

**STATE OF NEW YORK
PUBLIC SERVICE COMMISSION**

- CASE 09-S-0794 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service.
- CASE 09-G-0795 - Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Gas Service.
- CASE 09-S-0029 - Proceeding on Motion of the Commission to Consider Steam Resource Plan and East River Repowering Project Cost Allocation Study, and Steam Energy Efficiency Programs for Consolidated Edison Company of New York, Inc.

**COMPLIANCE FILING OF
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
REGARDING THE ALLOCATION OF
EAST RIVER REPOWERING PROJECT FUEL COSTS**

In compliance with Ordering Clause 8 in the New York State Public Service Commission's ("Commission") *Order Establishing Three-Year Steam and Gas Rate Plans and Determining East River Repowering Project Cost Allocation Methodology*¹ ("2010 Rate Order"), Consolidated Edison Company of New York, Inc. ("Con Edison" or the "Company") proposes a levelized phase-in for implementing the above-market methodology of allocating the East River Repowering Project's ("ERRP") fuel costs between the Company's electric and steam customers, commencing October 1, 2013.

Before acting on this compliance filing, the Company respectfully requests that the Commission (i) weigh once again the relative benefits of its prior method of allocation, *i.e.*, the "incremental method" of fuel cost allocation originally established for ERRP, against the

¹ Case 09-S-0794, *et al.*, issued September 22, 2010.

benefits of the above-market fuel cost methodology, and (ii) reinstate the use of the “incremental method” of allocating ERRP fuel costs effective October 1, 2013.

BACKGROUND

ERRP is a combination steam-electric facility that went into service in 2005. The plant consists primarily of two combustion turbines necessary for electric production and two heat recovery steam generators necessary for steam production. Since its operational inception, ERRP’s fuel costs have been allocated between electric and steam customers using the “incremental method.”

The Commission explained the rationale for the incremental method as the preferred allocation of steam-electric production costs in its 2004 Steam Rate Order:²

By 1978, after a large electric system blackout with serious and wide-ranging impacts, the Commission arrived at the preferred allocation of steam-electric production costs. To stem an unacceptable exodus of steam customers to electric and gas service, the Commission adopted steam rates, and set cost allocations, that were purposely designed to retain steam customers and maintain a viable steam system. It selected the ‘incremental’ method that has remained in use ever since, which requires steam customers to pay only the separate steam production and capital costs.³

In the Company’s 2009 steam rate proceeding, the allocation of ERRP fuel costs was again raised as an issue. A majority of the parties to the proceeding proposed to resolve the ERRP fuel cost allocation issue in the context of a comprehensive Joint Proposal. The Commission adopted that Joint Proposal, which provided that \$7.5 million of fuel costs would be transferred from electric to steam customers, as follows:

² Case 03-S-1672, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service, *Order Adopting the Terms of a Joint Proposal* (September 27, 2004), p. 26.

³ *Id.*, p. 26.

For RY1, the Company will make no change to the allocation of ERRP fuel and non-fuel costs between steam and electric under the allocation method approved in Case 07-S-1315. For RY2 and RY3, \$7.5 million of ERRP fuel costs will be re-allocated from electric to steam. The reallocation of \$7.5 million of ERRP fuel costs shall continue beyond the term of the Steam Rate Plan unless and until changed by the Commission. No other changes to the allocation method adopted in Case 07-S-1315 are proposed. The additional ERRP fuel costs allocated to steam will be recovered from steam customers through the Steam FAC.

The Signatory Parties participated in both the Steam Planning Proceeding and this Steam Rate Proceeding. The testimony submitted in these proceedings presented a range of positions regarding the resolution of the ERRP allocation issue. The Signatory Parties believe that the additional \$7.5 million of ERRP fuel costs to be borne by steam customers, commencing in RY2, reflects a reasonable resolution of the varying positions taken on the ERRP allocation issue, including positions taken by non-Signatory Parties; and reflects a thorough and careful consideration of the arguments raised and all of the other information exchanged between and among the parties to these proceedings. (2010 Rate Order, p. 37)

Although the Commission adopted the Joint Proposal, the Commission found that fuel costs should no longer be allocated pursuant to the method established by the Joint Proposal for the period commencing upon the end of the three-year term of the 2010 Rate Order.

Specifically, the Commission ordered the Company to propose a phase in of the full amount of the above-market costs, as follows:

Consolidated Edison Company of New York, Inc. shall propose a phase-in of the above-market allocation method to the East River Repowering Project's fuel costs, as described above, over a period of not more than seven years following the conclusion of the three-year steam rate plan adopted in this order. In its next filing for steam rate changes proposed to become effective after the expiration of the steam rate plan adopted in this order, the Company shall include a proposed ERRP fuel cost phase-in methodology that takes into account its then current forecasted revenue requirement and corresponding customer bill impacts. Once per year, beginning the year following the rate plan, the formula for allocation of ERRP fuel costs to steam customers will be revised, by applying an increased percentage of the allocation that results from the above-market method and a corresponding reduction in percentage of

results from the current incremental method. Each year, the percentage applied to results of the above-market allocation method shall increase until it becomes 100%. The calculation of the above-market method should use actual incurred fuel costs, actual MWh generation, and actual NYISO energy prices. The calculation of the market value of ERRP's MWh production should match ERRP's hourly MWh generation with the NYISO's hourly electric energy prices. In the event that the Company does not make a filing for steam rate changes proposed to become effective immediately following the expiration of the steam rate plan adopted in this order, it shall file its proposed ERRP fuel cost phase-in methodology not less than nine months prior to the expiration of this rate plan. (2010 Rate Order, p. 117)

Since the Company did not file for rates to become effective on October 1, 2013, the Company hereby makes the required compliance filing.

PHASE-IN OF ABOVE-MARKET COSTS

The Company proposes to implement the Commission's directive as follows:

1. For the annual period commencing October 1, 2013, allocate 20 percent of the above-market costs to steam customers.⁴
2. For the next six annual periods beginning with the annual period commencing October 1, 2014, increase the amount of above-market costs allocated to steam customers by 13.3 percent, as indicated in the table below:

Annual Period beginning October 1	Percentage
2013	20.0%
2014	33.3%
2015	46.7%
2016	60.0%
2017	73.3%
2018	86.7%
2019	100.0%

⁴ The Company notes that the \$7.5 million allocated to steam customers for RY2 and RY3 of the 2010 Steam Rate Plan is approximately equal to 20 percent of above-market fuel costs extant at the time the Joint Proposal was developed. Accordingly, allocating to steam customers 20 percent of projected above-market costs for the period commencing October 1, 2013 effectively continues for one additional year the percentage underlying RY2 and RY3. As further discussed below, the amount projected for the period October 1, 2013 is less than \$7.5 million due to the reduction in natural gas prices and a change in calculating ERRP fuel costs for the prospective period as compared to the approach considered during the 2009 steam rate proceeding.

As further discussed below, calculation and reconciliation of the phased-in amounts would be implemented as follows:

- a. Project the amount of above-market costs for the annual period commencing October 1.
- b. Multiply the estimated above-market costs times the applicable phase-in percentage for the year.
- c. Recover one-twelfth of that annual amount from steam customers during each month of the annual period.
- d. Calculate the actual amount of above-market costs following the end of the annual period commencing October 1.
- e. Surcharge or credit steam customers in equal monthly increments for the difference between the amounts collected based upon the projected costs and the amounts that should be collected based upon the actual costs, multiplied by the applicable phase-in percentage for the year.
- f. For each subsequent annual period, the Company will update its calculation of estimated above-market costs for purposes of implementing the next year of the phase in proposal.

Calculation Of Above-Market Costs

The 2010 Rate Order directed the Company to calculate the above-market method using actual incurred fuel costs, actual MWh generation, and actual NYISO energy prices, and states that the calculation of the market value of ERRP's MWh production should match ERRP's hourly MWh generation with the NYISO's hourly electric energy prices.

In order to implement the above-market method effective October 1, 2013 before actual incurred fuel costs, actual generation and actual NYISO energy prices for the annual period commencing October 1, 2013 are known, the Company has estimated this amount to be \$9.7 million.

The Company developed this estimate as follows:

- a. Project the value of the energy produced by ERRP (forecasted generation volume multiplied by forecasted electric energy price (NYISO Zone J monthly price) for this period.⁵
- b. Project the cost of production/fuel cost for ERRP to produce that amount of electric energy (forecasted ERRP heat rate multiplied by the projected variable cost of gas forecasted at Transco Z6).
- c. Calculate the difference between (a) and (b) above to arrive at the \$9.7 million of estimated above-market costs.

Under the Company's phase-in proposal, 20 percent of this amount would be allocated to steam customers in the first year and recovered in twelve equal monthly increments starting in October 2013. For any increase in fuel costs that steam customers pay as a result of the phase-in, charges to electric customers will commensurately decrease by the same amount.

As noted above, the Company acknowledges that the estimated amount of above-market costs for the first annual period is lower than the amounts of above-market costs contemplated during the 2009 steam rate proceeding. This is primarily attributable to two factors: (1) a significant decrease in the cost of gas and (2) the exclusion of fixed gas costs from the calculation of ERRP fuel costs.

During the 2010 rate proceeding, estimates of the above-market fuel costs for ERRP were based upon the "all-in" fuel price. The "all-in" price includes fixed gas transportation costs, demand charges, fees, and associated taxes, in addition to the variable cost of fuel. However, in order for the cost of ERRP energy to be measured against the market price of energy on a comparable basis, these fixed components must be excluded from the cost of generating energy at ERRP. Using the variable-only (*i.e.*, marginal) component of the fuel cost in calculating the

⁵ These calculations are based on monthly, not hourly, prices because forward fuel and electric prices are forecast on a monthly basis. As described below, reconciliation to actual above-market costs will be based upon hourly generation and hourly prices, as directed by the Commission.

cost to produce energy at ERRP is consistent with the way independent generators price day-ahead bids into the competitive electric energy markets (ISOs/RTOs). Generators only bid their marginal or “to go” costs so that they are able to recover their costs of producing electricity should they be selected to run. Accordingly, including fixed fuel components in ERRP fuel costs would not allow a fair or comparable basis for evaluating the cost of ERRP energy against the market price of energy.

