STATE OF NEW YORK

BEFORE THE PUBLIC SERVICE COMMISSION

Consolidated Edison Company	**)**	
of New York, Inc. Steam Rates	**)**	**Cases 03-G-1671 & 03-S-1672**
Consolidated Edison Company	**)**	
of New York, Inc. Gas Rates	**)**	

REBUTTAL TESTIMONY OF

PAUL CHERNICK

ON BEHALF OF

THE CITY OF NEW YORK

Resource Insight, Inc.

APRIL 5, 2004

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I. Introduction

Q1: ARE YOU THE SAME PAUL CHERNICK WHO FILED DIRECT TESTIONY IN THIS CASE?

A1: Yes.

Q2: WHAT IS THE PURPOSE OF YOUR REBUTTAL TESTIMONY?

A2: My testimony reviews aspects of the steam-case testimony of Paul M. Doherty on behalf of TransGas and George T. Berry on behalf of the County of Westchester.

Q3: WHAT ISSUES DO YOU ADDRESS?

A3: I address the following nine issues related to the East River Repowering Project:

- The initial motivation for planning the ERRP and its implications for cost allocation.
- Mr. Berry's assertions about the existence of a steam subsidy.
- Mr. Berry's assertions about the availability of alternatives to the electrical supply from the ERRP.
- The effect of Mr. Berry's allocation proposal for the ERRP.
- The incentives of the County of Westchester in this proceeding.
- Mr. Doherty's "probable cost" method for estimating the electrical value of the ERRP
- Mr. Doherty's energy-output method for allocating the costs of ERRP.
- Mr. Doherty's dispatch method for allocating ERRP fuel costs.
- Mr. Doherty's discussion of avoided steam costs.

Q4: DO YOU REBUT ANY STAFF TESTIMONY?

A4: No. By and large, the Staff's direct testimony is consistent with the City's positions. In particular, both accept Con Edison's approach to allocating the ERRP costs between the electric and steam departments and both recommend a prudence review prior to recovery of the cost overruns on the ERRP. In my direct testimony I recommend putting some portion of ERRP costs in base rates now and offsetting them by a reduction in the fuel adjustment until commercial operation and the completion of the prudence review. The Staff recommends excluding those costs from base rates and flowing them through the fuel adjustment after commercial operation. I have no problem with the Staff's recommendation provided the prudence issues are resolved before the cost overruns are recovered.

We are also in agreement that the costs allocated to the electric system should flow through the Monthly Adjustment Charge (MAC), once the ERRP enters commercial operation. I am not sure why Mr. Van Cook discusses the durability of that treatment, since, as he says, the recovery of the ERRP costs will be considered in the forthcoming Con Edison electric-distribution rate case.[1]

[1]Mr. Van Cook testifies (at 15, lines 13–15) that the MAC recovery should be temporary because "the MAC is designed for the Company to recover stranded electric generation costs." The MAC tariff also provides for, among other things, inclusion of costs and revenues of Transmission Congestion Contracts, NYISO-related charges and credits (Schedule 1, congestion balancing, and some upstate transmission facilities), the Madison Square Garden discount, various deferrals and adjustments from prior to May 2000, the New York Power Pool assessment, adjustments from generation-rate components set prior to April 2000, gains on wholesale sales, transmission-related charges and credits, reconciliation of generation costs, financial hedges, costs of and lost revenues from demand-management programs and riders, and various performance incentives for Con Edison power and fuel supply. I understand that the MAC now reconciles the costs and revenues of Hudson Avenue 10; like the ERRP, this is a post-restructuring generation addition.

Q5: PLEASE SUMMARIZE YOUR TESTIMONY.

A5: Cost allocation for the ERRP should be guided by the needs of the steam and electric operations rather than by misplaced preconceptions of the origin of the ERRP costs. Con Edison's ERRP cost-allocation proposal is fully consistent with cost-transaction principles, while those of Messrs. Berry and Doherty are not. In my direct testimony, I demonstrate that Con Edison's allocation would also track how the benefits of ERRP will flow. Thus, there is nothing inequitable about Con Edison's ERRP cost-allocation proposal.

Moreover, the electric generation of the ERRP is essential to the reliable and economic operation of Con Edison's electric system. The assertions by Mr. Berry and Mr. Doherty regarding the availability of alternatives to the ERRP, and the cost of those alternatives, are unsupported and incorrect. Their claims that Con Edison's proposed ERRP cost allocations would overcharge the electric system are similarly unfounded. Their alternative allocation proposals are based on errors and misconceptions.

Finally, Mr. Doherty's computation of avoided steam costs is based on fundamental conceptual errors and incorporates incorrect and inappropriate assumptions of his allocation analysis.

