STATE OF NEW YORK

BEFORE THE PUBLIC SERVICE COMMISSION

Con Edison Electric Rate Case) **Case No. 07-E-0523**

DIRECT TESTIMONY OF

PAUL CHERNICK

ON BEHALF OF

THE CITY OF NEW YORK

Resource Insight, Inc.

SEPTEMBER 7, 2007

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Exhibit___PLC-1 *Professional Qualifications of Paul Chernick*

I. Identification and Qualifications

Q. Please state your name, occupation and business address.

A. I am Paul L. Chernick, President of Resource Insight, Inc., located at Five Water Street, Arlington, Massachusetts.

Q. Summarize your professional education and experience?

A. I received an SB degree from the Massachusetts Institute of Technology in June, 1974 from the Civil Engineering Department, and an SM degree from the Massachusetts Institute of Technology in February, 1978. I have been elected to membership in the civil engineering honorary society Chi Epsilon, and the engineering honor society Tau Beta Pi, and to associate membership in the research honorary society Sigma Xi. I was a utility analyst for the Massachusetts Attorney General for more than three years, and was involved in numerous aspects of utility rate design, costing, load forecasting, and the evaluation of power supply options. Since 1981, I have been a consultant in utility regulation and planning, first as a research associate at Analysis and Inference, after 1986 as president of PLC, Inc., and in my current position at Resource Insight. In these capacities, I have advised a variety of clients on utility matters. My work has considered, among other things, the cost-effectiveness of prospective new generation plants and transmission lines, retrospective review of generation-planning decisions, ratemaking for plant under construction, ratemaking for excess and/or uneconomical plant entering service, conservation-program design, cost recovery for utility efficiency programs, the valuation of environmental externalities from energy production and use, allocation of costs of service between rate classes and jurisdictions, design of retail and wholesale rates, and performance-based ratemaking and cost recovery in restructured gas

and electric industries. My professional qualifications are further summarized in Exhibit____PLC-1.

Q. Have you testified previously in utility proceedings?

A. Yes. I have testified more than two hundred times on utility issues before various regulatory, legislative, and judicial bodies, including utility regulators in 30 states and three Canadian provinces, and two Federal agencies.

Q: Have you previously testified before the New York State Public Service Commission ("Commission")?

A: Yes. I have testified in the following cases:

- Case No. 96-E-0897, on the electric restructuring plan of the Consolidated Edison Company of New York;
- Case No. 99-W-0658, on the planning and rates of United Water New Rochelle;
- Case No. 99-S-1621, on Con Edison's steam rates;
- Case No. 00-E-1208, on the allocation of generation costs between New York City and Westchester County;
- Cases No. 03-G-1671 on Con Edison's gas rates and No. 03-S-1672 on Con Edison's steam rates;
- Case No. 04-W-1221, on the planning and rates of United Water New Rochelle;
- Case No. 04-E-0572 on Con Edison's electric planning and ratemaking;
- Case No. 06-M-1017 on electric power procurement;
- Case No. 06-G-1332 on Con Edison gas DSM programs.

Q: Have you been involved in other activities in New York relevant to Con Edison and energy conservation?

A: Yes. I have acted in the following capacities in the following matters, all on behalf of the City of New York:

- lead author of a 2003 City-wide electric-energy plan and supporting developer of the Electricity Resource Roadmap,[1]
- co-author of comments in Case No. 05-M-0090 on the system-benefits charge,
- participant in the collaboratives on the Con Edison–targeted electric-DSM program and the NYSERDA system-wide program for the Con Edison territory, and
- co-author of comments in Case No. 07-M-0548 on energy-efficiency program standards.

In addition, I am the author of the sections on avoided costs and lost revenues for NYSERDA's study of natural-gas energy-efficiency program potential in Con Edison's service territory and avoided costs for NYSERDA's study of natural-gas program potential.

II. Introduction

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the City of New York.

Q: What is the subject matter of your testimony?

A: My testimony concerns various aspects of energy efficiency and other issues affecting the electric system of Consolidated Edison Company of New York,

[1] "New York City Energy Policy: An Electricity Resource Roadmap," prepared by the New York City Energy Policy Task Force. 2004. New York: New York City Economic Development Corporation.

Inc.'s ("Con Edison" or "the Company"). In this testimony, I discuss the following issues:

- Energy-efficiency planning in New York City and Con Edison's service territory, including deficiencies in Con Edison's plans for the design and operation of major energy-efficiency programs.
- Recovery of demand-side management (DSM) costs, including Con Edison's proposal to allocate DSM costs to NYPA customers.
- The decoupling of Con Edison earnings from electric sales.
- Financial incentives for the Company to reach energy-efficiency targets.
- Con Edison's Advanced Metering Initiative.
- Con Edison's role in resource planning, especially transmission planning and construction.

Q: What are your conclusions and recommendations?

A: I conclude as follows:

- Con Edison's energy-efficiency targets are not aggressive compared to those of other utilities and are not sufficient to meet the Governor's energy-efficiency goals.
- Con Edison's DSM program planning is deficient.
- Energy-efficiency programs in New York City should be planned, coordinated and directed by a DSM Coordination Board consisting of Con Edison, KeySpan, NYSERDA, the City, NYPA and the DPS.
- Once the New York City Energy Efficiency Authority (NYCEEA) is operational, the responsibilities of the DSM Coordination Board should be transferred to NYCEEA, under the guidance of a board of similar composition.
- Con Edison's DSM costs should not be collected from NYPA or EDDS customers unless those customers elect to participate in those DSM programs.

- Con Edison's revenues should be decoupled from sales, but the revenue target should be computed from forecasting equations incorporating price, and employment coefficients, rather than Con Edison's simplistic revenue-per-customer computation.
- There is no compelling rationale for weather-adjusting the revenue target in the revenue decoupling mechanism, as Con Edison has proposed.
- If the Commission decides to adjust Con Edison's revenue target for weather, that adjustment should be based on the forecasting equations, rather than Con Edison's proposed ad hoc monthly regressions.
- If Con Edison is to function as the administrator for DSM programs, it should be subject to incentives for DSM performance. Those incentives should include penalties for poor performance and rewards for superior performance, compared to other administrators. Any rewards should be much smaller shares of net benefits and of program expenditures than Con Edison has proposed.
- The Commission should defer setting an incentive structure until the DSM Coordination Board determines the interaction among the multiple DSM program administrators, including Con Edison. At that point, Board members and other parties should be free to propose incentive structures for Commission review.
- The Commission should establish a consultative process among the parties to this proceeding to flesh out the details of program funding, program design, the decoupling mechanism, and incentives. This process should develop one or more proposals to the Commission.
- The City is supportive of the deployment of advanced metering as quickly as is efficient and cost-effective.

- Consistent with PlaNYC, Con Edison should continue and expand its role in resource planning.[2] Specifically, Con Edison should take the following steps:
  - Coordinate its annual Area Substation and Subtransmission Feeder Ten-Year Load Relief Program report with the City's development plan.
  - Evaluate and (where cost-effective for consumers) develop additional transmission to support imports from Upstate. This should include negotiating in good faith with National Grid on the projects in the recent merger agreement. The Commission should encourage progress on the joint efforts of National Grid and Con Edison by instructing the Staff to facilitate that process.
  - Analyze significant generation expansion at Hudson Avenue.
  - Evaluate and (where cost-effective for consumers) develop transmission projects supporting additional generation in and imports through Staten Island.
  - Update the 2005 System Reliability Assessment Study to reflect load growth and new resource plans.
  - Continue and increase its efforts to support the development of distributed generation in the City.
  - Continue its efforts to implement a third-generation distribution-control system.

[2] "PlaNYC: A Greener Greater New York." April 2007. New York: City of New York.

III. Demand-Side-Management Planning Issues

A. Con Edison's Demand-Side Management Target

Q: How did Con Edison select the target of 500 MW of load reduction by 2016?

A: As Con Edison Witness Rebecca Craft explains, the target was derived by

- starting with the NY ISO's 2007 Reliability Needs Assessment, which found a need for at least 1,750 MW of relief in Zones G–K by 2016;[3]
- positing "that such needs could be partially addressed with 1,000 MW of new supply in the New York City area" (Craft Direct at 6);
- asserting "that at least half of that 1,000 MW of needed new supply be in the form of DSM" (Craft Direct at 7);
- Setting that 500 MW minimum as a goal (Craft Direct at 6).

Q: Is this an appropriate method for setting DSM goals?

A: No. The goal is derived from selective use of the Reliability Needs Assessment. For example, the Reliability Needs Assessment identifies a 1,000-MW need for Zone J, not for the entire "New York City area" or Con Edison service territory. Another 750 MW of relief is needed in Zones G–K. While the Reliability Needs Assessment does not include an alternative with more than 1,000 MW of relief in Zone J, it appears that up to the entire required 1,750 MW of relief would be useful in Zone J. Even outside Zone J, about 22% of the load in Zones G, H, I, and K is in Zones H and I, and most of the load in those latter Zones are in Con

[3] "NY ISO Comprehensive Reliability Planning Process 2007 Reliability Needs Assessment," 3/16/07, Tables 5.3.5 and 5.3.6.

Edison's service territory. Moreover, Con Edison provides no basis for dividing the 1,000 MW need in half to determine the DSM target.[4]

Q: Will Con Edison's DSM goal meet City and State energy-efficiency goals?