The Company’s calculation of \$9.7 million of estimated above-market costs for the annual period commencing October 1, 2013 is set forth on Appendix A. Excluded from the calculation of ERRP fuel costs are fixed fuel costs such as fixed gas transportation costs, demand charges, fees, and associated taxes.

Process of Calculating Above-Market Costs

The Company will make two filings annually to implement the allocation of ERRP above-market costs.

First, the Company will file annual projected above-market costs for each annual period based on the latest available information, which includes the latest NYMEX gas futures used to derive projected Zone J electric prices. Specifically, the Company will file the projected costs for October 1, 2013 (and for each October 1 thereafter) on or about September 1, 2013 (and each September 1 thereafter). After applying the applicable phase-in percentage (annually until the phase-in process is completed), these projected costs will be divided by twelve and charged monthly to steam customers starting in each October.

Second, the Company will reconcile the above-market costs collected from steam customers to steam’s applicable share of the actual above-market costs to determine if a surcharge/credit should be applied, similar to other steam reconciliation provisions already in

effect. Specifically, the Company will file its calculated reconciliation in November of each year and resulting surcharge/credit, as applicable, for implementation during the 12-month period commencing in December of that year.

The actual above-market cost will be calculated using the sum of each hourly volume of electric energy produced at ERRP (in MWh) times the price of energy (NYISO Day Ahead market Zone J LBMP price (in \$/MWh)) for that corresponding hour. That amount will be subtracted from the actual variable commodity cost of gas used by ERRP for the period.

For illustrative purposes only, the Company also calculated estimated above-market costs for the remaining years of the seven-year phase-in period, as follows:

Annual Period Starting October 1	Projected Net above-Market Costs \$ thousands	%	Steam Above-Market Costs Allocated to Steam \$ thousands
2013	\$9,660	20%	\$1,932
2014	\$15,498	33%	\$5,161
2015	\$11,077	47%	\$5,162
2016	\$11,877	60%	\$7,126
2017	\$12,839	73%	\$9,411
2018	\$15,410	87%	\$13,360
2019 ⁶	\$15,410	100%	\$15,410

REINSTATING THE INCREMENTAL METHOD

Before acting on the Company’s compliance filing, the Company respectfully requests that the Commission weigh once again the relative benefits of its prior method of allocation, *i.e.*, the incremental method of fuel cost allocation originally established for ERRP, against the benefits of the above-market fuel cost methodology.⁷ The Company respectfully submits that

⁶ Since the forward market price is not available for 2019, the Company used the 2018 amount for illustrative purposes.

⁷ Although the second sentence of ordering clause 3 of the 2010 Rate Order required Con Edison to file a written statement of unconditional acceptance of the Order, on September 27, 2010, the Commission issued an Erratum

the reasons for the original incremental method, as described below, still stand and that method should be reinstated effective October 1, 2013.⁸

First, ERRP provides reliability in the East 13th Street load pocket, a fact recognized by the Commission in the 2010 Rate Order. Specifically, the Commission stated (p. 97) that “Con Edison has demonstrated the existence of the load pocket, and has demonstrated that ERRP [*i.e.*, ER 1 and 2] has value in meeting the reliability criteria for the load pocket.” Indeed, the Commission further recognized (p. 98) that “[i]t is clear that ERRP provides a substantial value, and this is particularly significant where the load pocket in question serves New York’s downtown business district, where electric reliability is a paramount concern not only for the customers involved but for the City, Westchester County, and the State as a whole.” That value includes operating ERRP for substantial periods during the year for electric reliability purposes independent of NYISO market prices. Without ERRP, additional generation resources would be needed in the East 13th Street load pocket and the cost of such new resources would be allocated solely to electric customers.

Second, recent customer surveys have shown that the coincident electric peak offset by steam air conditioning is about 294 MW. Approximately 40 percent of these coincident peak

Notice relating to the 2010 Rate Order. The Erratum Notice specifically excluded from the requirement of the written statement of unconditional acceptance “the provisions, terms and conditions relating to the issue of East River Repowering Project cost allocation methodology to be employed following the conclusion of the three-year steam rate plan adopted in this order.” (p. 2). The unconditional statement of acceptance filed by Con Edison on September 29, 2010, specifically excluded the requirements of the East River Repowering Project cost allocation methodology following the conclusion of the three-year steam rate plan, as provided in the Erratum Notice.

⁸ The Company notes that the portion of the 2010 Steam Rate Order requiring implementation of the above-market method is currently the subject of pending Article 78 proceeding. *See City of New York v. New York State Public Service Commission and Consolidated Edison Company of New York, Inc. and County of Westchester* (Albany Co. Index No. 460-11: Appellate Division Docket No. 515472). If the Court nullifies or otherwise suspends the portion of the 2010 Steam Rate Order requiring implementation of the above-market method, this compliance filing as it relates to the calculation and phase-in of above-market costs should be deemed withdrawn as if it was not made in the first instance, and, for the reasons set forth in this filing, the incremental method should be reinstated effective October 1, 2013.

avoided MWs are located in Manhattan's targeted electric networks. Electric targeted DSM programs pay about \$1,200/kW on average for load relief programs. As such, steam air conditioning has a lump sum value of about \$143 million or an avoided annual revenue requirement of about \$29 million, which exceeds the estimated total above-market forecast for ERRP. The Company further notes that if the remaining steam air conditioning in other electric networks were to transfer to electric service, this may cause those networks to become targeted networks. This would have an additional value of approximately \$210 million or an annual revenue requirement of an additional \$42 million.

Third, a significant drawback of allocating fuel costs based on the above-market method is that steam customers are exposed to electric market risk. In other words, steam customers would now be subject to increases in the price of steam based on changes in the price of electricity resulting from: (1) changes in NYISO market prices due to new market rules or FERC policies, (2) out-of-market actions (*i.e.*, power purchase agreements, contracts for differences), (3) scarcity pricing, or (4) the exercise of market power.

Finally, in Case 09-S-0029, Company witnesses John Catuogno and Tim Foxen detailed the reliability, economic, environmental, and economic development benefits that ERRP provides to the electric system, to New York City and to the surrounding communities such as the County of Westchester. The Initial and Rebuttal Testimonies of the Company's ERRP Allocation Panel in Case 09-S-0029 and the May 7, 2009, *East River Repowering Project Cost Allocation Study for the New York Public Service Commission*, which was submitted as Exhibit ERRP AP-1 in PSC Case No. 09-S-0029, lay out the benefits provided by ERRP to the electric system in great detail. In addition, the report provides a detailed and comprehensive comparison of the various methods of allocating fuel costs between the electric and steam systems. Copies

of these testimonies and the report are attached as Appendices B and C. (Appendix B contains the May 7, 2009 Cost Allocation Study as an exhibit.).

CONCLUSION

For the reasons provided in this filing, the Company respectfully requests that the Commission reinstate the incremental method of allocating ERRP fuel costs effective October 1, 2013. Absent such a determination, the Commission should adopt the Company's phase-in proposal set forth in this filing for purposes of implementing the above-market method.

Upon issuance of a Commission order establishing the methodology for allocating ERRP fuel costs effective October 1, 2013, the Company will make changes to steam and electric tariff leaves if and to the extent applicable, as necessary and appropriate.

Respectfully submitted,

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Appendix A

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Comparison of Market and East River Repowering Project (ERRP) Generation Costs

Projected Electric Costs

Projected Gas Cost of ERRP Generation

Above Market Est.