Q6: BASED ON YOUR REVIEW OF THE DIRECT TESTIMONY OF TRANSGAS AND WESTCHESTER COUNTY, DO YOU HAVE ANY RECOMMENDATIONS TO SUPPLEMENT THOSE IN YOUR DIRECT TESTIMONY?

A6: I have no new recommendations, other than that the Commission give no weight to the testimony of Messrs. Berry and Doherty.

II. Causation and Allocation

Q7: WHAT DO MESSRS. BERRY AND DOHERTY ARGUE WITH RESPECT TO THE REASONS FOR THE CONSTRUCTION OF THE ERRP?

A7: They refer to various statements by Con Edison and the Siting Board regarding the justification for the ERRP. They then argue that these statements support the allocation of most of the ERRP costs to steam.

Q8: IS THEIR REASONING CORRECT?

A8: No. Con Edison's planning for the ERRP does appear to have started with Con Edison's efforts to find a way to use the value of the Waterside site to offset some costs, some of which Con Edison wanted to transfer from the electric system to the steam operation. But benefits for the electric system were also important in the justification of the ERRP. The cogeneration of steam at the ERRP provided a rationale for Con Edison to build badly needed electric generation in the location where most needed to resolve pressing capacity and local-delivery problems—and within the economic and institutional constraints of electricity industry restructuring.

Perhaps more importantly, both Mr. Berry and Mr. Doherty use the history of efforts by Con Edison and the Commission to reduce steam-system costs as an argument for raising costs to the steam system. In their zeal to increase costs for steam customers, Messrs. Berry and Doherty ignore the potential ramifications of their recommendations.

Q9: WHY IS IT IMPORTANT THAT THE STEAM SYSTEM REMAIN VIABLE?

A9: The loss of the steam system would have dramatic, deleterious impacts on Con Edison's electric and gas customers, including those in Westchester County. As the Commission said in 1978, "If the ultimate result of ever-increasing rates is the departure of all steam customers from the system, it will be dis-

advantageous to Con Edison's gas and electric customers" (18 NYPSC 1770). More recently the Commission found, "The depression of steam system demand might well have a negative impact on electric ratepayers, particularly at a time when the demand for electricity in New York City is already high relative to supply" (Opinion 00-15).

The loss of the steam system would increase cooling load on the electric system by about 700,000 tons, or more than 433 MW. Adding 433 MW of load would increase the market price by about $200 million annually for installed capacity, and by perhaps another $100 million annually for energy. In addition, the new development on the West Side of Manhattan and around the World Trade Center site will be more likely to rely on electricity, further increasing the growth in peak load.

The transfer of steam customers to the electric system would also lead to large investments in distribution and transmission equipment that Con Edison would need to deliver additional electricity to replace the lost steam supply. Furthermore, former steam customers would need to invest in their own boilers, chillers, internal distribution (to bring electricity and gas to the new equipment), and reconfiguration of their facilities. In the process, customers would likely lose usable space, which is often very valuable in dense urban areas.

The Con Edison gas-delivery system would also be affected because it would need to deliver about 8,500 MMBtu/hr in additional gas to replace the 7,200 Mlb/hr of steam used at the winter peak. A large portion of the steam system is oil-fired or dual-fuel, while almost all converting customers would be likely to use gas. Consequently, Con Edison's gas-transmission system would need to be upgraded (at unknown cost) to supply up to an additional 14,000 MMBtu/hr of gas into Manhattan. In addition, Con Edison's gas-distribution system would need to be reinforced to carry that additional volume to

customers, and pipelines would need to bring that gas into the New York metropolitan area.

The loss of all the cogeneration on the steam system would also reduce the efficiency of energy use in New York City, resulting in increased fuel imports and emissions of carbon and other pollutants.

Q10: DOES THE THEORY OF PRICING FOR JOINT PRODUCTS PROVIDE ANY GUIDANCE ON THIS ISSUE?

A10: I am well acquainted with this issue, since I wrote my Master's thesis on pricing for peak load and joint products. Essentially, pricing of joint products should result in the full utilization of both products, while covering the cost of production. In the case of cogeneration,

- capacity should be added as long as the total value of the steam and electricity exceeds the cost of production.
- the pricing of the products should allow for full utilization of the output, so that no product needs to be wasted.

Con Edison's allocation proposal is consistent with these principles. For the Con Edison system, there is no question as to whether the full electric capacity of the ERRP is necessary and will be used by the electric system, regardless of how the costs of the ERRP are allocated. Nor is there any danger of under-utilization of the Con Edison electric distribution system. On the steam side, however, excessive allocation of ERRP and other costs could easily result in major load losses and under-utilization of the steam production and distribution systems. As I describe above, the loss of the steam system could have major adverse effects on Con Edison's systems for the transmission and distribution of both electricity and gas. The Commission should be careful not to shift any excess costs onto the steam system.