A: No. Meeting the City's goal of "keeping [Zone J] power consumption constant" (PlaNYC at 106) would require Zone-J energy reductions of about 8,000 GWh by 2016, about 13% of projected energy requirements in 2016, and reductions of about 1.7% annually. Similarly, Governor Spitzer's goal is that "by 2015, we will decrease the demand for power by 15 percent from forecasted levels through efforts to increase energy efficiency."[5] The Governor's goals are much more aggressive than Con Edison's. Based on the 2007 Gold Book, 500 MW is only 3.2% of forecasted peak load for Zones H–J in 2016, or roughly 4% of Con Edison peak. Con Edison reports an average load factor of 25% for its Targeted Program load reductions (City 228) and 39% for a typical program (DPS 106). At those load factors, 500 MW of load reduction would reduce Con Edison's energy requirements by only about 1,100–1,700 GWh, or about two or three percent of load.

In order to meet the targets set by the PlaNYC and the Governor, Con Edison would need to depend on NYSERDA to provide several times as much conservation to Con Edison customers as Con Edison itself.

Q: Is Con Edison's DSM goal aggressive when compared to other utilities?

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[4]Con Edison may have assumed that 500 MW of the Zone-J requirement would be met by the NYPA transmission purchase.

[5]"15 by 15: A Clean Energy Strategy for New York," speech by Governor Eliot Spitzer, April 19 2007, to a Crain's New York Business breakfast. Ms. Craft paraphrases this goal (Craft Direct at 5), but does not compare it to Con Edison's target.

A: No. Reducing Con Edison's load by 500 MW over nine years would reduce the Zone H–J peak load from the 2007 Gold Book by only about 0.4% annually. Assuming that the Con Edison program would apply only to its own customers and not the NYPA load, 500 MW would be a peak reduction of about 0.5% annually, which may be associated with an energy reduction of 0.3% annually. These reductions are not impressive compared to those reported and planned in other jurisdictions, such as California, Vermont, Connecticut, and Massachusetts For example, Efficiency Vermont has been saving about 1% of sales annually in the last couple years, and plans to increase its annual savings rate to more than 2.3% of sales by 2008, including savings from targeted programs. Efficiency Vermont's performance incentives are based on that goal.

Pacific Gas & Electric has been saving about 1% of energy use annually, and expects to reach 1.3% by 2008.[6] The other California electric utilities have similar results and targets.

The Connecticut Energy Conservation Management Board reports savings of about 1% of CL&P and UI energy sales for 2004–2006.[7] The Massachusetts Division of Energy Resources reports savings for that state's IOUs for 2004 and 2005 that were also equivalent to about 0.9% of sales.[8]

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[6]"Energy Efficiency Programs Annual Report," Pacific Gas and Electric, May 2005, at I-7; California PUC EEGA website; California Public Utility Commission Docket 05-06-004, 9/22/05 Decision, Attachment 4.

[7]Savings from "Energy Efficiency: Investing in Connecticut's Future," Connecticut Energy Conservation Management Board, March 1, 2006, at 16 and March 1, 2007, at 14.

[8]Savings from "Massachusetts Saving Electricity: A Summary of the Performance of Electric Efficiency Programs Funded by Ratepayers Between 2003 and 2005," Massachusetts Division of Energy Resources, April 2 2007, at 4.

Q: Have past DSM programs in Con Edison's territory reduced its future potential, compared to these leading energy-efficiency providers?

A: No. While Ms. Craft (Direct at 6) asserts that Con Edison's goal is "ambitious…, especially given the DSM programs that have already been conducted, which have helped to make our service territory one of the most energy efficient areas in the nation," it is unlikely that Con Edison is close to exhausting its efficiency opportunities. Vermont, California, Massachusetts, and Connecticut have been leaders in energy-efficiency programs for many years, and have not run out of conservation opportunities. Past conservation by Con Edison should not be a bar to its being able to match the recent and planned achievements of those states.

Ms. Craft may well be correct that the Con Edison service territory is "one of the most energy-efficient areas in the nation," but this is probably more a result of urban structure and density than Con Edison's DSM programs. The small dwelling units and shared walls typical of New York City buildings, high levels of public transportation (and travel by foot), and short travel distances all help reduce energy usage.

Q: Does adding the savings from the NYSERDA program bring total energy-efficiency savings for Con Edison customers into the range of the industry leaders?

A: No. NYSERDA's statewide SBC-funded savings have been running about 0.5% of sales by the New York IOUs.[9] Assuming that the ratio is similar for NYSERDA's programs in Con Edison service territory, and that the SBC programs continue at current levels, the combination of the NYSERDA and Con Edison programs would bring the savings rate in the Con Edison service territory to a bit less than

[9]Savings estimates are from "New York Energy $Mart Program Evaluation and Status Report," NYSERDA, March 2007 at 2-18, and may include some on-site generation.

1% annually, comparable to the leading programs' current savings rates, but less than the leaders' planned levels.

B. Con Edison Program Approach

Q: What is Con Edison's approach to implementing energy efficiency on its electric system?

A: Ms. Craft (Direct at 14–15) says:

> the new targeted program will be…designed to provide MW reductions through a series of request for proposals (RFPs)…. For other programs, the Company will evaluate using either RFPs or standard offers to provide permanent load reductions through various measures, including measures such as clean distributed generation (DG), lighting, and air conditioning measures.
>
> Similar to the "Enlightened Energy" program, these programs could include offers directly to customers, including residential and commercial customers, as well as vendors, in order to create broad-based opportunities. Con Edison will also look to develop program carve outs to create strategic partnerships with large retailers or with technology suppliers to create program momentum and access to previous untapped or difficult to access market potential, such as green, highly efficient buildings.

Q: Has Con Edison described a rational and efficient approach to program design?

A: No. Con Edison's current Targeted Program relies on non-comprehensive, balkanized programs implemented by contractors that are paid only for peak-load reductions. The current practice creates complicated and inefficient incentives for contractors, while encouraging cream-skimming and the creation of lost opportunities.

Q: How should Con Edison change its approach to the design of energy-efficiency programs?

A: Con Edison should adopt a comprehensive, top-down portfolio- design process, which would start with identification of market segments, differentiated by market niche (e.g., new construction and remodeling, routine equipment replacement, retrofit) and customer or building type (e.g., large commercial, industrial, small commercial, single-family residential, multi-family housing, low-income residential). For each market segment, Con Edison should have one or more programs that address the specific market barriers in the segment (e.g., timing, decision-making, information, access to capital, risk, convenience) and overcome those barriers through an appropriate combination of marketing, technical assistance, training, direct installation, customer rebates, financing, and incentives to dealers, wholesalers, and other trade allies for stocking, displaying, or selling equipment. While options should remain available for creative proposals by large customers, customer groups, or contractors with special access to customers, Con Edison should have a comprehensive portfolio even if no such proposals are received.

Q: Does Con Edison recognize that its proposal has the problems you describe above?

A: No. Con Edison asserts that it has proposed "to establish a comprehensive program" (City 234), and cites to Ms. Craft's testimony at 14–15. On those pages, the closest reference to developing a comprehensive portfolio is a suggestion (at 15) that Con Edison would "create broad-based opportunities," offering programs "directly to customers, including residential and commercial customers, as well as vendors." This vague language suggests that Con Edison intends to use a variety of delivery mechanisms but does not present a roadmap to a comprehensive portfolio.

Q: Has Con Edison compared its proposed approach with those of industry leaders in DSM?

A: Not as far as I can tell. In response to discovery, Con Edison declined opportunities to "identify the utilities or other agencies that Con Edison considers to be industry leaders in implementation of energy-efficiency programs" (City 229), "compare the 500-MW load reduction target to the percentage load reductions achieved or planned by industry leaders" (City 230), or compare its approach to those of utilities in Connecticut and Massachusetts (City 234). In each case, Con Edison objected that the question "requires a study that the Company is not required to perform.

Q: Who should actually implement DSM programs?

A: Most of the labor should probably be from contractors hired to implement the programs designed by the DSM Coordination Board and the New York City Energy Efficiency Authority, as I describe in Section III.C, below.

Q: How would that comprehensive portfolio be applied to areas targeted for T&D-related load reductions?

A: Various programs can be targeted in different ways. For new construction, especially if that is a major share of load growth on the subject network, the program administrator can increase outreach to maximize participation in the program, technical assistance to ensure that the most-efficient designs are developed, and incentives to cover the costs of higher efficiency and encourage customers to participate fully. Retrofit programs can also be targeted by increasing marketing, including working with neighborhood groups; adding

door-to-door, block-by-block direct-installation to existing rebate programs;[10] and increasing incentives for local dealers to stock efficient lighting and other equipment that customers generally purchase locally.

Q: Do you have any other comments on Con Edison's energy-efficiency program designs?

A: Yes. Con Edison is involved in two activities that affect new loads and that can be used to promote energy-efficiency efforts. First, Con Edison charges customers for contributions in aid of construction (CIAC) for some new construction and load increases. To encourage energy efficiency efforts, Con Edison should reduce CIAC for customers that fully participate in new-construction programs.

