%
Total	1.0%	1.4%	1.5%	1.6%

Sources:
1. Pacifc Gas and Electric Company's Energy Efficiency Programs Annual Report - May 2005, Table 1.1, Summary of Costs (Electric), page I-6
2. Pacifc Gas and Electric Company's Energy Efficiency Programs Annual Report - May 2005, Table 1.2a Summary of EEP Effects (Annual Energy Reductions, Net MWH), page I-7
3. California Public Utility Commissions 9/22/05 Decision, Application 05-06-004, Attachment 4
4. PG&E filing to the CPUC 7/15/05, 2006-2008 Energy Efficiency Program Portfolio Additional Program Details
5. US Energy Information Agency, Table 6. Class of Ownership, Number of Bundled Ultimate Consumers, Revenue, Sales, and Average Retail Price for the Residential Sector by State Utilitiy, 2004
6. US Energy Information Agency, Table 7. Class of Ownership, Number of Bundled Ultimate Consumers, Revenue, Sales, and Average Retail Price for the Residential Sector by State Utilitiy, 2004
7. US Energy Information Agency, Table 8. Class of Ownership, Number of Bundled Ultimate Consumers, Revenue, Sales, and Average Retail Price for the Residential Sector by State Utilitiy, 2004

TABLE 4

EVT Efficiency Spending and Savings

	Actual		Projected	
	2004	2006	2007	2008
Electric Efficiency Spending ($)				
Residential	$ 5,934,632	$ 6,932,839	$ 8,371,185	$ 9,652,868
Non-Residential	$ 8,058,203	$ 6,381,734	$ 12,272,961	$ 17,169,457
Total	$ 13,992,835	$ 13,314,574	$ 20,644,146	$ 26,822,326
Savings (GWh)				
Residential	23	30	48	51
Non-Residential	29	26	48	67
Total	52	56	96	117
Sales (GWh)				
Residential	2,017	2,138	2,183	2,229
Non-Residential	3,384	3,459	3,497	3,536
Total	5,401	5,597	5,680	5,765
Spending depth ($/MWh sales)				
Residential	$ 2.94	$ 3.24	$ 3.83	$ 4.33
Non-Residential	$ 2.38	$ 1.84	$ 3.51	$ 4.86
Total	$ 2.59	$ 2.38	$ 3.63	$ 4.65
Savings yield (kWh Savings/Spending $)				
Residential	3.81	4.37	5.76	5.23
Non-Residential	3.63	4.08	3.91	3.90
Total	3.71	4.23	4.66	4.38
Savings depth (kWh Savings/kWh Sales)				
Residential	1.1%	1.4%	2.2%	2.3%
Non-Residential	0.9%	0.8%	1.4%	1.9%
Total	1.0%	1.0%	1.7%	2.0%

TABLE 5

	NYSERDA	2004	LIPA	2004	EVT	2008	PGE	2008
	C&I	Res	C&I	Res	C&I	Res	C&I	Res
Period savings required	15%	15%	15%	15%				
Years	8	8	8	8				
Annual growth	1.9%	1.9%	1.9%	1.9%				
Savings % of sales	1.2%	0.2%	0.3%	0.5%	1.9%	2.3%	0.8%	2.7%
Increase in savings needed								
to meet all load growth	**56%**	**681%**	**602%**	**268%**				
to match EVT	**58%**	**844%**	**608%**	**344%**				
to match PG&E	**-32%**	**1014%**	**205%**	**424%**				
$/MWh sales	$ 1.40	$ 1.32	$ 0.78	$ 1.97	$ 4.86	$ 4.33	$ 2.10	$ 8.79
Increase in spending needed								
to match EVT	**247%**	**229%**	**519%**	**220%**				
to match PG&E	**50%**	**568%**	**167%**	**346%**				