Month	Zone J Peak Price	Zone J Off-Peak Price	Average Price Zone J	Mwh Generated by ERRP	Market Cost of Electricity	Market price of Z-6 Delivered Gas	NYC Sales tax rate	Market Price of Delivered Gas including Sales Tax	Estimated ERRP Heat Rates	Projected Cost of ERRP generation	Above Market Cost of ERRP Generation	Rate Year Above Market Estimate
Jan-13	\$ 65.40	\$ 48.55	\$ 57.82	249,800	\$ 14,442,812	\$ 6.67	4.5%	\$ 6.97	11,075	\$ 19,291,837	\$4,849,026	
Feb-13	\$ 65.40	\$ 48.55	\$ 57.82	226,400	\$ 13,089,882	\$ 6.11	4.5%	\$ 6.39	11,075	\$ 16,012,116	\$2,922,234	
Mar-13	\$ 47.05	\$ 35.10	\$ 41.67	242,700	\$ 10,113,916	\$ 3.89	4.5%	\$ 4.07	11,075	\$ 10,936,289	\$822,373	
Apr-13	\$ 46.05	\$ 32.35	\$ 39.89	121,600	\$ 4,850,016	\$ 3.53	4.5%	\$ 3.69	11,075	\$ 4,962,922	\$112,906	
May-13	\$ 45.55	\$ 30.60	\$ 38.82	215,100	\$ 8,350,720	\$ 3.56	4.5%	\$ 3.72	11,075	\$ 8,868,605	\$517,885	
Jun-13	\$ 50.65	\$ 31.75	\$ 42.15	190,000	\$ 8,007,550	\$ 3.60	4.5%	\$ 3.76	11,075	\$ 7,921,686	(\$85,864)	
Jul-13	\$ 63.05	\$ 37.15	\$ 51.40	199,300	\$ 10,243,024	\$ 3.64	4.5%	\$ 3.80	11,075	\$ 8,397,081	(\$1,845,942)	
Aug-13	\$ 63.05	\$ 37.15	\$ 51.40	199,300	\$ 10,243,024	\$ 3.66	4.5%	\$ 3.82	11,075	\$ 8,440,906	(\$1,802,117)	
Sep-13	\$ 47.10	\$ 31.60	\$ 40.13	199,600	\$ 8,008,950	\$ 3.67	4.5%	\$ 3.83	11,075	\$ 8,467,472	\$458,522	
Oct-13	\$ 48.30	\$ 34.60	\$ 42.14	174,400	\$ 7,348,344	\$ 3.69	4.5%	\$ 3.86	11,075	\$ 7,454,948	\$106,604	\$ 9,659,525
Nov-13	\$ 48.30	\$ 34.60	\$ 42.14	181,700	\$ 7,655,930	\$ 3.64	4.5%	\$ 3.80	11,075	\$ 7,654,491	(\$1,438)	
Dec-13	\$ 48.30	\$ 34.60	\$ 42.14	249,800	\$ 10,525,323	\$ 4.85	4.5%	\$ 5.06	11,075	\$ 14,007,036	\$3,481,713	
Jan-14	\$ 63.30	\$ 48.41	\$ 56.60	242,700	\$ 13,736,699	\$ 6.06	4.5%	\$ 6.33	11,075	\$ 17,024,489	\$3,287,790	
Feb-14	\$ 63.30	\$ 48.41	\$ 56.60	234,900	\$ 13,295,223	\$ 5.72	4.5%	\$ 5.97	11,075	\$ 15,536,718	\$2,241,495	
Mar-14	\$ 47.30	\$ 35.60	\$ 42.04	210,800	\$ 8,860,978	\$ 4.11	4.5%	\$ 4.30	11,075	\$ 10,036,792	\$1,175,814	
Apr-14	\$ 47.30	\$ 35.60	\$ 42.04	191,500	\$ 8,049,703	\$ 3.83	4.5%	\$ 4.00	11,075	\$ 8,480,677	\$430,974	
May-14	\$ 47.80	\$ 32.10	\$ 40.74	215,100	\$ 8,762,099	\$ 3.84	4.5%	\$ 4.01	11,075	\$ 9,553,199	\$791,100	
Jun-14	\$ 51.65	\$ 32.55	\$ 43.06	189,200	\$ 8,146,006	\$ 3.86	4.5%	\$ 4.03	11,075	\$ 8,451,080	\$305,074	
Jul-14	\$ 64.90	\$ 38.16	\$ 52.87	189,100	\$ 9,997,150	\$ 3.90	4.5%	\$ 4.07	11,075	\$ 8,529,777	(\$1,467,373)	
Aug-14	\$ 64.90	\$ 38.16	\$ 52.87	191,800	\$ 10,139,891	\$ 3.92	4.5%	\$ 4.09	11,075	\$ 8,693,742	(\$1,446,148)	
Sep-14	\$ 48.55	\$ 32.35	\$ 41.26	183,800	\$ 7,583,588	\$ 3.92	4.5%	\$ 4.10	11,075	\$ 8,337,507	\$753,919	
Oct-14	\$ 49.75	\$ 35.60	\$ 43.38	210,300	\$ 9,123,340	\$ 3.96	4.5%	\$ 4.14	11,075	\$ 9,632,083	\$508,743	\$ 15,498,206
Nov-14	\$ 49.75	\$ 35.60	\$ 43.38	221,900	\$ 9,626,577	\$ 4.45	4.5%	\$ 4.65	11,075	\$ 11,416,630	\$1,790,054	
Dec-14	\$ 49.75	\$ 35.60	\$ 43.38	257,800	\$ 11,184,009	\$ 5.65	4.5%	\$ 5.91	11,075	\$ 16,867,873	\$5,683,865	
Jan-15	\$ 65.41	\$ 50.25	\$ 58.59	212,900	\$ 12,473,385	\$ 6.35	4.5%	\$ 6.63	11,075	\$ 15,643,755	\$3,170,370	
Feb-15	\$ 65.41	\$ 50.25	\$ 58.59	222,100	\$ 13,012,395	\$ 5.54	4.5%	\$ 5.79	11,075	\$ 14,235,133	\$1,222,738	
Mar-15	\$ 49.15	\$ 37.50	\$ 43.91	206,800	\$ 9,080,071	\$ 4.71	4.5%	\$ 4.92	11,075	\$ 11,272,791	\$2,192,720	
Apr-15	\$ 49.15	\$ 37.50	\$ 43.91	209,400	\$ 9,194,231	\$ 4.10	4.5%	\$ 4.28	11,075	\$ 9,924,088	\$729,858	

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Above Market Est.

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May-15	\$ 49.90	\$ 34.00	\$ 42.75	214,300	\$ 9,160,254	\$ 4.11	4.5%	\$ 4.30	11,075	\$ 10,195,996	\$1,035,743	
Jun-15	\$ 53.85	\$ 35.10	\$ 45.41	189,700	\$ 8,614,751	\$ 4.14	4.5%	\$ 4.32	11,075	\$ 9,078,265	\$463,514	
Jul-15	\$ 66.91	\$ 40.30	\$ 54.94	185,100	\$ 10,168,561	\$ 4.17	4.5%	\$ 4.36	11,075	\$ 8,941,675	(\$1,226,886)	
Aug-15	\$ 66.91	\$ 40.30	\$ 54.94	178,900	\$ 9,827,961	\$ 4.19	4.5%	\$ 4.38	11,075	\$ 8,683,580	(\$1,144,381)	
Sep-15	\$ 50.40	\$ 34.25	\$ 43.13	197,000	\$ 8,497,103	\$ 4.20	4.5%	\$ 4.39	11,075	\$ 9,568,971	\$1,071,868	
Oct-15	\$ 51.90	\$ 37.50	\$ 45.42	207,000	\$ 9,401,940	\$ 4.23	4.5%	\$ 4.42	11,075	\$ 10,140,950	\$739,010	\$ 11,077,287
Nov-15	\$ 51.90	\$ 37.50	\$ 45.42	229,900	\$ 10,442,058	\$ 4.42	4.5%	\$ 4.62	11,075	\$ 11,765,699	\$1,323,641	
Dec-15	\$ 51.90	\$ 37.50	\$ 45.42	233,900	\$ 10,623,738	\$ 5.44	4.5%	\$ 5.69	11,075	\$ 14,736,976	\$4,113,238	
Jan-16	\$ 68.40	\$ 52.30	\$ 61.16	225,800	\$ 13,808,799	\$ 6.03	4.5%	\$ 6.30	11,075	\$ 15,752,780	\$1,943,981	
Feb-16	\$ 68.40	\$ 52.30	\$ 61.16	218,000	\$ 13,331,790	\$ 5.67	4.5%	\$ 5.92	11,075	\$ 14,301,601	\$969,811	
Mar-16	\$ 52.00	\$ 39.55	\$ 46.40	205,400	\$ 9,530,047	\$ 4.71	4.5%	\$ 4.93	11,075	\$ 11,203,608	\$1,673,561	
Apr-16	\$ 52.00	\$ 39.55	\$ 46.40	195,700	\$ 9,079,991	\$ 4.28	4.5%	\$ 4.48	11,075	\$ 9,700,607	\$620,617	
May-16	\$ 52.75	\$ 36.05	\$ 45.24	207,600	\$ 9,390,786	\$ 4.30	4.5%	\$ 4.50	11,075	\$ 10,338,528	\$947,742	
Jun-16	\$ 57.25	\$ 37.00	\$ 48.14	189,200	\$ 9,107,615	\$ 4.33	4.5%	\$ 4.52	11,075	\$ 9,479,136	\$371,521	
Jul-16	\$ 69.90	\$ 43.00	\$ 57.80	189,600	\$ 10,957,932	\$ 4.37	4.5%	\$ 4.57	11,075	\$ 9,591,337	(\$1,366,595)	
Aug-16	\$ 69.90	\$ 43.00	\$ 57.80	190,400	\$ 11,004,168	\$ 4.39	4.5%	\$ 4.59	11,075	\$ 9,678,082	(\$1,326,086)	
Sep-16	\$ 53.25	\$ 36.30	\$ 45.62	203,500	\$ 9,284,179	\$ 4.40	4.5%	\$ 4.59	11,075	\$ 10,351,024	\$1,066,845	
Oct-16	\$ 54.75	\$ 39.55	\$ 47.91	210,300	\$ 10,075,473	\$ 4.43	4.5%	\$ 4.63	11,075	\$ 10,789,393	\$713,920	\$ 11,877,457
Nov-16	\$ 54.75	\$ 39.55	\$ 47.91	225,500	\$ 10,803,705	\$ 4.62	4.5%	\$ 4.82	11,075	\$ 12,049,428	\$1,245,723	
Dec-16	\$ 54.75	\$ 39.55	\$ 47.91	253,400	\$ 12,140,394	\$ 5.80	4.5%	\$ 6.06	11,075	\$ 17,018,419	\$4,878,025	
Jan-17	\$ 70.41	\$ 54.15	\$ 63.09	238,300	\$ 15,035,062	\$ 5.85	4.5%	\$ 6.12	11,075	\$ 16,145,996	\$1,110,934	
Feb-17	\$ 70.41	\$ 54.15	\$ 63.09	221,800	\$ 13,994,027	\$ 5.82	4.5%	\$ 6.09	11,075	\$ 14,950,254	\$956,227	
Mar-17	\$ 53.75	\$ 41.40	\$ 48.19	251,200	\$ 12,105,956	\$ 4.81	4.5%	\$ 5.03	11,075	\$ 13,982,108	\$1,876,152	
Apr-17	\$ 53.75	\$ 41.40	\$ 48.19	179,900	\$ 8,669,831	\$ 4.51	4.5%	\$ 4.71	11,075	\$ 9,390,046	\$720,215	
May-17	\$ 54.50	\$ 37.90	\$ 47.03	215,100	\$ 10,116,153	\$ 4.53	4.5%	\$ 4.73	11,075	\$ 11,277,131	\$1,160,978	
Jun-17	\$ 59.40	\$ 38.80	\$ 50.13	187,700	\$ 9,409,401	\$ 4.56	4.5%	\$ 4.76	11,075	\$ 9,897,101	\$487,700	
Jul-17	\$ 71.91	\$ 44.80	\$ 59.71	195,000	\$ 11,643,548	\$ 4.60	4.5%	\$ 4.80	11,075	\$ 10,376,804	(\$1,266,744)	
Aug-17	\$ 71.91	\$ 44.80	\$ 59.71	195,500	\$ 11,673,403	\$ 4.62	4.5%	\$ 4.83	11,075	\$ 10,453,188	(\$1,220,215)	

Appendix A

Comparison of Market and East River Repowering Project (ERRP) Generation Costs

Projected Electric Costs

Projected Gas Cost of ERRP Generation

Above Market Est.