Con Edison also offers Business Incentive Rates (BIR) to new and expanded commercial loads. Con Edison should amend the BIR tariff to require participation in applicable energy-efficiency programs as a condition for receiving the BIR discount. This requirement should be structured carefully so as not to discourage participation in the BIR program. In many cases, DSM programs should buy down the cost of efficiency enough so that the customer saves money within the first year or so; where this is not true, some of the BIR discount could be applied to cover the customer's cost of participating in the DSM programs.

C. Program Coordination, Oversight, and Direction

Q: With whom should Con Edison coordinate its DSM programs?

[10]This might include comprehensive air-conditioning retrofit: central air-conditioner tune-up or replacement, depending on efficiency; installation of set-back thermostats; duct sealing; ceiling insulation; lightening roofs; adding shading.

A: Con Edison' programs should be coordinated closely with those of NYSERDA, which will continue to administer the electric SBC funding, to deliver comprehensive and efficient programs. That coordination might include the following factors for various programs:

- In Con Edison's service territory, enhancing NYSERDA's statewide program with increased funding; higher rebates; additional marketing, training or technical assistance; more generous financing; and/or improved incentives to trade allies.
- A Con Edison–funded direct-installation program, using the incentives NYSERDA would have paid for the same measures to cover some of the costs.
- Con Edison–funded implementation of technical assistance, including completion of paperwork for participation in both NYSERDA and Con Edison programs.
- Con Edison and NYSERDA each referring customers directly to specific programs operated by the other.

In any case, a customer approaching either Con Edison or NYSERDA (on the web, by phone, or directly to staff or a contractor) should be guided seamlessly into the combined DSM portfolio. Ideally, participants would not normally be aware of the division of responsibility between Con Edison programs and NYSERDA programs.

To a more limited extent, Con Edison's programs should be coordinated with NYPA and LIPA, because many of the contractors, dealers, wholesalers, and other trade allies that are involved in the implementation of the Company's programs will also be involved in the NYPA and LIPA programs. If the four parties (including NYSERDA) have different qualification procedures and lists of qualifying equipment models, trade allies may find participation in the programs

unduly expensive and burdensome. New York State's energy-efficiency programs will be most effective if the critical middlemen determine that supporting them is easy and profitable.[11]

Q: How should Con Edison coordinate its electric energy-efficiency programs with gas energy-efficiency programs?

A: Again, these programs should be coordinated, whether they are funded by NYSERDA, Con Edison, or KeySpan. For new construction, the same analyses should be applied to both electric and gas use of a building, and selection of windows and wall construction should be optimized to minimize total costs, not just electricity cooling costs or gas heating costs.

For retrofit programs, especially for small customers, a large fraction of program cost consists of getting in the door. In the same visit, a contractor can install compact fluorescents and low-flow showerheads, seal the ducts that deliver both hot and cool air, offer incentives to replace inefficient gas and electric appliances, and recommend window and insulation retrofits based on combined gas and electric benefits. This coordinated multi-fuel approach reduces costs and increases benefits compared to separate gas and electric programs, and may reveal some cost-effective measures (such as attic insulation) that could not be justified by either program separately.

Q: How does Con Edison propose that its programs be designed, directed, implemented and reviewed?

A: Con Edison proposes that it have sole responsibilities for all these functions.

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[11] While the PSC has no control over either agency, NYPA and LIPA should be encouraged to work with the core group and develop consistent programs. Each entity should learn from and adopt the best practices of the others. For example, LIPA should add avoided T&D costs to its estimates of avoided costs, and reduce its focus on the short-term rate effects of DSM.

Q: Is that approach appropriate?

A: No. As I discuss throughout this testimony, Con Edison has not displayed the technical capability or aggressive approach required for designing and directing an efficient, cost-effective energy-efficiency portfolio that will satisfy State and City targets. Moreover, there is a desperate need to coordinate the energy-efficiency programs offered to Con Edison customers. In my opinion, the expertise of other entities should be applied to the design, operation and improvement of Con Edison's DSM programs. In particular, the program development should be guided by a DSM Coordination Board that includes representatives of Con Edison and the following other participants:

- The New York State Energy Research Development Authority, due to its experience in delivering DSM programs in New York, its continuing role as the administrator of the electric SBC programs, and its potential additional role as administrator of gas DSM.[12]
- The New York Power Authority, which since 1990 has been providing energy-efficiency programs (principally technical support and shared-savings financing) for its customers in Con Edison's service territory and elsewhere.
- The City, due to its extensive information on building plans and its roles as a promoter of development, permitting authority, sponsor of the GreeNYC energy-awareness campaign, advocate for the New York City Energy Planning Board and New York City Energy Efficiency Authority, enactor and

[12]The scope and structure of gas DSM programs are currently under consideration in Case No. 07-M-0548.

enforcer of energy and building codes, and a major funding source for energy-efficiency.[13]

- KeySpan, if it is the administrator of gas DSM programs in its service territory. In that case, KeySpan gas programs and Con Edison electric and gas programs should be developed jointly, to avoid customer confusion, minimize delivery cost, and minimize total energy-service costs.

Q: Why is there a need for a DSM Coordination Board?

A: A DSM Coordination Board made up of the entities I recommend will provide the expertise necessary to optimize the Con Edison DSM programs, including the important coordination effort. In addition, the DSM Coordination Board can serve as a transition to the New York City Energy Efficiency Authority (NYCEEA) proposed in PlaNYC. As explained in PlaNYC (at 107), NYCEEA would

> direct all of New York City's efficiency and demand reduction efforts…. This would enable the City to develop a unified effort that is well-tailored to our unique circumstances. The Authority would be charged with developing and managing programs and establishing the incentive structures required to reach the city's demand reduction targets as set by the New York City Energy Planning Board. The City, NYSERDA, Con Edison, and KeySpan would serve on the Authority's board—allowing the Authority to marshal coordinated action among these entities and utilize their resources.

Q: What funds would be available for a coordinated energy-efficiency effort in the Con Edison service territory?

A: The following funds are or may become available for this purpose:

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[13]The County of Westchester should also have the option of participating in a parallel effort for Westchester, if that is its desire. Alternatively, Westchester might opt for a lower level of involvement, ensuring that the programs developed by the DSM Coordination Board would accommodate any differences in conditions in Westchester. Nothing in the City's proposal is intended to disadvantage Westchester County in the delivery of energy-efficiency services.

- Electric SBC funds collected by Con Edison and other utilities and administered by NYSERDA;
- Gas SBC funds that the PSC may mandate that Con Edison and KeySpan collect in the future;
- Remaining funds from the current electric rate plan for the Con Edison Targeted Program and the NYSERDA-administered System-Wide Program.
- The Con Edison gas-DSM funding included in the Joint Proposal in 06-G-1332;
- Any KeySpan gas DSM program funding approved by the PSC;
- The 10% of the energy bills of New York City government, or about $80 million, which the City has committed to invest annually in energy-savings measures (PlaNYC at 106);[14]
- The New York Power Authority's DSM funding for its customers in New York City.

Initially, the funds list above would remain under the control of the current manager of each funding source. In the longer term, it may be possible to simplify and rationalize this funding structure, ultimately providing the DSM Coordination Board and then NYCEEA with control over the funds collected by the distribution utilities and other energy providers.

Q: Should other parties be involved in the review and improvement of the programs developed by the core group?

A: Yes. The core group should convene a broader collaborative review group, representing trade allies, customers, and other interested parties. The major purpose of this consultation would be to determine whether proposed program

[14]The City will work with governmental authorities to bring them into this system as well.

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 utilize their capabilities and serve the needs of their clients. The core group should seriously consider these suggestions, altering programs or implementing pilot programs as appropriate.

D. Valuing Demand-Side Management

Q: How does Con Edison propose to value Demand-Side Management?

A: That is not really clear. Ms. Craft testifies that Con Edison "proposes to use the total resource cost as adopted by the Commission in its Demand Management Order issued in Case 04-E-0572 on March 16, 2006, to evaluate its proposed programs, which allows for the consideration of wholesale market effects of the measures" (Craft at 16).

Con Edison (City 233) asserts that its Targeted Program also

> uses the total resource cost test as described by the Commission in its Order on Demand Management Action Plan (Case 04-E-0572, March 16, 2006)....evaluation of bids based on the Joint Proposal's cost methodology of $746/kw (the electric rate plan proxy value for avoided generation costs) plus the value of T & D deferral.

Q: Do you understand Con Edison's reference to "the electric rate plan proxy value for avoided generation costs" and the "Joint Proposal's cost methodology?"

A: No. I cannot find any reference to these terms, or the $746/kW value, in the Joint Proposal. This value is roughly equivalent to the present value of the divested generation price caps over about eight years; perhaps that is how Con

Edison developed the $746/kW.[15] Alternatively, Con Edison may have taken the portfolio budget, which averaged $746/kW, and conflated the budget with avoided generation costs.[16]

Q: Has Con Edison demonstrated a reasonable approach to measuring rate-payer benefits from DSM program design?

A: No. In addition to the question of Con Edison's treatment of avoided generation-capacity costs, Con Edison appears to ignore the following components of DSM benefits, as requested in City 233:

- the value of generation energy,[17]
- avoided T&D costs, other than for the targeted equipment,
- the effects of load reductions on losses.

Paradoxically, Con Edison included generation energy, avoided T&D, and losses in its computations of benefits for its proposed incentive (Staff 106). In sum, Con Edison has not exhibited a consistent approach to measuring the value of DSM efforts.