III. Mr. Berry's Testimony

Q11: DOES MR. BERRY DEMONSTRATE THAT THE CON EDISON ELECTRIC SYSTEM HAS SUBSIDIZED THE STEAM SYSTEM?

A11: No. For the most part, Mr. Berry simply points to one cost after another, declaring each cost to be a "steam subsidy," and adds up the total.

Q12: DOES MR. BERRY DEFINE "STEAM SUBSIDY" APPROPRIATELY?

A12: No. He adopts the following definition (at 6): "The 'subsidy' is defined as the costs paid by electric customers for the steam-electric plants to the extent such costs are in excess of the market price of electricity." Other than the reference to steam-electric plants, this definition is identical to the definition of the electric stranded costs for retained generation. Mr. Berry simply assumes that these costs are attributable to the steam system rather than to the electric system.

Q13: DOES MR. BERRY DEMONSTRATE THAT THE COMMISSION FOUND THAT THE ELECTRIC SYSTEM SUBSIDIZES THE STEAM SYSTEM?

A13: No. Mr. Berry quotes a passage from Opinion 00-15 at page 7 of his testimony. Significantly, throughout that quote, the Commission put quotation marks around "subsidy," implying that the Commission was using a term without endorsing it. Later in Opinion 00-15 (at 21), the Commission states its conclusions regarding the costs Mr. Berry considers a steam subsidy:

> the longstanding allocation of cost between electric and steam has been reasonable, and the discontinuance of electric production at these plants effectively means that the electric department's portion of the investment can be regarded as "stranded" investment in appropriate circumstances.

In short, the Commission has decided that there has been no subsidy historically at the cogenerating plants and has not decided whether the excess fixed costs are steam costs or stranded electric investment.

Q14: IS MR. BERRY CORRECT IN ASSERTING THAT THE ERRP IS NOT IN THE RIGHT PLACE AND IS NOT THE RIGHT TYPE OF CAPACITY FOR ELECTRICAL SUPPLY TO CON EDISON?

A14: No. Mr. Berry suggests (at 10 and 11) that Con Edison does not need additional generation in Manhattan:

> From a cost basis alone, you would not locate an electric generating facility at that location. There are other electric generating facilities currently being built or proposed in the metropolitan area but none of them are in Manhattan…. If the plant were simply to supply electricity Con Edison would not be the builder-owner. The owner would have decided where it would have been built but surely the site would not have been inside an existing structure in lower Manhattan. The plant might well have been built outside New York City with a transmission connection into the City.
>
> ...with the added generation under construction and planned Con Edison's electric loads can be reliably served without ERRP.

Mr. Berry (at 33) disputes the existence of the East River load pocket, expresses doubt "that service of this load pocket requires Units 6 & 7," suggests that "other less expensive methods could be employed to service the area of the load pocket" and asserts, "Even if ER 6 & 7 are needed to supply a local load pocket ERRP is not needed at that location."

Mr. Berry's statements on this issue are strewn with errors and irrelevancies. In fact, Con Edison *does* need generation in Manhattan, to serve the East River 69 kV load pocket and the East 13th Street 138 kV load pocket. According to the NY ISO, the East River load pocket was constrained for 1,097 hours in the year ending February 29, 2004.[2] The following table shows Con Edison's 2001 projections of load and capacity for 2006 in the load pockets affected by the ERRP:

[2] "Real Time Load Pocket Thresholds," NY-ISO Market Monitoring Unit, March 15, 2004.

Projected 2006 MW without ERRP

	Load	Capability	Deficit
East River	486	460	26
East 13th St.	1571	1550	21
West 49th St.	2721	2599	122

Source: "Con Edison Service Area Year 2001 Annual Transmission Baseline Assessment," 10/17/01,"Table IV: Year 2006 Load Pocket Analysis." Distributed at the 10/22/01 meeting of the NY-ISO Transmission Planning Advisory Subcommittee

The only generation currently operable in the East River and East 13th St. load pocket are East River 6 and 7; the West 49th St. load pocket is also served by the Poletti plant.[3] Since 2001, Con Edison's load forecast has increased, suggesting that the deficits would likely be even larger if evaluated today.

Q15: IF GENERATION WERE NOT BUILT IN THE EAST RIVER LOAD POCKETS, HOW COULD CON EDISON SERVE THE LOADS IN THOSE AREAS?

A15: The alternative to the generation in the East River load pockets would be some unspecified additional transmission investment that would tie the Manhattan loads to existing or new generation outside the pockets. Were replacement generation not built elsewhere in New York City, transmission would be needed to bring additional power into the City load pocket, as well. However, Mr. Berry does not provide any estimate of the cost, feasibility or timeline for such transmission. His client generally has not been receptive to transmission projects to benefit New York City.[4]

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[3]The new Poletti combined-cycle plant apparently will not be connected to the West 49th Street load pocket.