Month	Zone J Peak Price	Zone J Off-Peak Price	Average Price Zone J	Mwh Generated by ERRP	Market Cost of Electricity	Market price of Z-6 Delivered Gas	NYC Sales tax rate	Market Price of Delivered Gas including Sales Tax	Estimated ERRP Heat Rates	Projected Cost of ERRP generation	Above Market Cost of ERRP Generation	Rate Year Above Market Estimate
Sep-17	\$ 55.00	\$ 38.15	\$ 47.42	198,800	\$ 9,426,599	\$ 4.63	4.5%	\$ 4.83	11,075	\$ 10,641,140	\$1,214,541	
Oct-17	\$ 56.50	\$ 41.40	\$ 49.71	200,100	\$ 9,945,971	\$ 4.67	4.5%	\$ 4.87	11,075	\$ 10,803,358	\$857,387	\$ 12,838,509
Nov-17	\$ 56.50	\$ 41.40	\$ 49.71	171,100	\$ 8,504,526	\$ 4.85	4.5%	\$ 5.07	11,075	\$ 9,610,832	\$1,106,307	
Dec-17	\$ 56.50	\$ 41.40	\$ 49.71	224,200	\$ 11,143,861	\$ 6.23	4.5%	\$ 6.51	11,075	\$ 16,176,788	\$5,032,927	
Jan-18	\$ 72.48	\$ 56.07	\$ 65.09	258,800	\$ 16,846,051	\$ 5.84	4.5%	\$ 6.10	11,075	\$ 17,478,823	\$632,772	
Feb-18	\$ 72.48	\$ 56.07	\$ 65.09	234,900	\$ 15,290,330	\$ 6.04	4.5%	\$ 6.31	11,075	\$ 16,416,387	\$1,126,057	
Mar-18	\$ 55.56	\$ 43.34	\$ 50.06	252,000	\$ 12,614,826	\$ 5.00	4.5%	\$ 5.23	11,075	\$ 14,596,752	\$1,981,926	
Apr-18	\$ 55.56	\$ 43.34	\$ 50.06	129,300	\$ 6,472,607	\$ 4.79	4.5%	\$ 5.01	11,075	\$ 7,170,928	\$698,321	
May-18	\$ 56.31	\$ 39.84	\$ 48.90	215,100	\$ 10,518,315	\$ 4.81	4.5%	\$ 5.03	11,075	\$ 11,979,151	\$1,460,836	
Jun-18	\$ 61.63	\$ 40.69	\$ 52.21	187,400	\$ 9,783,463	\$ 4.84	4.5%	\$ 5.06	11,075	\$ 10,501,574	\$718,111	
Jul-18	\$ 73.98	\$ 46.68	\$ 61.69	195,000	\$ 12,029,881	\$ 4.89	4.5%	\$ 5.11	11,075	\$ 11,029,021	(\$1,000,859)	
Aug-18	\$ 73.98	\$ 46.68	\$ 61.69	195,300	\$ 12,048,388	\$ 4.91	4.5%	\$ 5.13	11,075	\$ 11,091,195	(\$957,194)	
Sep-18	\$ 56.81	\$ 40.09	\$ 49.29	156,300	\$ 7,703,489	\$ 4.91	4.5%	\$ 5.13	11,075	\$ 8,885,408	\$1,181,919	
Oct-18	\$ 58.31	\$ 43.34	\$ 51.57	164,200	\$ 8,467,746	\$ 4.95	4.5%	\$ 5.17	11,075	\$ 9,410,524	\$942,778	\$ 15,409,859
Nov-18	\$ 58.31	\$ 43.34	\$ 51.57	234,300	\$ 12,082,782	\$ 5.14	4.5%	\$ 5.37	11,075	\$ 13,925,210	\$1,842,428	
Dec-18	\$ 58.31	\$ 43.34	\$ 51.57	257,900	\$ 13,299,827	\$ 6.73	4.5%	\$ 7.03	11,075	\$ 20,082,591	\$6,782,764	

Appendix B



Neil H. Butterklee
Assistant General Counsel

July 20, 2009

Via Overnight Mail and E-Mail

Honorable Jaclyn A. Brillong
Secretary
State of New York
Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 09-S-0029 – Proceeding on Motion of the Commission to Consider Steam Resource Plan and East River Re-powering Project Cost Allocation Study, and Steam Energy Efficiency Programs for Consolidated Edison Company of New York, Inc.

Dear Secretary Brillong:

Pursuant to the July 3, 2009 Ruling by Administrative Law Judge (“ALJ”) Rudy Stegemoeller in this proceeding, Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) hereby files an original and one copy of the Company’s testimony and exhibit with respect to the East River Repowering Project (“ERRP”) cost allocation phase of this proceeding. The exhibit consists of the Company’s “East River Repowering Project Cost Allocation Study for the New York Public Service Commission.” Please contact me if you have any questions regarding this matter.

Very truly yours,

Enc

cc: ALJ Stegemoeller (via e-mail and hardcopy)
Active Parties (via e-mail)

ERRP ALLOCATION PANEL - STEAM

1 Q. Please state your names and business address.

2 A. Our names are Timothy W. Foxen and John Catuogno. We
3 are testifying as the East River Repowering Project
4 ("ERRP") Allocation Panel. Our business address is 4
5 Irving Place, New York, New York 10003.

6 Q. Mr. Foxen, by whom are you employed and in what
7 capacity?

8 A. I am employed by Consolidated Edison Company of New
9 York, Inc. ("Con Edison" or the "Company") as Section
10 Manager of Steam Resource Planning in the Energy
11 Management Department.

12 Q. Please describe your educational and professional
13 background.

14 A. I have an undergraduate degree in Resource Economics
15 from Cornell University and an MBA in Management from
16 the University of Massachusetts. I have been employed
17 in the energy industry since 1987. From 1987 through
18 1993, I was employed by the New York Power Authority,
19 for most of the time as an analyst in their new
20 business section. From 1993 through 2003, I was
21 employed by three firms in the role of natural gas
22 supply management with primary focus on serving
23 generating stations. From 2004 to 2007, I served as
24 the New York State Director of Regulatory Affairs for

ERRP ALLOCATION PANEL - STEAM

1 NRG Energy. In that role, I represented NRG at the New
2 York Independent System Operator's ("NYISO's") working
3 groups. In particular, I was NRG's representative at
4 the NYISO's Electric System Planning Working Group,
5 which is charged with development and implementation of
6 the Comprehensive Reliability Planning Process. I
7 joined Con Edison in June 2007 as Section Manager,
8 Steam Resource Planning. In this capacity, I have been
9 responsible for the development of the studies and
10 reports that are an integral part of this proceeding.
11 These reports include the December 31, 2008 Steam
12 Resource Plan Supplement and the May 7, 2009 East River
13 Repowering Project Cost Allocation Study ("ERRP
14 Study").

15 Q. Mr. Catuogno, by whom are you employed and in what
16 capacity?

17 A. I am employed by the Con Edison as Section Manager of
18 Steam Operations Planning, Steam Operations.

19 Q. What is your educational and professional background?

20 A. I graduated from Polytechnic University with a Bachelor
21 of Science degree in Mechanical Engineering in 1991 and
22 with a Master of Science degree in Management in 2002.
23 I am a registered Professional Engineer in the State of
24 New York.

ERRP ALLOCATION PANEL - STEAM

1 I joined Con Edison in 1991 and have held various
2 positions of increasing responsibility in the Fossil
3 Power, Nuclear Power Engineering, Energy Management,
4 and Steam Operations Departments. Since January 2007, I
5 have been the Section Manager of the Steam Operations
6 Planning Section.

7 Q. Please describe your current responsibilities in the
8 Steam Operations Planning area.

9 A. My responsibilities include, among other functions,
10 preparing estimates of fuel requirements for the
11 Company's steam and steam-electric generating
12 facilities, determining budgets for fuel and purchased
13 steam expenditures, preparing the near term operating
14 and outage plans for the steam and steam-electric
15 generating units, and performing technical analyses
16 pertaining to the operation and dispatch of the Steam
17 System (Production, Transmission, and Distribution).

18 Q. What is the purpose of your testimony?

19 A. The purpose of our testimony is to support the
20 Company's recommendation in the ERRP Study that the
21 Commission should retain the current incremental cost
22 allocation method ("Incremental Method") for allocating
23 ERRP costs between steam and electric operations. We

ERRP ALLOCATION PANEL - STEAM

1 are submitting the ERRP Study as Exhibit ____ (ERRP AP-
2 1).

3 MARK FOR IDENTIFICATION AS EXHIBIT __ (ERRP AP-1).

4 Q. Please summarize the Company's findings and
5 recommendations with respect to the ERRP Study.

6 A. The ERRP Study recommended that the current Incremental
7 Method should be retained. The ERRP Study shows that
8 the Incremental Method is based on sound cost causation
9 principles that provide a just and reasonable mechanism
10 to allocate the costs between steam and electric
11 operations. For example, the ERRP Study shows that fuel
12 costs are allocated based on the reason why a quantity
13 of fuel is being burned and that fixed costs and
14 operation and maintenance ("O&M") costs are allocated
15 based on the particular function of the equipment or
16 the nature of the work performed.

17 Q. Why is the ERRP cost allocation method an important
18 aspect of this proceeding?

19 A. ERRP was built in order to replace the aging Waterside
20 Generating Station ("Waterside") with a modern, low
21 emissions cogeneration facility. ERRP is the lowest
22 cost, lowest emission unit in Con Edison's steam
23 production fleet. Furthermore, it provides base-load
24 supply to Con Edison steam customers and is centrally

ERRP ALLOCATION PANEL - STEAM

1 located to provide important operational features.
2 ERRP is one of two base-loaded cogeneration plants that
3 supply the Steam System. ERRP has the highest load
4 factor among the Con Edison steam production plants.
5 Accordingly, the use of the Incremental Method to
6 allocate ERRP costs has a significant impact on keeping
7 system wide steam rates competitive.

8 Q. What are the guiding principles of the Incremental
9 Method?

10 A. The key element of the Incremental Method is the use of
11 cost causation principles to determine whether certain
12 pieces of equipment support electric or steam operation
13 or both. As indicated in the ERRP Study, the
14 Incremental Method provides that steam customers pay
15 only for those costs associated with the production of
16 steam. Use of the Incremental Method recognizes that
17 ERRP provides substantial benefits to both the Electric
18 and Steam Systems.