Q: How does Con Edison propose to incorporate into DSM screening and program design the effect of load reductions on wholesale market prices?

A: Ms. Craft (Direct at 16) says,

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[15]If this was Con Edison's approach, the Company should explain its choice of the eight-year measure life.

[16]"Implementation Plan for Targeted DSM Plan," Con Edison, Case No. 04-E-0572, October 21 2005 at 9.

[17]It is possible that Con Edison believes the $746/kW includes avoided energy costs, but the value is too little for that purpose. A fixed dollars-per-kW energy value could only be right for a specific DSM load factor. Since the load factor of DSM measures vary from very low (10% or less) to more than 100%, rolling energy costs into a demand value is impractical.

> The Company proposes to use the total resource cost as adopted by the Commission in its Demand Management Order issued in Case 04-E-0572 on March 16, 2006, to evaluate its proposed programs, which allows for the consideration of wholesale market effects of the measures, but not in the first instance.

In response to the City's request for "estimates of the effect of load reductions on market prices," Con Edison responded, "To date, the Company has not needed to use market effects to justify the contracts it has entered into under Targeted Program" (City 233).

When asked "how Con Edison would incorporate wholesale market effects in determining whether and how to operate a program" and whether Con Edison would include a feature that "fails the total resource cost test without wholesale market effects but passes a similar test including wholesale market effects" (City 235), Con Edison responded with a reference to City 233. The response to City 233 does not answer either question asked in City 235, and the only reference to market effects is the statement that "To date, the Company has not needed to use market effects to justify the contracts it has entered into under Targeted Program."

Q: What do you conclude from the Company's responses to City Interrogatories 233 and 235?

A: Con Edison has failed to articulate whether or how it intends to use wholesale market effects in screening measures or programs, or selecting among program designs, efficiency levels, incentive levels, and the like.

Q: Has Con Edison developed a method for estimating wholesale market effects, in a manner that could be used for decision-making?

A: Con Edison has made only limited progress in this regard. In the document attached to City 228,[18] Con Edison presents a rough initial cut at estimating

[18]Con Edison Targeted DSM Program Market Price Effects Analysis, August 2006.

market-price effects, but just for the aggregate effects of the contracts it has signed for targeted reductions, grouped into Westchester networks (all of which peak in the evening), New York City midday-peaking networks, and New York City evening-peaking networks. The general approach—modeling the change in energy price with a production-costing model and the change in capacity prices from the demand curves—appears to be reasonable. Unfortunately, the analysis contains the following errors and peculiarities that suggest Con Edison does not have a rational, acceptable method for incorporating market-price effects in DSM planning:

- Production-costing models depend on random-number generators to select the time and duration of forced outages. In comparing load cases, it is important to ensure that a difference in market energy prices is not an artifact of different random outage timing. It is not clear to what extent Con Edison dealt with this problem in its analysis.
- Regardless of how Con Edison modeled energy prices with and without DSM, its estimates of the market-price effects appear to be low and inconsistent. For example, Con Edison reports that a kWh of energy efficiency in Westchester reduces NYC prices more than a kWh of energy-efficiency in NYC.[19] Also, my own historical regressions of locational marginal price as a function of load suggest that each MWh of load reduction in Zone J reduces the Zone J energy price by about 3¢/MWh,

[19]Compare sheets "NYC Daytime Peaking," "NYC Nighttime Peaking," and "West Daytime Peaking" in the workbook provided with City 228.

while Con Edison estimates price reductions from energy efficiency in Zone J at less than 0.5¢/MWh.[20]

- Demand-side-management "measures in nighttime peaking networks are assumed to have no impact on capacity prices." This assumption is obviously wrong, since increasing the efficiency of cooling, lighting, and other equipment that operates at the evening network peak will also usually increase the efficiency of the same equipment at the midday ISO peak. If a program replaces an incandescent lamp with a compact fluorescent, or an SEER 9 air conditioner with an SEER 13 unit, the more-efficient equipment is on the system at the midday ISO peak as well as at the network peak.
- "Impacts are considered only for Zones H, I, and J." Because the statewide SBC pays for a substantial amount of the energy efficiency in Con Edison's service territory, it seems shortsighted to ignore the market-price benefits from coordinated energy-efficiency efforts on the prices paid by Upstate ratepayers.[21]
- Con Edison assumed that the three years of price effects would occur in 2012–2014, even though the energy savings start in 2008. About 25% of the energy savings occur by 2009, 50% by 2010, and all by 2011. As a

[20]For example, in the "NYC Daytime Peaking" sheet of the City 228 workbook, Con Edison reports that 341,687 MWh of energy-efficiency in Zone J reduces Zone J price by $0.19/MWh, or a price reduction of 0.49¢/MWh for each MWh saved.

[21]For the three groups of load reductions that Con Edison modeled in City 228, the energy market-price effects in Zones A–G range from 50% to 90% of the effects for Zones H–J, before accounting for non-market energy purchases. LIPA has most of its supply under contract, so the market-price effects should be trivial in Zone K.

result, Con Edison's calculation inappropriately discounts the market-price benefits by a couple of extra years.

Q: Aside from the values it would use, has Con Edison demonstrated a clear understanding of a reasonable screening-and-design process?

A: No. Asked whether it would "seek to maximize the benefit-cost ratio, net benefits in millions of dollars, megawatts per dollar of Con Edison expenditure, or something else as part of the screening and design process," Con Edison responded, "the Company would seek to balance all of these considerations with the ultimate goal of maximizing the amount of permanent energy efficiency achieved" (City 236). That response is vague and fails to provide any clue as to how Con Edison will screen measures, programs, and various features.

Con Edison was similarly unable to articulate its screening criteria in its response to the request for "Con Edison's evaluation and implementation of cost-effective measures" (NYECC 31). The question clearly asks how Con Edison evaluated the cost-effectiveness of the measures it implemented, but the response deals only with the tracking of installations. Con Edison does not appear to have screened alternative measures, but only compared the benefits from MW reductions to the prices that paying vendors bid for achieving those reductions.

To make matters worse, Con Edison's discussion in this response describes only demand measures (described as "wattage draw" and "connected load"), with no reference to energy savings or the hours of use of the equipment. Assessing the cost-effectiveness of DSM alternatives requires estimates of energy savings by time, as well as various measures of contribution to peak demand. Con Edison has not indicated that it intends to project, plan for, or measure energy savings. That is an unacceptable approach in energy-efficiency planning.

Q: Are there other avoided costs that should be reflected in screening of DSM?

A: Yes. The Commission has found that "As the Regional Greenhouse Gas Initiative and mercury-emissions-allowance-trading programs are implemented, however, the cost impacts of these resources should be quantifiable. Once those quantifications are possible, Con Edison and NYSERDA may include the allowances in the calculation of avoided energy costs" (Case No. 04-E-0572, Order of March 16 2006, at 37).

The RGGI model rule is in place, and "those quantifications" are now possible for greenhouse gases, so avoided costs should include a value for avoided carbon emissions, preferably in the computation of avoided energy costs.[22] These values—based on assumptions about the pace of regional and national greenhouse-gas mitigation requirements—were estimated in a recent avoided-cost study for the New England utilities, including National Grid, KeySpan and Energy East, as follows:[23]

[22]Projections of greenhouse-gas allowance prices are uncertain, and depend on future market conditions and regulations. The same is true for other forecasts, including those for the prices of fuels, SO_2 and NOx allowances, which the Commission found to be appropriate for inclusion in avoided costs.

[23]Hornby, Rick, Carl V. Swanson, Michael Drunsic, David White, Paul Chernick, Bruce Biewald, and Jennifer Kallay. 2007. "Avoided Energy Supply Costs in New England: 2007 Final Report" Figure 5-11. Study prepared by Synapse Energy Economics for the Avoided-Energy-Supply-Component Study Group (August 10 2007).

Year	CO_2 Allowance Price 2007 Dollars/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

Similar values should be adopted for New York DSM programs.[24]

The valuation of DSM should also include the avoided costs of renewable energy credits under the renewable portfolio standard, which is set as a percentage of energy consumption. Every megawatt-hour of reduced energy usage corresponds to a number of kilowatt-hours of renewable credits not required by the standard.

Finally, the Commission encouraged the parties to continue to work on quantifying and valuing the effect of DSM in reducing the variability in electric bills as fuel prices and electric market conditions change (04-E-0572, 3/16/06 order at 38). While not the most urgent task facing the parties in designing DSM programs, this issue should remain on the agenda for future improvements.

[24]The Commission assumes that the costs of "emissions allowances for NOx and SO_2..have been incorporated into avoided energy costs" (04-E-0572, 3/16/06 Order at 37), but Con Edison appears to have ignored these costs, along with all other avoided energy costs, at least in its response to City 233.

Q: In Case 04-E-0572, the Commission "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" (March 16 2006 Order at 32). What factors should be included in screening DSM programs?

A: There are two categories of such factors. First, the Commission approved the inclusion of three years of market price effects in screening of programs (Order at 33). This three-year rule appears to be a reasonable assumption at this time, and is incorporated in Con Edison's initial, albeit flawed (as I discuss above), estimates of market-price effects (City 228). Con Edison and other parties should conduct more sophisticated analyses of the duration and magnitude of market-price effects, and improve on this initial estimate.