[4]For example, Westchester County vigorously opposed the Millennium Pipeline project. In Case 00-E-1208, the County acknowledged that it had not "publicly advocated the construction of additional transmission lines through Westchester to New York City any time in the last thirty years" (IR NYC-W25). In that same case the County responded to a question on Mr. Berry's testimony about an "additional transmission line through Westchester to alleviate that transmission" constraints into New York City by stating that "no such additional transmission lines are necessary." (Interrogatory NYC-W5). (These interrogatory responses are attached as Exhibit PLC-R-1.)

Several transmission projects to serve the New York City load pocket have been shelved. The Empire Connection transmission line into New York City recently failed to find buyers for its capacity, and suspended its capacity auction.[5]

Q16: IS GENERATION ELSEWHERE IN NEW YORK CITY AS READILY AVAILABLE AS MR. BERRY SUGGESTS?

A16: No. While many generation and transmission projects have been proposed to serve New York City, those resources need to be built before they can keep the lights on or moderate energy prices. Other than the ERRP, I know of only one generator—the 500-MW Poletti combined-cycle plant—under construction today in the New York City load pocket. That plant is being built subject to the condition that the 855-MW Poletti reheat steam plant be retired soon after the combined-cycle enters service, and that the older plant's operations be limited in the interim period.

Getting approval and financing for new sites seems to be particularly difficult. For example, the recently completed 250-MW Keyspan-Ravenswood cogenerator (originally designed to sell steam to Con Edison), like Poletti and the ERRP, is located at an existing power-plant site.

Between them, the new Poletti and Ravenswood units do not even replace old Poletti, let alone Waterside. They certainly would not cover any load growth. Since the New York City market had capacity in 2003 barely equal to the

[5]Smith, Rebecca. "Power Project For New York City Is Left in Doubt" *Wall Street Journal,* (March 1, 2004) at A5.

minimum 80% of peak load required for reliable service, Mr. Berry's assertions regarding the adequacy of electric capacity are without merit.[6]

Q17: HAS THE COMPETITIVE MARKET BEEN EFFECTIVE IN BRINGING NEW GENERATION INTO SERVICE IN NEW YORK CITY?

A17: No. Two projects (SCS Astoria and the Reliant Astoria repowering) have their Article X permits, but neither has received financing to my knowledge. Almost all the capacity added in New York City since Con Edison's divestiture of generation (or even under construction) has been located at existing plants (Ravenswood, the restart of Astoria 2), or been added by NYPA (ten combustion turbines and the Poletti combined-cycle) or Con Edison (Hudson Avenue restart, the ERRP). The market has been slow to develop the alternative that Mr. Berry suggests: some merchant plant whose "electric generating capacity…is sold into the capacity market and energy…is sold into the energy market." Building generation and transmission based on market prices alone has proven to be very difficult. Even with a contract from Con Edison to support its construction and operation, SCS has experienced some difficulty in financing its plant.

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[6]The same is true for Mr. Doherty's testimony (at 10) that the "percentage of hours of economic electricity production [by the ERRP] is expected to decline in the future as new, more efficient and lower cost combined-cycle gas turbine generators are built in New York City and Long Island." Mr. Doherty does not identify who "expects" this effect to occur, or when, but at this point there is not enough combined-cycle generation under construction to meet load growth and retirements, let alone stimulate competition that would reduce market energy prices. The Energy Policy Task Force Report found a need by 2008 for 665 MW to cover load growth and 1,000 MW to control market prices, in addition to replacing retirements of 855 MW at Poletti and possibly much more. The plants under construction and recently complete total 875 MW.

Q18: YOU HAVE REFUTED MR. BERRY'S CONTENTION THAT THE ERRP IS NOT NEEDED FOR THE CON EDISON ELECTRIC SYSTEM. IS HE CORRECT THAT THE CAPACITY OF THE ERRP IS VITAL FOR THE STEAM SYSTEM?

A18: Mr. Berry's conclusion that the operation of the ERRP is essential to meet steam-system load is correct only if Waterside is retired. From a reliability stand-point, the steam system benefits very little from the replacement of Waterside with the ERRP. On the other hand, the additional electrical capacity of the ERRP over the capacity of Waterside is a vital contribution to the electrical system. The Waterside retirement is the linchpin of the sale of the First Avenue properties, which will benefit steam and electric customers.

Q19: DOES MR. BERRY DEMONSTRATE THAT CON EDISON'S ALLOCATION OF COSTS TO ELECTRICITY RESULTS IN AN EXCESSIVE COST FOR COMBUSTION TURBINE CAPACITY IN NEW YORK CITY?