19 Q. How are these principles applied to the allocation of
20 ERRP capital costs?

21 A. All costs associated with the equipment needed for
22 electric production are assigned to the electric
23 department. Accordingly, capital costs allocated to
24 electric production include the procurement and

ERRP ALLOCATION PANEL - STEAM

1 installation cost of the following major equipment and
2 construction projects:

- 3 • Combustion turbine - generators;
- 4 • Accessory Electric equipment (such as generator
5 step up transformers, circuit breakers, cables,
6 etc.);
- 7 • Electric distribution and electric transmission
8 interconnections;
- 9 • Electrical auxiliary system for the plant;
- 10 • Inside the plant gas supply piping to the gas
11 turbines;
- 12 • Heat exchangers, with fresh water and salt water
13 piping supply and oil water separators for cooling
14 electric cables and turbine lubricating oil;
- 15 • Control systems;
- 16 • Environmental control equipment for removing
17 pollutants from exhaust gases;
- 18 • Refurbishment of an existing Stack #2 for the East
19 River Repowering Project use;
- 20 • Pre-East River Repowering Project relocations &
21 Building alterations; and
- 22 • Structural work needed for installation of this
23 equipment.

ERRP ALLOCATION PANEL - STEAM

- 1 Capital costs for steam production includes the
2 following steam production equipment:
- 3 • Heat Recovery Steam Generators ("HRSGs");
 - 4 • Inside the plant gas supply piping for duct
5 burners;
 - 6 • Back-up fuel oil storage tank refurbishment and
7 piping;
 - 8 • Water treatment plant, City water piping, storage
9 tanks, and chemical storage;
 - 10 • Waste water neutralization;
 - 11 • Blowdown piping;
 - 12 • Deaerators;
 - 13 • Boiler feed pumps with motors and associated
14 electric equipment;
 - 15 • Steam equipment (pressure control valves, de-
16 superheating stations and steam flow measurement);
 - 17 • Control systems;
 - 18 • Fire prevention & protection system;
 - 19 • Steam piping inside the plant;
 - 20 • Steam distribution piping reinforcement including
21 the First Avenue Tunnel;

ERRP ALLOCATION PANEL - STEAM

1 • Structural work needed for installation of this
2 equipment; and

3 • New condensate return piping from Stuyvesant Town.

4 Q. Please continue.

5 A. Based on an allocation and compilation of the equipment
6 and installation costs associated with the above
7 equipment lists, the total capital costs were found to
8 be in the ratio of approximately 2/3 to Electric and
9 1/3 to Steam. Since the project is carried on the Steam
10 System's books for accounting purposes, electric
11 capital costs are allocated to Electric in the form of
12 rent payments. These rent payments include carrying
13 charges and property taxes on the electric equipment
14 identified above.

15 Q. How are ERRP's fuel costs allocated using the
16 Incremental Method?

17 A. ERRP Fuel Costs are allocated as follows. In the ERRP
18 plant design, there are two fuel streams: (1) fuel
19 fired in the gas turbines for electric generation, and
20 (2) fuel fired in the HRSG duct burners for
21 supplemental steam generation. Fuel fired in the
22 combustion turbines for generating electricity is
23 charged entirely to the Electric System, and fuel fired

ERRP ALLOCATION PANEL - STEAM

1 in HRSGs is charged entirely to the Steam System.
2 Natural Gas is procured on a non-interruptible basis
3 for reliability and to meet emission restrictions.
4 Low sulfur kerosene is available but restricted to 16
5 hours per year as well as during emergency gas
6 contingencies.
7 The fuel allocation to the electric customers is
8 consistent with the Incremental Method. All of this
9 fuel burn is necessary for electric generation in a
10 simple-cycle process. The waste heat from the gas
11 turbine exhaust is used in the HRSG to produce steam;
12 therefore steam is a byproduct of the electric
13 production. Unlike other cogeneration plant designs,
14 the steam produced by the East River Repowering Project
15 does not cause any electric de-rating. Steam
16 production, in fact, facilitates electric production as
17 the HRSGs are the only disposition for the gas turbine
18 exhaust gases which would not be permitted to be
19 released without going through the environmental
20 controls located in the HRSG. The environmental
21 controls would not be functional unless the turbine
22 exhaust gases are cooled by the HRSG.
23 The fuel (natural gas only) fired in the HRSG duct
24 burners for additional steam generation is charged

ERRP ALLOCATION PANEL - STEAM

1 entirely to the steam customers. This fuel does not
2 contribute to any electric generation as there is no
3 steam turbine in this plant design.

4 Q. How are the electric revenues received by ERRP
5 allocated?

6 A. All of the revenues derived from ERRP's sales of
7 electric energy, capacity and ancillary services are
8 allocated to the electric customers.

9 Q. What benefits does ERRP provide to the Company's
10 electric ratepayers?

11 A. The ERRP Study showed that ERRP provides significant
12 benefits to electric customers. Those benefits, which
13 have been repeatedly cited by the Commission, include
14 both quantifiable benefits, such as the substantial
15 proceeds from the sale of the First Avenue Properties
16 that were made possible by the replacement of the
17 Waterside by ERRP, as well as benefits that are
18 difficult to quantify, such as regional air quality
19 improvements, economic development, and the substantial
20 savings to electric customers from the continued
21 viability of the Steam System. In addition, as shown
22 in the ERRP Study, the Commission has also explicitly
23 recognized that the existence of ERRP has avoided the
24 need to build new generation and transmission equal to

ERRP ALLOCATION PANEL - STEAM

1 \$90 Million per year which is a reasonable offset to
2 annual fixed costs charged to electric customers.
3 The ERRP Study provided additional information to
4 inform the Commission of the benefits of ERRP to
5 electric customers. Specifically, in the ERRP Study
6 the Company has provided a reasonable estimate of the
7 savings to electric customers from ERRP's participation
8 in the NYISO's energy and capacity markets. For
9 example, the Company estimates that for the year 2010
10 ERRP's participation in the electric energy market
11 could save customers approximately \$200 million
12 statewide, of which \$109 million will accrue to New
13 York City customers and \$15 million will accrue to
14 County of Westchester customers. In addition, Con
15 Edison's New York City and Westchester customers will
16 receive approximately \$100 Million in annual capacity
17 savings from Con Edison's using ERRP as a source of
18 self-supplied capacity.

19 Q. Please explain what electric benefits have to do with
20 the use of the Incremental Method?

21 A. Electric benefits underpin the use of the Incremental
22 Method for cogeneration plants such as ERRP. The
23 Incremental Method is founded on longstanding
24 Commission precedent on how to allocate costs between

ERRP ALLOCATION PANEL - STEAM

1 electric and steam systems. The ERRP Study's conclusion
2 is consistent with what the Commission has stated and
3 reaffirmed on several occasions, that the numerous
4 benefits provided by ERRP to electric customers in New
5 York City and Westchester mandates that ERRP costs be
6 allocated using the long-standing regulatory principle
7 of the Incremental Method.

8 Q. Has the Commission previously used the Incremental
9 Method?

10 A. Yes. The Incremental Method has been used by the
11 Commission for allocating costs between the electric
12 and steam systems since 1978 and has been applied to
13 ERRP costs since 2004. Appendix A to the ERRP Study
14 lists the various cases where the Commission has
15 applied the Incremental Method. Moreover, pages 3
16 through 8 of the ERRP Study provides a summary of Con
17 Edison specific Commission decisions where the
18 Commission applied the Incremental Method to ERRP
19 costs.

20 Q. Does this conclude your testimony?

21 A. Yes.

22

23

**East River Repowering Project
Cost Allocation Study for the
New York Public Service Commission
Cases 07-S-1315 and 09-S-0029**

May 7, 2009



**Prepared by
Consolidated Edison Company of New York, Inc.**

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1. Executive Summary

Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) hereby files this cost allocation study (the “Study”) for the East River Repowering Project (“ERRP”) in response to a requirement of the New York Public Service Commission (“PSC” or the “Commission”) in Case 07-S-1315, Order Establishing Rate Plan.¹ The Steam Rate Order required the Company to perform a study of how the Company allocates the costs of ERRP between steam and electric customers; identify alternative cost allocation methodologies and make a recommendation as to the appropriate cost allocation methodology to apply.² As shown herein, the current approach of using the well-established “incremental” method (the “Incremental Method”) of allocating costs between electric and steam should be continued.

The Incremental Method has been used by the Commission for allocating costs between electric and steam systems since 1978 and has been applied to ERRP costs since 2004. As the Commission stated in its 2004 Steam Rate Order:³ According to the Commission:

To stem an unacceptable exodus of steam customers to electric, the Commission adopted steam rates, and set cost allocations, that were purposely designed to retain steam customers and maintain a viable steam system. **It selected the ‘incremental’ method that has remained in use ever since,** which requires steam customers to pay only the separate steam production and capital costs.⁴ (emphasis added.)

¹ Case 07-S-1315, *Proceeding on Motion of the Commission as to Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service*, Order Establishing Rate Plan (“2008 Steam Rate Order”) (issued September 22, 2008).

² 2008 Steam Rate Order, Attachment 1, p. 10.

³ Case 03-S-1672, *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service*, Order Adopting the Terms of a Joint Proposal (“2004 Steam Rate Order”) (September 27, 2004), p. 26.

⁴ 2004 Steam Rate Order, p. 26.

In explaining the well-established regulatory principle of the Incremental Method to allocate ERRP costs between the Company's electric and steam departments, the Commission's 2004 Steam Rate Order found "that the ERRP was selected and is being constructed for the substantial benefits it will provide for both the electric and steam systems."⁵ The benefits to the electric system described by the Commission in the 2004 Steam Rate Order continued to exist when the Commission looked at ERRP costs again in 2006 and in 2008. Indeed, these benefits still exist today.

Specifically, the 2004 Steam Rate Order found that the "electric system will receive substantial benefits from this in-City electric plant because it will serve load pockets on Manhattan's East Side and elsewhere in the borough."⁶ These reliability benefits were specifically recognized again by the Commission in its 2006 Steam Rate Order where it stated that "ERRP also has provided valuable reliability benefits to customers in Westchester,"⁷ and noted that "ERRP's initial operating experience has been consistent with our expectation ... that the plant would benefit electric customers by enhancing reliability in the lower Manhattan load pocket."⁸ As explained in more detail below, ERRP enhances electric reliability by being available for second contingency operation during the summer and for outage support year round. Indeed, this Study demonstrates that without ERRP the electric system would not be able to meet its second contingency design criteria and would have insufficient resources in the East 13th Street load pocket. Thus, the existence of ERRP has avoided the need to build new transmission infrastructure into lower Manhattan to support these reliability criteria. Clearly, avoiding a large infrastructure expense provides a significant savings to the Company's electric customers.