Second, the evaluation of DSM options should include some measure of the costs of environmental effects that have not been internalized in avoided costs. Those would include estimates of the following environmental costs:

- the effects of particulate emissions, which are not subject to cap-and-trade systems.
- the incremental damages due to local release of capped SO_2 emissions in the New York City area or elsewhere in the Northeast, compared to emissions at potential trading sites in the Midwest, South, or West.
- the incremental damages due to local release of capped NOx emissions in the New York City area, compared to other areas.
- The difference between the CO_2 allowance price and full costs of the emissions, which may be derived from damage estimates, or from the incremental cost of the emission reductions necessary to stabilize climate.

I agree with Con Edison that "the costs avoided by demand management… should in theory include uninternalized but recognized environmental costs, which are negative externalities" (Zielinski Direct at 15).

Development and deployment of DSM programs should not await the development of these factors.

IV. Recovery of Demand-Side-Management Costs

Q: What concerns do you have with Con Edison's proposal for recovery of DSM costs?

A: Con Edison proposes to recover DSM costs from the following groups:

> virtually all Con Edison full service and retail access customers, New York Power Authority ("NYPA") customers, and Economic Development Delivery Service ("EDDS") customers. (Rasmussen Supplemental at 6)

Con Edison's states its rationale for including NYPA customers for this position as follows:

> The Company believes that NYPA customers should be eligible for these programs in order to maximize DSM gains. If, however, NYPA customers are to be eligible, then they should share program costs with Con Edison's full-service and retail access customers. (Craft Direct at 15–16)

While there can be advantages to coordination of DSM programs for Con Edison and NYPA customers, and Con Edison should develop programs that could be offered to NYPA customers in targeted DSM efforts, NYPA customers should not be required to participate in Con Edison's DSM programs. NYPA and its customers have pursued their own energy-efficiency programs, parallel to those of Con Edison and later NYSERDA, for many years and, because of this, they have not been required to pay for Con Edison's programs. In addition, the City has made an enormous commitment to energy efficiency, far exceeding Con Edison's proposal.

Q: What are the City's plans for its own energy-efficiency programs?

A: The City has committed to investing funds equal to 10% of its energy bills in energy-savings measures (PlaNYC at 106). The investment funds for FY2008 through 2011 are in the City's FY2008 Executive Budget, at the following levels:

New York City Commitment to Energy-Efficiency Investment (Millions)

	FY 2008	FY 2009	FY 2010	FY 2011
City energy-efficiency investment	$81.2	$83.4	$83.3	$83.7
Tax credits for green roofs	$1.0	$1.0	$1.0	$1.0
Tax credits for 4 MW solar	$0.4	$1.1	$1.9	$2.6

Source: "The City of New York Executive Budget," Budget and Financial Plan Summary, Office of Management and Budget, April 26 2007, at 8

The City will work with governmental authorities to bring them into this system as well.

Q: How do these commitments compare to Con Edison's proposed DSM funding?

A: The City has committed to spending 10% of all of its energy costs (electric, gas, oil and steam) on energy-efficiency, while Con Edison has proposed to spend $103 million over three years (Exhibit RC-2), out of a total of about $24 billion in revenues (Exhibit EJR-1, Schedule 2), or about 0.4% of revenues.[25]

Q: How should energy efficiency for NYPA customers be integrated with the programs for Con Edison customers?

A: This would be one of the responsibilities of the DSM Coordination Board and eventually NYCEEA. All the relevant parties would be represented on these boards, and would be able to work out mechanisms for operating parallel programs for different types of customers, running a single program and allo-

[25]The $44 billion value includes revenues from NYPA customers, but excludes a much larger amount of generation services that customers purchase from ESCOs.

cating the costs by participation rates, or otherwise efficiently coordinating the programs.

Q: Are you suggesting that NYPA customers should be precluded from participating in Con Edison's programs?

A: No, but they should not be required to pay for the programs either. It would be preferable to allow Con Edison and the NYPA customers to negotiate terms whereby the NYPA customers could elect to opt into the full Con Edison portfolio if they choose to do so.

Q: How should NYPA customers' loads be included in targeted programs?

A: Once Con Edison has a full portfolio of DSM programs in place, the targeted program would consist of enhanced marketing and incentives to increase participation and effectiveness of new-construction and retrofit programs in the targeted areas. Since the targeted enhancements would be justified by the deferral of T&D investments, Con Edison should be able to provide the same enhancements to NYPA customers, or pay NYPA or the customers to enhance their own programs. Again, the DSM Coordination Board and NYCEEA are appropriate structures for working out the details of this coordination.

V. Revenue Decoupling

Q: What is the City's position on revenue decoupling?

A: The City supports revenue decoupling in order to remove disincentives that might cause Con Edison to hedge its support for DSM. The decoupling method should be as simple, fair, and transparent as possible.

A. Con Edison's Decoupling Proposal

Q: Does Con Edison's decoupling proposal meet these standards?

A: No. Con Edison's proposal, which it calls "Revenue Accounting and Rate Incentive Mechanism" (or RARIM) has problems in the use of a fixed revenue-per-customer ("RPC") target for all classes, and in its proposed weather adjustment.

Q: What is Con Edison's justification for tying revenue decoupling to a revenue-per-customer target?

A: Con Edison says that "RARIM should not capture revenues from new customer growth in a manner that eliminates the Company's incentive to continue to pursue economic development on its system" (Rasmussen Supplemental at 5). I agree with that sentiment, but not with Con Edison's belief that RPC is the best way to achieve that goal.

Q: What problems arise with basing revenue decoupling on a fixed revenue-per-customer target?

A: There are several problems with setting the revenue target as a fixed RPC value times the number of customers.

- Customers in one service classification may differ greatly in size, as measured by square footage, employees, or other non-energy factors.
- Customers may switch from one service classification to another, without significantly changing Con Edison's costs or the revenues Con Edison would receive under conventional ratemaking. For example, a master-metered building on SC 4 or SC 8 may be remetered, so that each apartment or office is a separate SC 1 customer. In this situation, Con Edison's costs for metering and billing increase, but its distribution-system costs are unaffected.

- Similarly, a large SC 2 customer may be reclassified as a small SC 9 customer, or vice versa, depending on whether the customer's load is "expected to be in excess of 10 kilowatts;" it makes no sense to increase or decrease Con Edison's revenue target for such changes.[26]
- Customer number is not an important driver of sales to classes with large customers. Con Edison's forecasting models for SC 4 and SC 9 exclude customer number, suggesting that customer number is not a major driver of load. Con Edison's forecasting model for SC 2 includes a customer variable, but sales increase more slowly than customer number. (Forecasting Panel workpapers)
- If an economic downturn reduces sales and revenues, RPC decoupling would increase rates, exacerbating the effect on already stressed households, businesses and governments. If Con Edison's commercial customers reduce their operations, Con Edison should bear some of the pain, along with the rest of the City and the region. Conversely, if the economy grows, Con Edison should be eligible for some of the resulting benefit, especially since Con Edison has an important economic-development role.

Q: What is the alternative to fixed RPC values for decoupling?

A: For small customers—SC 1 and SC 2—customer number may be an important variable, and may need to be included in setting the revenue target. However, the RPC formula should recognize that SC 2 loads increase slower than customer number. Also, Con Edison should monitor and report annually to the PSC on the

[26]This case is particularly troublesome, in that SC 9 includes both large TOU-metered customers and smaller non-TOU customers. If Con Edison's revenue decoupling were to be based on revenue per customer, the RPC value should at least be set differently for SC 9 TOU and non-TOU customers.

average size of existing and new customers in SC 1 and 2, and on remeterings and other conversions of customers among rate classes.

For classes with larger customers—SC 4 and SC 9—Con Edison has determined that class sales are best explained by private non-manufacturing employment. Accordingly, it seems most reasonable to adjust the revenue targets for these classes to reflect changes in employment, rather than customer number. The forecasting equations presented in the workpapers of Con Edison's Forecasting Panel include non-manufacturing employment as a driver of load and appear to be suitable for this purpose as they may be modified in this proceeding.

Q: What are the problems with Con Edison's proposed weather adjustment?

A: First, I am not convinced that any weather adjustment is desirable. Second, Con Edison's proposal is very complicated and difficult to monitor.

Q: Why do you say that a weather adjustment may not be desirable?

A: The stated purpose of the weather adjustment is to allow Con Edison to retain the higher revenues from hot weather. Con Edison's argument for the weather adjustment is that "RARIM should not capture hot weather revenues that are critical to the Company's need to adequately fund the additional costs it occurs in addressing, from both preventative and remedial standpoints, reliability issues associated with peak conditions on its system during hot weather" (Rasmussen Supplemental at 5).

This argument is not supported by the available evidence. First, rates are set to include preventive maintenance required to support reliability. That maintenance must be undertaken *before* the extreme weather hits, and without any knowledge as to whether the next summer will be particularly hot. With regard to costs during and following a heat wave, Mr. Rasmussen asserts:

> From an operations standpoint, hot weather increases costs. Particularly during a series of hot-weather days, the Company incurs substantial amounts on preventive measures to maintain our equipment, to have additional crews available in preparation for the possibility of an incident and to increase staffing in our call centers to aid our customers. The weather-normalization calculation provides an important "matching" of hot weather expenses and revenues. (Rasmussen Supplemental at 9)

This "matching" is not very good. Con Edison admits (Staff 253) that hot weather in 2005 and 2006 increased its revenues $68.1 million, nearly seven times the increased heat-related costs of about $10 million.[27] The extent of the mismatching varies widely, with a revenue-to-cost ratio of 2:1 in 2006 and 30:1 in 2005.