A19: No. Mr. Berry asserts (at 12) that Con Edison's allocation of the original ERRP cost estimate

> results in a price of approximately $1000 per installed kW which is too high for combustion turbine generation. The $670 million Con Edison is now projecting for its ERRP 'all in cost' results in an installed cost per kW of $1560. This figure is substantially higher than is reasonable for a generating plant consisting of combustion turbines….

However, he provides no evidence supporting his assertions that the costs are "too high" or "substantially higher than is reasonable."[7]

[7]In Case No. 00-E-1208 Mr. Berry testified (at 7, 10), "It is difficult and expensive to construct power facilities in the City," and that due to "the difficulty of constructing either generation or transmission in the City we expect a significant differential to be a persistent condition. While it is known that some generation is being built in the City, it must also be recognized that the peak load is also growing." Events since he filed that testimony in October 2001 confirm that he was correct on these points, which contradict his present testimony.

The combustion turbines that NYPA built in New York City in 2001 cost about $1,298/kW, and none of them were in Manhattan, let alone the East River or East 13th Street load pockets. Even Mr. Doherty's estimate of the cost of a combustion-turbine plant at a favorable site in Manhattan is nearly $1,000/kW—and, as set forth in §IV below, Mr. Doherty's estimate is woefully understated.[8]

Q20: WHY DID CON EDISON ABANDON ITS ORIGINAL PLAN TO BUILD THE ERRP AS A COMBINED-CYCLE PLANT, AS SUGGESTED BY MR. BERRY?

A20: It is my understanding that the New York State Department of Environmental Conservation established a policy of not allowing the use of East River water to cool power plants. Building a dry cooling system is both expensive and demanding of space, which is hard to come by in Manhattan.

Q21: WHAT WOULD THE EFFECT BE OF IMPLEMENTING MR. BERRY'S ALLOCATION PROPOSAL?

A21: Mr. Berry would increase steam rates to decrease electric rates. Mr. Berry proposes that all the costs of East River, the ERRP, and Hudson Avenue be transferred to Con Edison's steam business, which would sell the electrical output of those plants to Con Edison's electric business (or potentially NYPA or ESCos) at market prices. Under this proposal, all the benefits of the steam-electric plants for reducing electric prices would flow to the electric customers,

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[8]Mr. Berry also suggests (at note 19) that the ERRP would have substantial additional investments. His argument apparently rests on Con Edison's historical capital additions to its power plants, and specifically to Waterside, during 1984–1992. Mr. Berry fails to note that Waterside units 8 and 9 were installed in 1949, and that the existing unit 6 was added in 1992, replacing five units dating back to 1937 through 1949. By 1992, Con Edison's in-City generation ranged in age from 20 years (for some of its combustion turbines) to 38 years for the Astoria 2, to more than 50 years for some steam-electric units. While ERRP will likely need significant capital investments twenty-five years or fifty years in the future (although not necessarily including environmental retrofits comparable to those of the 1980s and 1990s), near-term investments are likely to be much smaller.

at no cost. In addition, all the stranded costs of the former cogeneration plants at West 59th Street and East 74th Street would be transferred to the steam system.

This allocation proposal is wholly inequitable and would be disastrous for the already struggling steam system, which would be burdened with the stranded costs of West 59th Street, East 74th Street, East River, and Hudson Avenue while simultaneously being harmed by the operation of the ERRP. Meanwhile, electric customers would benefit.

The data in the table below demonstrate the inequitable flow of ERRP costs and benefits inherent in Mr. Berry's proposal. I use Mr. Berry's allocations of ERRP fixed costs, and the estimates of avoided Waterside costs from my direct, while allocating the market price of the output to steam and the value of the change in market price to electric, in accordance with Mr. Berry's recommendation. For fuel costs, I estimate steam's savings from the retirement of Waterside as Con Edison's projection of 2004/2005 net savings from Exhibit EJR-1 ($64 million) plus ERRP 2004/2005 fuel costs from the response to City interrogatory 23 ($11 million), all times Con Edison's 1.25 levelizing factor, or $94 million. Since steam would pay the $200 million in ERRP fuel costs (from Exhibit RS-2), that leaves steam with a net fuel cost of $106 million, and electric with a net fuel savings of $65 million.[9]

[9]There are minor differences between Con Edison's estimates in Exhibit RS-2 and the values in the underlying workpapers, provided in response to City interrogatory 10.