⁵ 2004 Steam Rate Order, pp. 26-27.

⁶ 2004 Steam Rate Order, p. 27.

⁷ Case 05-S-1376, Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Consolidated Edison Company of New York, Inc. for Steam Service, Order Determining Revenue Requirement and Rate Design ("2006 Steam Rate Order") September 22, 2006, p. 24, fn. 22.

⁸ 2006 Steam Rate Order, p. 24.

The long-standing Incremental Method also recognizes that ERRP provides other significant benefits to electric customers. Those benefits, which have been repeatedly cited by the Commission, include both quantifiable benefits, such as the substantial proceeds from the sale of the First Avenue Properties that were made possible by the replacement of the Waterside plant by ERRP, as well as benefits that are difficult to quantify, such as regional air quality improvements, economic development, and the substantial savings to electric customers from the continued viability of the steam system. As so aptly stated by the Commission in the 2004 Steam Rate Order:

Beyond this, any suggestion that the ERRP does not make economic sense for electric customers is entirely eliminated by the fact that electric customers will share in the net gain and proceeds obtained from the sale of the utility property located on First Avenue, and they will obtain this electricity from a new, efficient facility that produces a low level of environmental emissions. We found that the sale of this real property provides an important opportunity for East Side redevelopment that offers substantial societal benefits for the greater metropolitan area. Moreover, the continued operation of the steam system means that Consolidated Edison will not construct (or incur the costs for electric transmission and distribution system reinforcements) that would be needed to serve the energy loads of the customers who would switch. This too amounts to a sizable savings for the electric department obtained by adopting the incremental approach to the steam system that is supported by virtually all the interested parties except for Westchester.⁹

Although difficult to quantify, there can be no question that the energy deliveries into lower Manhattan provided by ERRP has resulted in lower wholesale energy prices (in the form of lower locational based marginal prices or LBMPs) that accrue to all of Con Edison's market purchases, as well as to the market purchases of other load serving entities throughout New York City and

⁹ 2004 Steam Rate Order, pp. 22-28.

Westchester County. This Study demonstrates that continuing the Incremental Method will enable electric customers in New York City and in Westchester County to continue to experience significant savings in wholesale energy prices. Thus, the value of ERRP to Con Edison's electric customers is not only the avoidance of purchasing electricity at current market prices, but also the amount by which market prices decreased as a result of ERRP.

Similarly, the cost allocation of the fuel burned at ERRP using the Incremental Method assures that fuel use efficiency is maximized and that very low emission levels and other environmental benefits provided by cogeneration for the steam system are retained for the benefit of all customers. This was recognized by the Commission in the 2008 Steam Rate Order, where it noted the value produced by ERRP associated with "securing the economic and environmental benefits associated with the displacement and sale of the First Avenue Properties."¹⁰

Importantly, as initially recognized by the Commission in the 2004 Steam Rate Order,¹¹ shifting ERRP costs from electric to steam will harm the competitiveness of the Steam business and drive customers away from the steam system. Given the potential other increases in steam rates due to necessary improvements to the distribution system, the Hudson Avenue replacement and gas conversions at other steam plants, an increase in the level of ERRP costs allocated to steam customers would be neither practical nor prudent.

The Study further supports the continued use of the Incremental Method by analyzing at the allocation of fixed and fuel costs based on whether those costs support the electric or steam systems. For example, the Incremental Method allows fixed costs to be allocated based on a technical evaluation of the purpose of each piece of equipment. Thus, if a certain piece of equipment supports the electric system, its cost is allocated to electric and, similarly, if a certain piece of

¹⁰ 2008 Steam Rate Order, p. 39.

¹¹ 2004 Steam Rate Order, p. 26.

equipment supports steam generation it is allocated to steam. As such the Incremental Method supports the assignment of fixed costs on a cost causation basis. Similarly, the Incremental Method allows fuel costs to be allocated based on the reason why a quantity of fuel is being burned. For example, if the fuel is converted to electric energy in the combustion turbine generators, the cost of the fuel is allocated to electric customers. When fuel flows directly to the HRSG for supplemental steam production, 100% of this fuel is allocated to steam. With respect to non-fuel operations and maintenance (“O&M”), the Study shows that costs are charged to accounting codes that specify whether the benefits of the work apply to steam or electric production. The Study showed that slightly less than half of the 2008 O&M expenses were charged to steam.

In the 2008 Steam Rate Order, the Commission provided a clear summary of why the current allocation of ERRP is appropriate. Specifically, the Commission stated that:

previous decisions regarding ERRP clearly establish that the value of the plant and the allocation of its associated costs are based on a consideration of numerous factors, including the desire to ‘stem an unacceptable exodus of steam customers to electric and gas service’ and ‘retain steam customers and maintain a viable steam system’; enhancing reliability in Manhattan; securing the economic and environmental benefits associated with the displacement and sale of the First Avenue Properties; and avoiding cost for electric transmission and distribution system reinforcements that would have otherwise been needed.¹²

Thus, as the Commission has stated and reaffirmed on several occasions, the numerous benefits provided by ERRP to electric customers in New York City and Westchester demands that ERRP costs be allocated using the long-standing regulatory principle of the Incremental Method. This Study re-analyzes and re-confirms these benefits and demonstrates that there is no basis for the Commission to abandon its long-standing regulatory principle of using the

¹² 2008 Steam Rate Order (footnotes omitted), p. 39.

Incremental Method to allocate ERRP costs between the Company's electric and steam departments. Accordingly, for the reasons set forth herein, the current Incremental Method should continue to be applied to ERRP costs.

2. Background

A. Purpose of Report

The 2008 Steam Rate Order required Con Edison to perform a study of how the costs to Con Edison and its customers of owning and operating the East River Repowering Project are allocated between steam and electric departments.¹³ The East River Repowering Project's rated capacity is 370 MW winter electric and about 300 MW of summer electric, and 3,200 Mlb of steam¹⁴

The genesis of the current Incremental Method of cost allocation is based on a series of Commission orders which are listed in Appendix A, Table 1. In general, this regulatory principle that the Commission has consistently supported since 1978 follows the accounting principles of cost causation, pursuant to which costs are assigned based on the function of a piece of equipment or an operating activity. The Incremental Method assigns costs which are shared between electric and steam to electric, while assigning costs associated with steam-only functions to the steam customers.

The Study's outline resulted from collaboration among parties to the Case 09-S-0029 during the first quarter of 2009. Sections 3 through 5 of this Study focus on the allocation of the costs and revenues of the East River Repowering Project using various allocation methods. Beyond a narrow discussion of cost allocation, the agreed upon outline called for the Company to identify benefits and costs to steam and electric customers that influence policy choices relative to sustaining the steam system. This broader discussion is contained in Section 6. Section 7 describes the importance of the steam system from a customer

¹³ 2008 Steam Rate Order, Attachment 1, p. 10.

¹⁴ The nomenclature for the East River Repowering Project is as follows: East River Turbine 1, Boiler 10 (Unit 1/10) and East River Turbine 2, Boiler 20 (Unit 2/20).

perspective. Finally, Section 8 contains Con Edison's recommendations for ERRP cost allocation going forward.

B. Description of the Steam System

Con Edison's steam system consists of six steam production facilities and approximately 105 miles of integrated distribution and service mains of varying diameters and design operating pressures. Four of the current Company's six steam production facilities were originally developed for electric generation as cogeneration facilities to support rapidly growing electric demand in New York City.¹⁵ The steam distribution system was built to maximize the efficiency and utilize the waste heat from the conventional steam turbine-generators at these sites. The adjacent, dense and large heating loads of Manhattan enabled the establishment of large scale cogeneration and the resulting energy efficiencies inherent in the simultaneous production of electric and useful thermal energy. The result was the largest district heating system in the nation by far. Cogeneration, that utilizes waste heat from steam turbine-generators, uses approximately one-third less fuel than if the steam and electricity were produced separately. This environmental and fuel conservation benefit has been enjoyed by New York area residents since the beginning of the steam system's operation in the late 1800s.

When Con Edison divested its fossil electric-only generating plants in 1999 to foster New York State's goal of a competitive electric supply wholesale market, portions of the steam-electric cogeneration system were decommissioned. Specifically, electric generation was retired at the Waterside, 59th Street and 74th Street locations and much of the production at these locations became steam only. Therefore, significantly less steam is produced today from cogeneration

¹⁵ The Brooklyn Navy Yard Cogeneration Project ("BNYCP") is the only steam plant not owned by Con Edison. This plant cogenerates electricity and steam for Con Edison customers under a Power Purchase Agreement.