If the next few summers are warmer than the historical average (which would not be surprising, given global warming), Con Edison's proposed weather adjustment would consistently increase Con Edison revenues more than its costs.

To the extent that weather affects Con Edison's delivery costs, it would primarily be due to very hot days, not slightly warmer-than-usual days. Yet Con Edison's weather adjustment would assign to Con Edison the same revenues for ten days that were 1° warmer than normal as for one day that that was 10° warmer. Some limited adjustment to the revenue target may be justified for extremely hot hours or days, those that are well above the normal peak summer temperature. Con Edison may want to perform an analysis of peak temperatures and weather-related costs, and propose a hot-weather revenue adjustment in some future proceeding.

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[27]The incremental costs may be overstated, since the comparison was to 2003, a year with very low heat-related costs. The rates set in this case will likely reflect the higher 2006 heat-related cost. Also, "the Company modified its procedures to track weather related costs in 2006, so that data reported for the prior years may not include all costs incurred on a consistent basis" (Staff 253).

Q: Other than the bias towards overcollection of revenues, might Con Edison's proposed weather-normalization damage Con Edison and its ratepayers?

A: Yes. In mild weather, the weather normalization would reduce Con Edison revenues below the target revenue requirement. If Mr. Rasmussen is correct that failing to cover a few million dollars of additional costs due to hot weather imperils Con Edison's reliability, that reliability will be even more threatened by a weather adjustment that cuts Con Edison revenue by tens of millions of dollars in mild weather.

Q: Does Mr. Rasmussen offer any other justification for the weather adjustment?

A: Yes. He asserts that Con Edison should "retain these revenues" (which suggests that he expects the adjustment to be a consistent benefit to Con Edison) because investors expect Con Edison to bear this risk, and perhaps view it as a benefit (Supplemental at 9). This claim is very strange. Investors generally prefer lower risk, not higher risk. Thus, if investors prefer Con Edison's weather adjustment, it is only because they (and Mr. Rasmussen) believe it to be biased in Con Edison's favor.

Q: Do you have any comments on the specific weather-adjustment mechanism proposed by Mr. Rasmussen?

A: Yes. Con Edison's proposal is extremely complicated, poorly documented, and unnecessary. For example, Con Edison proposes that following each future month it would regress daily data on send out (the amount of energy entering the Con Edison system from transmission and generation) on daily weather variables and dummies for various day types to estimate the weather sensitivity of send out. Con Edison would select the regression equation for each month, deciding whether to include such variables as the following:

- the current day's heating degree days (HDD),
- the prior day's HDD,
- HDDs from two days earlier,
- the current day's cooling degree days (CDD),
- the prior day's CDD,
- CDDs from two days earlier,
- a dummy for Saturday,
- a dummy for Sunday,
- dummies for various holidays.

In the example that Con Edison provided for each month 2005–2006 (DPS 275), Con Edison decided, based on unspecified tests of statistical significance (City 257; 266), to use the following data in the following ways:

- Lagged HDDs in five spring and fall months, but not current-day HDDs, implying that electric use in each day was not affected by weather that day, but was affected by weather the previous day, or two days previously. This makes no sense. Lagged weather is often included in regressions to reflect the buildup of heat (and hence occupant discomfort) over several hot days, or reduced occupant tolerance for discomfort after several hot (or cold) days. Including the lag without current weather suggests that low temperatures on Monday do not affect loads on Monday, but do on Tuesday and/or Wednesday, even if temperatures are higher on those days.
- Weather variables for a particular month in 2005, but not 2006, or vice-versa. For example, Con Edison concludes that HDDs lagged two days mattered in January and May 2005, but not 2006, and current HDDs mattered in April 2006, but not in 2005.
- Dummies for Easter and Good Friday in 2005, but not 2006.

On the other hand, despite all the variables Con Edison rejected due to statistical significance, it decided to include variables with very poor statistical tests, including *t* statistics as low as 1.0, a value that indicates the regression had a 30% chance of estimating the observed value even were there no relationship between the variable and sendout (DPS 257; City 266g).

Q: Was Con Edison able to explain why it rejected some variables and retained others?

A: No. Con Edison did not retain the regression results for any models other than those it selected.

Q: How does Con Edison propose to use the equations it would develop for each year?

A: Con Edison would apparently plug in daily average temperatures, averaged over the last 30 years, and estimate daily sendout for normal weather. The difference between the actual and normal sendout would be the basis for determining how much revenue should be added to the revenue target for that month. Con Edison would update the averaging period each year, which would generally increase the summer temperatures and hence the normalized sendout.

Q: How does Con Edison propose to convert the sendout adjustment to a revenue adjustment?

A: Even after the complicated and arbitrary derivation of the sendout adjustment, Con Edison would still need to take the following steps:

- Go through a complicated process to convert the daily sendout to sales for the month, reflecting the specific days in the current and previous month covered by each billing cycle.
- Allocate sales to classes.
- Compute the revenue effect of the sales adjustment for each class.

Con Edison proposes to compute the revenue adjustment by multiplying the sales adjustment for each class by the average rate for the class. (Rasmussen Supplemental at 12). That average rate would include customer charges, which do not vary with sales at all, and demand charges, which are also considered "fixed charges" and are unlikely to vary as much as energy charges with changes in sales. Hence, Con Edison's adjusted revenue target is likely to receive even more revenue than it would without the decoupling adjustment, essentially acting as a stealth rate increase.

Q: Would Con Edison's monthly weather-adjustment filings be easy to review?

A: No. Under Con Edison's proposal, the Company would be free to shape the weather-adjustment regression. From the Company's performance in this proceeding, including failing to retain the rejected regressions or provide the spreadsheets underlying its computations, it seems likely that Con Edison's monthly filings would be very difficult to review.

Q: What is the point of this complicated weather adjustment?

A: Con Edison says that it wants to perform the weather adjustment monthly because it wants to perform its reconciliation monthly (City 246). I see no reason that the revenue decoupling needs to be computed monthly. Quarterly or annual computations should be adequate for ratemaking purposes.[28]

Q: What revenue-decoupling approach do you recommend?

A: Con Edison's Forecasting Panel has proposed a set of forecasting equations; those equations or some variant will be used to set rates in this proceeding. The equations adopted for forecasting sales and revenues in this proceeding can also

[28]If Con Edison wishes to perform monthly computations for accounting or internal purposes, it can use any method it wants.

be used quarterly or annually to adjust the revenues for the revenue-decoupling mechanism to reflect changes in prices, employment, and customer number. If the Commission decides that a weather adjustment is appropriate, the forecasting equations can be used for that purpose, as well as for the economic variables.

B. Recovery

Q: How does Con Edison propose to flow revenue-decoupling costs and credits to and from consumers?

A: Con Edison's proposal (Rasmussen Supplemental at 7–8) is as follows:

> At the end of each rate year, the Company would reconcile, by service class, the actual weather-normalized delivery revenues to the Allowed Delivery Revenues.... The shortfall or excess in each service class would be surcharged or refunded to customers in each service class on a volumetric basis over the next 12 months.... The Company would perform the same reconciliation on a monthly basis. Moreover, should the cumulative actual reconciliation…equal or exceed $10 million at any point in the rate year, the Company proposes to implement interim surcharges or credits….

Q: Do you have any comments on that approach?

A: Flow-through of the costs and credits should be guaranteed, but should not be mechanical. At various times, there may be advantages to speeding up or slowing down recovery to moderate other swings in other rate components. Con Edison should propose a recovery period in each cost-recovery filing, which the Commission should be free to approve or modify.

VI. Shareholder Incentives

A. Rationale

Q: Would implementation of a fair decoupling mechanism make energy-efficiency financially desirable for Con Edison?

A: Not directly. Decoupling prevents the Company from being worse off due to energy efficiency, but does not raise Con Edison's earnings if it does a good job promoting efficiency. If Con Edison finances part of the costs of an energy-efficiency program over several years, it would presumably earn a fair return on the deferred costs, but no more. Otherwise, the Company would simply collect funds from customers and spend those funds on energy efficiency (or pass the funds on to NYSERDA or to implementation contractors).

Q. Is there any reason to provide a financial incentive to the Company for exemplary energy-efficiency performance?

A. Yes. It is in the interest of ratepayers and the general public for the DSM programs to be successful and cost-effective. Offering Con Edison an incentive for superior performance in designing and implementing DSM, in conjunction with the DSM Coordination Board and NYCEEA, may attract management attention, redirect talent to DSM from other business activities, and result in a better outcome for customers. The design of the incentive should depend on the Company's role. If Con Edison is the program administrator, a more vigorous incentive can be justified than if Con Edison simply passes energy-efficiency funding on to NYSERDA or another party and provides data and customer contacts.

Q: Con Edison Witness Charles Zielinski suggests (Direct at 13) that, even with decoupling, Con Edison would incur indirect costs from DSM and should be compensated for those costs. Do you agree?