East River Repowering Project Economic Benefits

Levelized Annual Cost (millions of dollars)

line		Total	Steam	Electric	Basis for Allocation
1	**Recovery of Investment**	$80	$80		*GTB Direct at 38–39*
2	**Property Tax**	$28	$28		*GTB Direct at 38–39*
3	**Operations & Maintenance**	$25	$25		*GTB Direct at 38–39*
4	**Total ERRP Fixed Costs**	$133	$133		*[1] + [2] +[3]*
	Avoided Waterside and Steam System Costs				
5	**Recovery of Future Investments**	$19	$1	$18	*PLC Direct at 11*
6	**Property Tax**	$26	$1	$25	*PLC Direct at 11*
7	**Operations & Maintenance**	$24	$10	$14	*PLC Direct at 11*
	Electricity Purchases:				
8	**Capacity Market Benefit**	$85	$13	$72	*market price to steam; change in market price to electric*
9	**Energy Market Benefit**	$34		$34	*change in market price to electric*
10	**Value of Energy Generated**	$121	$121		*market price to steam*
11	**Total Avoided Costs (Benefits)**	$310	$146	$164	*[5] + [6] + [7] + [8] + [9] +[10]*
12	**Net Fuel Benefit**	–$41	–$106	$65	*see text, above*
13	**Real Estate Benefits**	$24	$24		*GTB Direct at 37*
14	**Net Economic Benefits**	**$160**	**–$69**	**$229**	*[11] + [12]+[13]*

Acceptance by the Commission of Mr. Berry's proposal would result in the operation of the ERRP *increasing* costs to Con Edison's steam customers by $69 million, while *reducing* costs to the electric customers by $229 million. Rather than achieving the original objective of the ERRP—reducing steam costs and revitalizing the steam system—Mr. Berry would frustrate the intent of Con Edison in proposing the plant and the Commission in approving it. Instead, Mr. Berry would threaten the viability of the steam system by depriving steam customers of the fuel benefit from the ERRP. This would add to the significant base rate increase that, based on the Con Edison and Staff direct cases, already may result in this case.

Q22: WHAT ARE THE COUNTY OF WESTCHESTER'S INCENTIVES IN THIS PROCEEDING?

A22: While Westchester County emphasizes the objective of moving costs from electric customers (some of which are located in Westchester County) to steam

customers (none of which are located in Westchester County), its proposals in this proceeding also may have the effect of shifting electric costs from Westchester County customers to those in New York City.

In Case 00-E-1208, the Commission indicated its intention to charge the same stranded-cost rate to all Con Edison customers, while charging customers in Westchester County and New York City for market energy and capacity prices in their separate pricing zones. Were Westchester County to succeed in its proposals in this proceeding, it would interfere with Con Edison's ability to build additional cogeneration capacity that would reduce costs to its customers, and increase the rate at which steam loads would switch to electricity, particularly for cooling. Both the reduction in new generation capacity in New York City and the increase in electric loads would tend to drive up market energy and capacity prices in New York City. However, those higher market prices in the City would also reduce net stranded costs, and Westchester customers would receive 10–15% of those reductions in stranded costs. Thus, under the initial decision in Case 00-E-1208, undermining Con Edison's steam system and increasing in-City electric prices would reduce Westchester County's stranded-cost burden at the City's expense.[10]

IV. Mr. Doherty's Testimony

Q23: PLEASE DESCRIBE MR. DOHERTY'S "PROBABLE COST" METHOD FOR ESTIMATING THE ELECTRICAL VALUE OF THE ERRP.

A23: Mr. Doherty (at 6) explains this analysis as follows:

[10]The City has petitioned the Commission to reconsider its decision in Case 00-E-1208 because of the equity issues and the perverse incentives created by the initial decision.

Beck developed an opinion of probable cost of the capital cost of an electric-only generating plant with the electrical output equal to that provided by ERRP and that could be constructed on adjacent land controlled by Con Edison and within the time frame discussed by Con Edison for avoiding a lower Manhattan electric load pocket deficiency, an assertion made by Con Edison in its Article X application (p. 2–8). After developing the opinion of probable cost, I compared the cost of this electric-only plant—$264.7 million—to Con Edison's current $670 million cost estimate for ERRP.

Q24: IS MR. DOHERTY'S APPROACH TO COST ALLOCATION APPROPRIATE?

A24: No. His estimate is a theoretical construct. He describes an "equivalent-electric plant" with the electrical capacity of the ERRP, supposes that an advantageous site exists on which it could be constructed, and imagines how much that plant might cost, excluding many cost items. Mr. Doherty then attributes to steam operations the difference between the currently estimated cost of the ERRP and his hypothetical cost estimate.