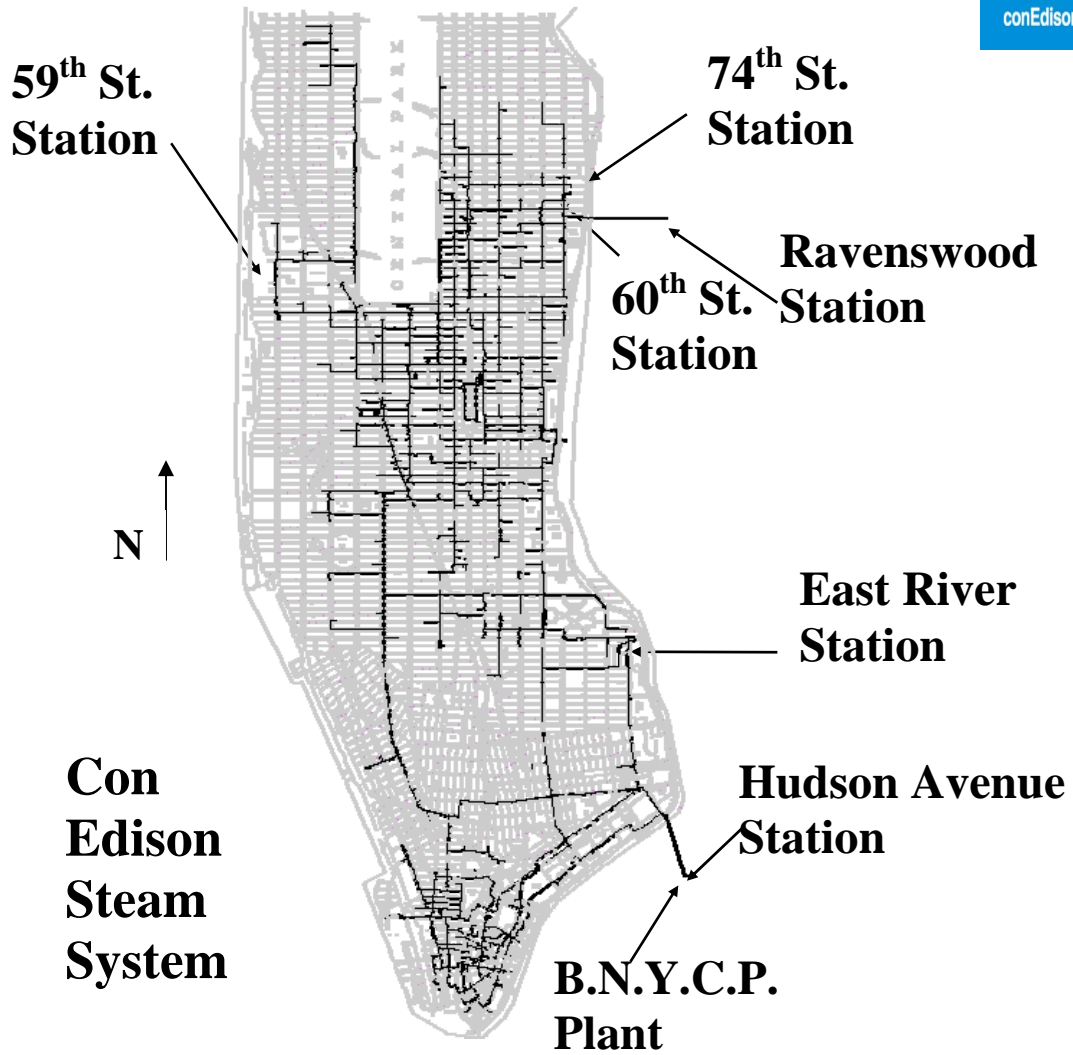
than had been the case previously. Still, over half of the system steam production comes from cogeneration at Con Edison's East River Generating Stations and at BNYCP, which is under a purchase contract. The Company continuously sought ways to improve overall system efficiency by maximizing the utilization of these cleaner, more efficient units. Today, the importance of energy conservation and environmental impact mitigation is a top priority of policy makers and the citizenry as a whole so the role of cogeneration plants in Con Edison's steam system is arguably even more important now than ever.

The steam system currently has a total of 13,229 Mlb/hr of net steam generating capacity. A list of stations is shown in Figure 2.1 and a system map showing plant locations and the distribution system is depicted in Figure 2.2.

Figure 2.1
Steam Generation Rated Capacity (2008–2009 Winter)

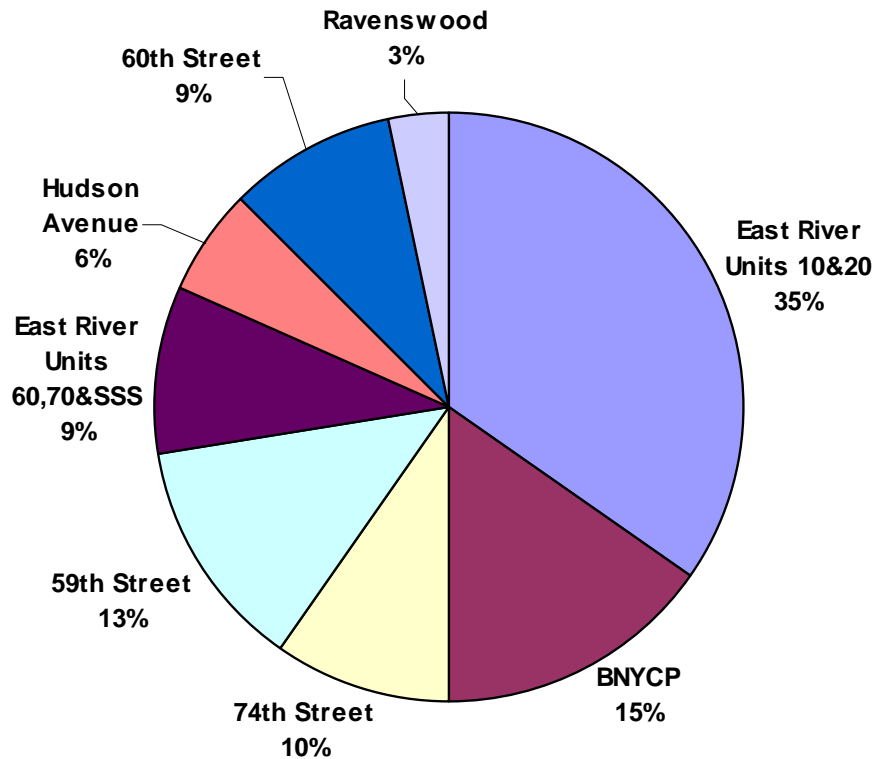
Steam Generating Station	Net Capacity (Mlb/hr)
East River 1/10 and 2/20	3,200
East River 6/ 60	830
East River 7/70	1,186
East River South Steam Package Boilers	650
Hudson Avenue Boilers	1,600
74 th Street HP Boilers	1,300
74 th Street Package Boilers	708
60 th Street Package Boilers	696
59 th Street HP Annex Boilers	950
59 th Street Package Boilers	381
Ravenswood Steam	750
BNYCP Contract	978
Total	13,229

Figure 2.2
Steam System Map



The East River Repowering Project is made up of the newest steam production units. It provides the largest share of steam and its central location allows it to serve both downtown and midtown steam loads. Figure 2.3 provides a breakdown of sendout from the facilities supplying Con Edison's steam system for 2008.

Figure 2.3
2008 Steam Sendout by Station
(Total Sendout = 27,919,939 Mlb)



As shown in Figure 2.3, cogenerated steam from the East River Repowering Project Units (East River Units 1/10 and 2/20) and BNYCP (pursuant to the purchase contract) make up about half of the steam produced annually. The dispatch of steam units are based on cost, emission impact and system reliability

requirements. The East River Repowering Project units were installed in part to replace the aging Waterside steam-electric generating facility (“Waterside”), which had been the largest steam production facility. ERRP took over that role with the difference being modern technology, greatly reduced emissions and additional needed electric generation.

Another important aspect of the East River Repowering Project was the installation of the First Avenue tunnel and its 36-inch diameter steam main that enables East River Units 1/10 and 2/20 to serve the uptown district at the same location where Waterside steam was previously supplied. Steam supply can now be directed to uptown and downtown areas via remotely operated control valves.

The Con Edison steam system serves most of the large commercial buildings and many large residential buildings in Manhattan that are close to the steam distribution system, which extends from Battery Park in downtown north to 96th Street. There are approximately 1,760 customers and the system is a crucial component of the City’s energy supply portfolio.

C. Electric and Steam System Needs when the East River Repowering Project was permitted

The East River Repowering Project was built to achieve the following objectives:

- To supply additional needed electric energy and capacity into the market at a time when capacity was urgently needed;
- To provide additional electric generating capacity in the East 13th Street load pocket where no other generating sites were available and where development of electric generation might otherwise be prohibitively expensive;

- To utilize existing space and structures made available as a result of retired electric generation at the site, thereby minimizing environmental impact;
- To improve local and regional air quality;
- To replace the Waterside, one of the oldest facilities in Con Edison's steam production fleet, and New York City's power generation fleet with modern cogenerated electric production;
- To replace Waterside's base loaded steam production at a location that could serve both midtown and downtown; and
- To take advantage of Waterside properties real estate value at a time when property values were at or near their highs.

ERRP is also a necessary element for meeting the Company's electric reliability requirements, which was recognized during the planning and approval phase of the project. Moreover, in 2001, 2002 and 2003 the New York Independent System Operator ("NYISO") indicated that the in-city capacity requirement was barely met even when the East River Repowering Project was included.¹⁶ The in-City capacity need was so urgent that the NYISO reports also showed the need for the temporary repowering of 65 MW from Hudson Avenue Unit 10/100 and the addition of 440 MW of small combustion turbines by NYPA. The consensus among interested parties, regulators and generation suppliers was the extreme shortage of electrical generation in the New York City geographic area could lead to rolling blackouts and high prices which would hinder economic growth. The Commission and Staff supported the East River Repowering Project throughout the approval process.¹⁷

In addition, the East River Repowering Project was needed at its specific location to meet local reliability requirements of the East 13th Street load pocket. The documentation in the Article X application emphasized the East River

¹⁶ NYISO Power Alerts, 2001, 2002, and 2003.

¹⁷ 2004 Steam Rate Order.

Repowering Project's contribution to electric reliability by pointing out that the East River Repowering Project is the only generating unit located in southern Manhattan and is interconnected to some of the most critical electric loads in the state. Specifically, Section 2.6 of the Article X Application states that the "...project will provide increased electric generating capacity in the lower Manhattan and overall in-City load pockets." There can be no question that but for ERRP the lower Manhattan load pocket would become deficient by 2005.¹⁸ In fact, the East River Generating Station is the only source of generation located within the lower Manhattan load pocket. All other generation must be otherwise "imported" from other areas of the City. Additional discussion on East River Repowering Project's contribution to electric system reliability is contained in Section 9 of this Report.

From a steam supply perspective, the East River Repowering Project is the largest and most strategically located production resource. The Project provides base loaded steam capacity and also provides vital operating reserve. Finally, the East River Repowering Project is a low cost supply of steam to New York City customers since it maximizes fuel efficiencies as a cogeneration facility.

D. Sale of the First Avenue Properties and Disposition of Proceeds

As part of the restructuring of the steam system undertaken the late 1990s, the PSC approved replacing the output from Waterside by the East River Repowering Project, thus enabling the sale of the First Avenue Properties.¹⁹ The Company received \$608.8 Million from the sale of the First Avenue Properties, resulting in a pre-tax gain of \$239.2 Million net of book value, cost of sales and closing costs. The as-approved net gain after taxes was \$131.2 Million. The net proceeds were distributed to electric, gas and steam customers in accordance

¹⁸ Article X, section 2.6, pp 2-8, (Case No. 99-F-1314), East River Repowering Project.