A: No. Mr. Zielinski's assertions are without foundation. For example, he vastly overstates the effect of revenue decoupling (which he calls "RDM"), asserting (Zielinski Direct at 12) that

> standard RDM…would effectively limit utility rates of return to achieve the proponent's concept of equity: it seems fair to the proponent to guarantee that a utility will earn its regulator-determined return on equity investment every year, while also limiting a utility to that return.

and (Zielinski Direct at 13)

> When revenues are automatically equated to costs by a standard RDM, including a return on equity investment determined by regulation, the utility has no incentive to improve efficiency [i.e., control costs] because it cannot increase the return to its equity shareholders by doing so.

In fact, revenue decoupling neither guarantees nor limits the utility rate of return. If Con Edison's revenues are decoupled from sales through adoption of a fixed revenue target, Con Edison can increase its rate of return by reducing costs, or reduce its rate of return by increasing costs. Under the more-sophisticated revenue decoupling that I propose in Section V.B, above, Con Edison could also increase its rate of return by increasing economic development.

Q: Is Mr. Zielinski's testimony consistent in its interpretation of the effects of decoupling on utility return?

A: No. After claiming that revenue decoupling guarantees the utility's return, as well as revenue, Mr. Zielinski (at 14) reverses course and declares that revenue decoupling does not even guarantee revenues:

> it would be against the utility's financial interest to implement RDM as a means of reducing costs at the production level in the absence of a positive incentive because RDM would reduce the utility's sales and revenues at the distribution level.

This characterization of revenue decoupling contains multiple confusions. Revenue decoupling does not reduce sales. Perhaps Mr. Zielinski is confusing

DSM (which reduces the utility's sales) and decoupling, which restores the revenues lost to DSM. In any case, he does not explain why he expects decoupling to reduce revenues.

Q: Does Mr. Zielinski properly describe the relationship among DSM, revenue decoupling and the rationale for shareholder DSM incentives?

A: No. Mr. Zielinski claims (at 13) that "proponents of RDM" (by which he seems to mean "proponents of energy efficiency") "fail to recognize that in restructured electricity markets like New York they are seeking to command distribution companies to act against the interests of their shareholders in order to improve efficiency at the production level of the market in which distributors have no financial interest." He has not shown that DSM in any way harms the interests of utility shareholders once revenues are decoupled from sales. Furthermore, distributors do benefit energy efficiency, since reducing load growth reduces distribution-investment needs and operating expenses. While he is correct that "An avoided cost in the production market is not an avoided cost in the distribution market," energy efficiency reduces costs related to production, transmission, and distribution.[29]

Finally, while Mr. Zielinski (at 13) may be correct that "Positive incentives in the interest of shareholders are required to induce distributors to take [energy-efficiency] actions in the interests of consumers in the production market," that requirement results from management biases and institutional barriers, not any costs to shareholders of the combination of DSM and decoupling.

Q: Does Con Edison make other unjustified claims to rewards for DSM?

[29]It is not clear what Mr. Zielinski means by the "distribution market," since distribution is a monopoly service, but I assume he means the distribution system.

A: Yes. Ms. Craft also asserts that Con Edison is "entitled" to certain incentives (Direct at 18). Con Edison is not in any way entitled to incentives. Incentives to Con Edison may be in the public interest, but only due to their potential effect on Con Edison's behavior, not due to any "entitlement."

B. Con Edison's Proposed Incentive

Q: What is your assessment of Con Edison's proposed incentive?

A: Con Edison's proposal is unreasonably rich. The Company seeks 20% of TRC benefits for savings up to its modest goals and 30% of TRC benefits for additional savings, $22/kW of savings from NYSERDA programs, and all the market value of any greenhouse-gas credits generated by the program.[30]

For a program costing $103 million, Con Edison estimates that it would request $91 million in incentives for its modest goals.[31] (City 244) This incentive would nearly double the cost of the program recovered through rates.

Q. How does the Con Edison's proposed DSM incentive compare to those of other utilities?

A: The incentives of other utilities are much smaller. For example, the target incentive for Efficiency Vermont is about 3.5% to 4.5% of DSM expenditures, and about 2% of net benefits.[32] National Grid's Narragansett Electric subsidiary in 2006 had a target incentive of 4.4.% of the DSM budget, with no threshold

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[30]It is not clear how Con Edison expects that it would convert its MW demand goals to dollars of net benefits, and hence how Con Edison would determine that its incentive had risen to 30%.

[31]Con Edison lists about $19 million in administration costs (Exhibit RC-2), which appear to be included in the $103 million of program costs.

[32]"Efficiency Vermont Annual Plan 2007–2008," prepared for the Vermont Public Service Board, June 1 2007, at 30.

unless 60% of the energy target is achieved.[33] In Massachusetts, the target shareholder incentive is set at the DSM budget times the current 3-month T-bill rate (DTE 98-100, February 7, 2000, §5.3), which has ranged from two to five percent in recent years.[34] The Connecticut utilities received incentives of about 5% of their DSM budgets in 2005 and 2006.

Con Edison provides no information demonstrating that its requested incentives are comparable to any previous utility incentives. In response to City 243, Con Edison denies any knowledge of the DSM incentive levels (as a percent of DSM budgets or of benefits) for the Massachusetts, New Jersey, California, or Connecticut utilities, or Efficiency Vermont.

Q: Has Con Edison justified its proposal to retain the market value of greenhouse-gas reductions created by DSM?

A: No. When asked why Con Edison should retain the value of credits created ratepayer-funded programs, Con Edison responded with a reference to the terms of its contracts with DSM vendors in the Targeted Program and noting that "customers…benefit from the Company's implementation of the demand reduction program" (City 242). Neither of these statements offer any justification for Con Edison's attempt to secure the greenhouse-gas credits for itself. It is not clear how much those credits may be worth over the life of the DSM measures, so Con Edison is asking for an unknown, potentially large windfall for zero investment with zero risk, in addition to its other requested incentives.

[33]Rhode Island PUC Docket 3701. "2006 Demand Side Management True-Up Filing." National Grid, May 31 2006, Attachment 9 at 2.

[34]The actual incentive is determined by various measures of benefits, savings, and other metrics, and no incentive is granted below a threshold of 75% of target benefits.

Q: Has Con Edison justified its proposal that ratepayers should pay an incentive to shareholder, for even small savings?

A: No. When asked why it should receive an incentive "even if only a small fraction of the MW goal is achieved," Con Edison expressed a concern that "government entities may, or other entities may be directed by government agencies to, also develop and market programs that compete with utility programs" (Staff 109). This is a curious perspective, in at least two respects.

First, even were Con Edison justified in believing that its role in DSM may decline in the future, it offers no rationale for receiving an incentive for mediocre (or worse) performance.

Second, rather than viewing potential changes in DSM management as an arbitrary risk, Con Edison should recognize that its future role in DSM will be determined by its performance. Where utilities have been reasonably cooperative, competent, and interested in pursuing DSM, states have generally left that responsibility in the utilities' hands with input and oversight from other parties (e.g., Massachusetts, Connecticut, and California). If Con Edison does a good job running DSM programs designed and approved by the DSM Coordination Board and NYCEEA, it should retain that role and earn a real incentive. If Con Edison does a poor job in that regard, its role in DSM should limited to being a member of the Board and being a conduit for cash and information to a more efficient administrator. Thus, the Company's future role is very much within its control.

Con Edison should focus on coordinating with NYSERDA, the City and other government entities, to maximize ratepayer benefits, rather than on securing incentives before hypothetical governmental "competition" drives Con Edison out of DSM.

C. *Designing Reasonable Programs and Incentives*

Q: How should Con Edison's DSM-program funding and designs be developed?

A: The funding and program designs should be developed as part of a consultative process among all the parties to this proceeding, which will lead to the submission of proposals to the Commission. The decoupling mechanism should be developed in a similar fashion.

Q. How should the Company's energy-efficiency target and incentive be set?

A: The Company's proposed incentive should be rejected for the reasons I describe above. Instead, the design of an incentive mechanism should be discussed among the stakeholders, leading to presentation of one or more proposals to the Commission. The incentive discussions could be delayed until after the development of the efficiency program. Those discussions would need to deal with the problem of distinguishing NYSERDA results from Con Edison results in coordinated programs.

Q: How might a performance incentive be designed?

A: The incentive should be tied to the objectives of the program, which should include reduction in total costs as the most important priority. Other objectives should include energy savings, reaching difficult-to-serve customers (e.g., low-income residential), and possibly other factors. The incentive should be a small part of the net benefits (perhaps 5%), so that customer savings will far outweigh the incentive, but potentially large enough to attract the attention of Company management. The incentive should not normally exceed 10% of expenditures.

Initially, the incentive should be small and only positive, as Con Edison builds capability to deliver efficiency. As Con Edison's experience grows, it should be expected to move toward world-class energy-efficiency programs, for which it would be eligible for larger incentives.

Failure to reach reasonable standards for efficiency performance should result in penalties roughly symmetrical with the potential rewards. More importantly, if Con Edison is not an effective and efficient DSM administrator, that role should be transferred to NYSERDA, NYCEEA, or an administrator selected and supervised by the DSM Coordination Board.

VII. Advanced Metering and Third-Generation Distribution Initiatives

Q: What is the City's position on the Advanced Metering Initiative?