His "conceptual planning level estimate" (Exhibit PMD-3) of $264.7 million is very similar to the electric portion of Con Edison's initial estimate for the ERRP, which was $290 million with the steam turbine, or about $258 million without the steam turbine and with the HRSGs allocated entirely to steam. For the reasons set forth below, Mr. Doherty's estimate is likely to be as inaccurate as the original ERRP estimate at reflecting the cost of building a power plant in a dense urban setting.[11] The cost increases in the ERRP are just as attributable to the electric portions of the plant as to the steam portions.

[11]Both those estimates are more realistic than Stone and Webster's estimates of New York City combustion turbine costs of $270–394/kW ("Feasibility Study for In-City Generation," April 1998, at 12).

Q25: IS MR. DOHERTY'S ESTIMATE BASED ON AN AVAILABLE SITE?

A25: That is not at all clear. Mr. Doherty specifies (at 7) that the equivalent-electric plant would be located "north of the existing East River Station on land controlled by Con Edison and capable of providing equivalent support to the lower Manhattan 69 kV and 138 kV systems." However, he does not identify the part of the site he proposes to use, or establish that is available for this purpose. His Exhibit PMD-3 describes "an assumed site area of approximately 3.5 acres" (at 2), for which "very little demolition was included based on the assumption that the site chosen would not include significant existing structures" (at 3). This sounds like the description of the ball fields across East 15th Street from the East River plant or the parking lots another block to the north.

Mr. Doherty includes no cost for relocating any current uses of the site, such as building a parking garage if he intends that the parking lot be used for his equivalent-electric plant. Nor does he explain why he believes that Con Edison could build a plant on this site, which it has kept open for decades.[12] The ERRP's permitting process was probably facilitated by the fact that it was being built in an existing structure and that it would reduce emissions from the steam equipment on the site. Mr. Doherty's proposed plant would have neither of these advantages.

[12]On behalf of Con Edison, Stone and Webster sought potential sites for additional combustion turbines in New York City, and found only one site in Manhattan, at Sherman Creek, at the northern end of the island. Stone and Webster did not identify the land to the north of the East River plant as a viable site for development of generation. "Feasibility Study for In-City Generation," Stone and Webster, April 1998.

Q26: DOES MR. DOHERTY'S ESTIMATE OF THE COSTS OF THE EQUIVALENT-ELECTRIC PLANT INCLUDE ALL THE COSTS OF THE PLANT?

A26: No. While Mr. Doherty refers to the cost as "probable," his Exhibit PMD-3 describes it (at 1) as "Conceptual Planning Level Estimate of the Engineering, Procurement and Construction (EPC) Costs" and notes (at 4) that the estimate excludes the following:

- sales and use taxes and duties,
- financing costs (including interest during construction),[13]
- insurance,
- development,
- land costs,
- property taxes,
- "other Owner's costs"

In addition, if the site is actually available for and suitable for development, Mr. Doherty should have included the lost market value of the site as a cost of his proposed project.

In addition to the omissions he acknowledges, Mr. Doherty does not include any gas-line extension or connection costs, not even the $27 million Con Edison is spending to supply fuel to the ERRP. Further, his estimate of the costs of the electric interconnection is only $4.2 million, compared to $14 million for interconnection of the same amount of capacity at ERRP. The interconnection costs of Mr. Doherty's plant should be higher than for the ERRP, since even running a transmission line under the street in Manhattan can be an expensive undertaking.

[13]Mr. Doherty added $10 million in AFUDC in Exhibit PMD-4; this figure (about 4% of project costs) also seems rather low.

The only thing "probable" about Mr. Doherty probable cost estimate is that it is probably significantly understated.

Q27: ARE ENGINEERING, PROCUREMENT AND CONSTRUCTION COSTS TYPICALLY CLOSE TO THE TOTAL COST FOR COMBUSTION TURBINES?

A27: No. The difference between EPC costs and total costs is typically quite large. The Stone and Webster study estimated an EPC cost of $275/kW for 160 MW combustion turbine, but estimated total costs of $343/kW to $394/kW, 25–40% more than the EPC cost.

Q28: IS MR. DOHERTY'S ANALYSIS OF USEFUL ENERGY OUTPUT AN APPROPRIATE GUIDE FOR ALLOCATION OF ERRP COSTS?

A28: No. Mr. Doherty' Exhibit PMD-6 simply converts the energy value of the steam and electricity outputs into Btus, treating a Btu of electricity as equivalent to a Btu of steam. That is a meaningless comparison. Electricity is more expensive and more valuable than steam, per Btu, for the following reasons:

- The cost of the electric generation equipment is greater than the cost of boilers per Btu.
- The efficiency of generation is much higher for steam (approaching 90%) than for electricity (for which the best units approach 50%).
- Electricity can provide a wide range of services (lighting, running computers and motors) that steam cannot.
- For heating and cooling, a Btu of electricity driving a heat pump or a chiller can produce more thermal benefit than a Btu of steam.
- The retail price of a Btu of electricity is several times the price of a Btu of steam.