A: On a conceptual level, the City is very supportive of market-responsive pricing, which requires advanced metering. Hence, the City supports Con Edison moving to install advanced metering wherever they would cost-effectively provide customers with accurate price signals. The dissemination of accurate hourly price signals should spur conservation efforts, a keystone of the Mayor's PlaNYC, which supports the universal installation of advanced meters by 2014, and sets out a goal of enrolling 50% of small businesses and residents in RTP by 2015 (at 109).

In order for the meters to be cost-effective, Con Edison (and/or an ESCo) must develop a market-responsive rate structure and the infrastructure to inform customers of dynamic market prices.[35] Furthermore, customers must be able and willing to respond to those price signals.

To maximize the benefits of the Advanced Metering Initiative, Con Edison initially should concentrate on converting the meters of customers in the service classifications with the largest average loads. Spread over the load of a large SC 9 customer, the cost of an advanced meter is minor; large customers are also

[35]Those prices may include the value of demand response from the NY ISO programs.

more likely than small customers to have the staff and sophistication to respond to price signals. As technology progresses for advanced metering, supporting communication systems and end-use control equipment and the associated costs decline, Con Edison should regularly reexamine the economics of advanced meters for progressively smaller customers and install advanced metering as it becomes cost-effective.

In order to reasonably estimate the benefits of advanced metering, Con Edison will need data on the response of various customer groups to dynamic or real-time pricing. Hence, Con Edison will need to install advanced meters and conduct dynamic-pricing experiments for enough customers from each end-user group (differentiated by service classification, annual usage, type of building, and type of business) to determine both the cost of the metering and billing for various customer groups and the load response of each group. Considering the dominance of multifamily buildings in the New York City residential market, this effort should include substantial numbers of participants from a variety of project sizes (from under ten units to over 100) and ownership structures (rentals, coops, and condos). Con Edison should also test out the cost-effectiveness of various control and communication equipment for residential customers.

The installation of advanced metering and development of dynamic pricing will require much more than the three years Con Edison proposes for its next rate plan. Nonetheless, Con Edison can make significant progress in that period, implementing dynamic pricing for large customers, assessing the cost-effectiveness of existing technology for smaller customers, and developing a plan for cost-effective system-wide installation of advanced meters.

Q: Does the City support Con Edison's proposal to upgrade the distribution system to third-generation technology?

A: Yes. This principle is laid out in PlaNYC (at 114). Con Edison and the PSC should try to ensure that these technological improvements are cost-effective, justified by the increase in reliability or the reduction in conventional distribution investments.

VIII. Resource-Planning Issues

Q: What should be Con Edison's responsibility for resource planning for its service territory?

A: Con Edison should be working with other parties to ensure that the combination of central generation, transmission, DSM, distributed generation, and demand-response resources in its territory are sufficient to provide its customers with reliability and reasonably-priced power. The NYISO considers the reliability issues at the transmission level, but has no mechanism for implementing non-transmission solutions for emerging problems, and no program for adding resources to reduce market prices.

Clean distributed generation can play a critical role in achieving reliability and environmental goals in the City. Accordingly, consistent with PlaNYC, Con Edison should maintain and increase its efforts to facilitate the development of distributed generation in its service territory, to "expand the amount of Clean DG that can be safely connected to the grid," and "to reduce the financial, technical, and procedural barriers related to interconnection in order to achieve, at minimum, 800 MW of Clean DG by 2030" (PlaNYC at 111).

In addition, Con Edison should consider siting of competitive generation (which may require Con Edison transmission upgrades) and the addition of significant additional cogeneration at the Hudson Avenue steam site, replacing less-efficient steam boilers. To a large extent, electricity and steam supply in the

City are inextricably intertwined, and opportunities to augment those supplies can affect electric and steam customers. These joint projects should be pursued for the reliability, economic, and environmental benefits they may provide.

Q: Has Con Edison recently studied options at Hudson Avenue?

A: In its "Hudson Avenue Generating Station Investment Grade Cost Study," Con Edison only examined addition of package boilers and refurbishment of the existing 65-MW cogenerating unit at Hudson Avenue.[36] Con Edison dropped from the study any consideration of adding modern cogeneration at this site. While the refurbishment would provide some environmental benefits by switching the unit from heavy oil to natural gas and adding pollution controls, the environmental and economic benefits may be much greater from a larger, more-efficient cogeneration facility. Hudson Avenue is a promising site for such development, with ample space (especially compared to East River's constrained site), fuel supply, and connection to the steam system.

Considering the potential reliability and price benefits to electric and steam customers, the Commission should require that Con Edison expand the scope of the study for Hudson Avenue to include larger projects (up to hundreds of megawatts) that would maximize reliability and economic benefits to electric and steam customers.

Similarly, Con Edison should attempt to negotiate with National Grid to purchase steam (and potentially electricity) from the Ravenswood combined-cycle plant, if such a supply arrangement is justified by reliability, economic, and environmental (i.e., reduced emissions from shutting down the Con Edison "A" House) benefits.

[36]The report (July 2007, PB Power and ENSR) was filed August 30 2007 in Case 05-S-1376.

Q: What is Con Edison's role in transmission planning?

A: Con Edison is the transmission owner and supplier for its service territory, and should be continually reviewing options for improving its transmission system and removing bottlenecks to the free flow of competitive power supply.

Q: Are you aware of potential opportunities for transmission upgrades that Con Edison should be pursuing?

A: Yes. Con Edison should examine the opportunities for transmission upgrades that would allow additional power imports from Upstate and upgrades that would integrate potential power supplies on Staten Island with the other boroughs.

Q: Please describe the opportunity for transmission upgrades that would allow additional power imports from Upstate.

A: In the Joint Proposal in the National Grid–KeySpan merger proceeding, National Grid agrees that it "in collaboration with Con Edison, will perform, or agree to perform, a feasibility study and stands ready to enter into good faith negotiations with Con Edison and other interested parties to determine fair and reasonable recovery and allocation of costs if either or both utilities propose the New Scotland to Pleasant Valley Reconstruction and Sprainbrook to Rainey 345 kV transmission project."[37] This appears to present an opportunity for Con Edison to relax one of the constraints on imports into its service territory, and to Zone J in particular.

Unfortunately, when asked about National Grid's commitment and its plans, Con Edison responded that the "provisions do not bind the Company and

[37] "Merger and Gas Revenue Requirement Joint Proposal," Case 06-M-0878, joint petition of National Grid PLC and KeySpan Corporation for Approval of Stock Acquisition and other Regulatory Authorizations, July 6 2007, at 12.

the Company will not comment on them further except to say that we don't regard such provisions as constructive," refused to describe its options for expanding transmission capacity into New York City, admitted that it had not studied the Sprainbrook-to-Rainey 345 kV project, and declined to explain how the projects in the National Grid settlement relate to Con Edison's current M29 project (City 227).

The City would like Con Edison to exhibit a more active attitude toward its transmission-planning and transmission-construction responsibilities. In particular, the Commission should not accept Con Edison's apparent total lack of initiative with respect to the National Grid project is in the best interest of Con Edison's customers. Instead, the Commission should impose on Con Edison the requirement to which National Grid agreed and that the Commission approved: the Company should be required to collaborate with National Grid on a study of the transmission project and to determine in good faith if the project can proceed. The Commission should also direct that this joint effort be facilitated by the DPS, to minimize the probability of inaction or gridlock.

Q: Please describe the opportunity for transmission upgrades that would integrate potential power supplies on Staten Island with the other boroughs.

A: A significant proportion of the land on which major generation facilities might be sited in New York City is located in western Staten Island. Existing and potential new generation and transmission facilities in New Jersey, which could serve power imports into New York City, are also closer to western Staten Island than to other parts of the City. As I understand the present situation, additional resources on Staten Island would do little to improve reliability or reduce energy costs because of limited export capacity across Staten Island to Queens and into the rest of the Con Edison transmission system.

Q: Are there any load-related transmission studies that Con Edison should be undertaking?

A: Yes. First, Con Edison should update its 2005 System Reliability Assessment Study, to reflect load growth and new resource plans.

Second, Con Edison should expand on the transmission- and-distribution planning in its Area Substation and Subtransmission Feeder Ten-Year Load Relief Program reports to examine the potential load growth in the City's redevelopment areas, potential locations for generation additions, and the need for transmission to connect generation and load. While it may be too early for specific plans, Con Edison can determine potential costs, identify development areas in which high efficiency and distributed generation may be particularly important, and estimate the incremental value of encouraging new generation to locate at specific in-City sites.

The current Load Relief Program report lists upgrades for some areas the City has targeted for redevelopment (e.g., Hudson Yards and Jamaica). It is not clear whether the potential upgrades are consistent with the size and timing of planned redevelopment. Con Edison should establish a process for consultation with City planners to ensure consistency in planning assumptions (e.g., timing and square footage of new buildings). To the extent that Con Edison currently monitors the City planning process and incorporates those plans in its Load Relief Program, the consultation may simply reassure the City that Con Edison is adequately prepared. If Con Edison is not effectively tracking City planning, the consultation may benefit both future economic development and Con Edison's distribution planning. Where new substations and other infrastructure are required, Con Edison may find that siting equipment prior to real-estate development is less expensive than playing catch-up.

Q: Does this complete your testimony?

A: Yes.