Q29: HOW DOES MR. DOHERTY PROPOSE TO ALLOCATE ERRP FUEL COSTS BETWEEN ELECTRIC AND STEAM OPERATIONS?

A29: Mr. Doherty proposes that the electric system pay for fuel at cost in those hours when his estimate of ERRP electric energy costs would be less than the market price for electrical energy. Mr. Doherty further proposes that the steam system pay for all the other fuel used at ERRP, even when the combustion turbines are running, generating electricity, and removing energy that could have been used to generate steam (at 7–10 and Exhibit PMD-5).

Q30: IS THIS DISPATCH APPROACH TO FUEL ALLOCATION APPROPRIATE?

A30: No, for five reasons. First, Mr. Doherty ignores the benefits to Con Edison electric distribution customers of the lower market energy prices resulting from the operation of the ERRP. Including those benefits would greatly increase the value of the electric generation and the hours it would be economic to run for the benefit of electric consumers.[14] In my direct testimony, I estimated those benefits at $34 million annually.

Second, Mr. Doherty (at 9) computes the hours in which the ERRP would be dispatched for purely electrical purposes, assuming that the ERRP would have variable operating costs of $1.90/MWh. These variable operating costs cause Mr. Doherty to reduce his estimate of the hours of ERRP operation for purely electric operation. In contrast, the EPRI 1993 "TAG Technical Assessment Guide" estimates variable operating costs for combustion turbines of $0.20/MWh. I cannot determine the effect of changing this input until I see Mr. Doherty's work papers.

[14]Mr. Doherty also does not reflect the benefits of the ERRP in providing additional in-City generation and reducing the extent to which fossil boiler plants need to be running to meet security-constrained dispatch rules.

Third, Mr. Doherty estimates the fuel costs of the ERRP as an electric-only peaker by using the heat rate Con Edison expects for the plant in baseload operation. Peakers use significant amounts of fuel in startup, ramping up to operating load levels, and ramping down. Operating at partial load exacts a major heat-rate penalty on combustion turbines; EPRI's 1993 "TAG Technical Assessment Guide" estimates a 10% heat-rate penalty for annual load operation for a peaking turbine, compared to its full-load heat rate. Since Mr. Doherty argues that electric customers should pay for only 30% of the fuel used in the ERRP turbines, or about $60 million, correcting for inefficiency of peaking operation would add about $6 million to the electric allocation.

Fourth, for generation in those hours in which he estimates that market prices would be below the marginal cost of the ERRP's electric dispatch, Mr. Doherty values the fuel used at zero, even though the electricity produced has considerable value and even though the electric generation consumes energy that is then unavailable to the steam generators.[15] Only 47% of the fuel used in the combustion turbines is turned into steam, while 89% of the fuel used by the duct burners is turned into steam.[16] Mr. Doherty would assign all the fuel in these hours to steam, even though electric generation would deny the steam system use of almost half the energy from the fuel. If electric paid just for the extra fuel it requires, the electric allocation would rise $59 million annually.

Finally, Mr. Doherty makes a simple mathematical error. He estimates (at 10) that "ERRP would have been economic to operate for electricity production,

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[15]In contrast, the steam generators use only energy exhausted by the combustion turbines, which would otherwise have gone up the stack, so they add no cost to electric generation.

[16]I computed the 89% value from the increase in fuel input and steam output due to the operation of the duct burners, in Exhibit PMD-6.

if no steam were produced, for 30 percent of the hours in a year," and infers from this estimate that "Consequently, the amount of fuel consumed by the gas turbine that should be allocated to electric should not exceed 30 percent." Were Mr. Doherty correct that electric generation justifies running the ERRP at full capacity 30% of the year, and it actually runs at an average capacity factor of 85%, the hypothetical electric-only use would be more than 35% of the fuel used by the cogenerator, even before correction of all the other errors I describe above.

Q31: IS MR. DOHERTY'S DERIVATION OF AVOIDED STEAM COSTS FROM THE COSTS OF THE ERRP CORRECT?

A31: No. In addition to the errors in his allocation of the costs of ERRP between steam and electricity, Mr. Doherty uses the costs of a nearly completed plant, including the unanticipated costs of construction, to estimate the value of future steam supply. The avoided costs for future steam supplies should be computed from the cost of future steam resource options, such as from the Ravenswood cogenerator, package boilers, and the potential cogenerators at Hudson Avenue, 59th Street, and 74th Street.

Q32: DOES THIS CONCLUDE YOUR REBUTTAL TESTIMONY?

A32: Yes, at this time. TransGas and Westchester County have yet not responded to the City's discovery, so I may need to supplement this testimony.