¹⁹ Case 96-S-1065 et al, Order Concerning Phase II Steam Plan Report (issued December 2, 1999).

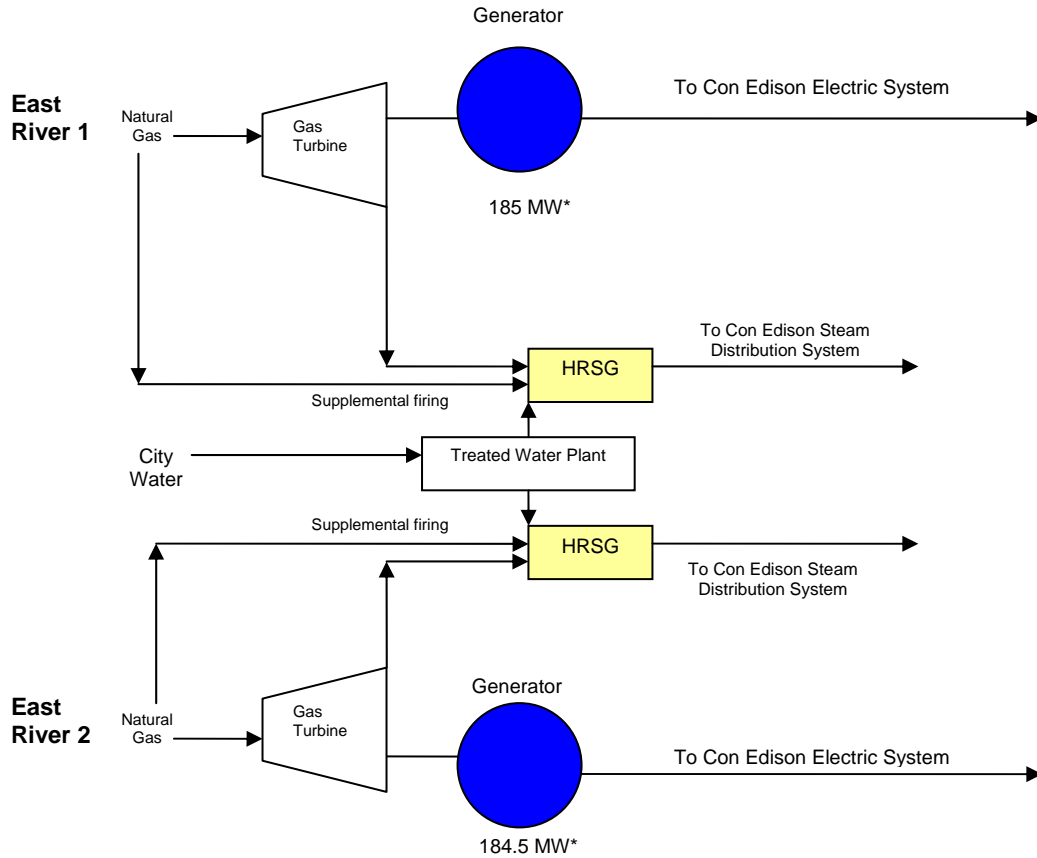
with PSC-approved allocations.²⁰ The Company also spent a portion of these proceeds on environmental improvement projects at its other locations throughout the City (see Figure 2.2), thus providing environmental benefits in the City and also in down wind areas where NOx would chemically react in the environment creating ozone, which is a contributor to respiratory health problems. These environmental benefits are explained in more detail in Section 7.

E. East River Repowering Project Physical Plant Description

The configuration of East River Units 1/10 and 2/20 (Figure 2.4) consists of two nominal 175 MW combustion turbines for electric production and two 1,600 Mlb/hr Heat Recovery Steam Generators (“HRSGs”) for steam production. Waste heat from the combustion turbine exhaust gases is recovered in the HRSGs for generating steam.

²⁰ Case 01-E-0377, Order Approving Accounting and Ratemaking With Modifications (issued and Effective August 22, 2008).

Figure 2.4
Schematic for East River Repowering Project
Units 1/10 and 2/20 Cogeneration Plant



* Winter Rating

Unlike the other steam-electric units in the system, this configuration does not have low pressure steam turbines and condensers due to the following site specific constraints:

- Water cooled condensers were no longer permissible for newer plants on East River because of water resource environmental regulations;

- Air cooled condensers were considered but not selected due to noise and thermal pollution considerations in the City neighborhood;
- The high capital cost of steam turbines and condensers would have increased the carrying charges for the electric customers; and
- The site had space limitations for air cooled condensers.

The East River Units 1/10 and 2/20 were built with an optimum configuration for this New York City site. At ERRP, electricity is produced in the gas turbines and steam is produced: 1) as a by-product utilizing the waste heat in the turbine exhaust, and 2) from duct-firing directly to the heat recovery steam generator. Consequently, steam cannot be produced without electric generation, and electricity cannot be produced unless steam is dispatched to the steam system. This requirement has placed operational constraints on both the steam and electric systems because the steam peak and electric peak demands do not occur at the same time. However this constraint comes with a benefit; the cogeneration process provides synergistic savings in energy costs and environmental benefits by avoiding wasteful heat dissipation in condensers or discharges up the stack. The overall thermal efficiency of East River Units 1/10 and 2/20 reaches about 87% considering the combined energy output of steam and electric production, compared to 35% in a typical simple cycle electric plant or 45% to 50% for a combined cycle plant with air cooled condensers.

Figure 2.5 below shows East River Repowering Projects' electric and steam production capacity under three operating modes. At maximum steam production capacity of 1,600 Mlb per unit, more than half the fuel comes from duct-firing. Below a steam sendout threshold of 750 Mlb per hour, steam production comes solely from the waste heat of the combustion turbines.

Figure 2.5
East River Units 1/10 and 2/20 Maximum Generation Capacity

Load	Electric East River Unit 1/10 MW	Electric East River Unit 2/20 MW	Steam Each Unit Mlb/hr	Impact on Steam System
Electric Minimum (Operation below 50% of GT capacity not recommended.)	77	75	500	Steam can not be generated without GTs in operation. This results in a minimum steam load requirement.
Electric Maximum	185 (winter) (146.9 summer)	184.5 (winter) (148.1 summer)	750	Maximum steam production using CT exhaust without firing duct burners.
Steam Maximum	185 (146.9 summer)	184.5 (148.1 summer)	1,600	Duct burner firing increases steam sendout with no incremental electric production.

The East River Repowering Project units are equipped with selective catalytic reduction and oxidation catalyst for reducing air pollution. This equipment is located in the HRSGs so that the steam production process can cool the hot exhaust gases from the gas turbines to a temperature range where the environmental control equipment can perform in an optimum and economical manner. In addition, firm gas is supplied to the East River Repowering Project units and low sulfur distillate fuel oil is only burned during gas system emergencies. The duct burners for the HRSGs were designed to only run on natural gas.

3. The Incremental Method

Since 2004 ERRP costs have been allocated between electric and steam using the long-standing regulatory principle known as the Incremental Method, which “requires steam customers to pay only the separate steam production and capital costs.”²¹ Use of the Incremental Method recognizes that “ERRP was selected and is being constructed for the substantial benefits it will provide to both the electric and steam systems.”²² A key element of the Incremental Method is the use of cost causation principles to determine whether certain pieces of equipment support electric or steam operation at ERRP. The following is a description of how the Incremental Method is applied to the various categories of ERRP costs.

A. Capital

The East River Repowering Project cogeneration plant costs are shared by the steam and electric customers based on the following principle: All costs (original equipment, property taxes, fuel and O&M) associated with the equipment needed for electric production are assigned through interdepartmental rent payments to the electric customers and those needed for steam production are assigned directly to the steam rate base and to the steam customers.

Capital costs allocated to electric production include the procurement and installation cost of the following major equipment and construction projects:

- Combustion turbine – generators;

²¹ 2004 Steam Rate Order, p. 26.

²² *Id.*

- Accessory Electric equipment (such as generator step up transformers, circuit breakers, cables, etc.);
- Electrical Gas distribution and electric transmission interconnections;
- Electrical auxiliary system for the plant;
- Inside the plant gas supply piping to the gas turbines;
- Heat exchangers, with fresh water and salt water piping supply and oil water separators for cooling electric cables and turbine lubricating oil;
- Control systems;
- Environmental control equipment for removing pollutants from exhaust gases;
- Refurbishment of an existing Stack #2 for the East River Repowering Project use;
- Pre-East River Repowering Project relocations & Building alterations; and
- Structural work needed for installation of this equipment.

Capital cost for steam production includes the following steam production equipment:

- HRSGs;
- Inside the plant gas supply piping for duct burners;
- Back-up fuel oil storage tank refurbishment and piping;
- Water treatment plant, City water piping, storage tanks, and chemical storage;
- Waste water neutralization;
- Blowdown piping;
- Deaerators;
- Boiler feed pumps with motors and associated electric equipment;
- Steam equipment (pressure control valves, de-superheating stations and steam flow measurement);
- Control systems;

- Fire prevention & protection system;
- Steam piping inside the plant;
- Steam distribution piping reinforcement including first avenue tunnel to uptown;
- Structural work needed for installation of this equipment; and
- New condensate return piping from Stuyvesant Town.

Based on an allocation and compilation of the equipment and installation costs associated with the above equipment lists, the total capital costs were found to be in the ratio of approximately 2/3 to electric and 1/3 to steam at the time of commissioning the plant operation.

Appendix B, Table 1, shows the plant book value at commencement of commercial operation in April 2005 and for year-end 2006 through 2008. Appendix B, Table 2 and 3 show the split between electric and steam carrying charges respectively for the same time periods. These carrying charges include depreciation, return, income taxes and property taxes.

B. O&M

Actual O&M costs incurred are charged as incurred and expensed on a monthly basis to steam and electric departments. O&M costs associated with electric production equipment (as described in Section 3 A, above) are charged to the electric department and those for steam production equipment are charged to the steam department. The major O&M accounts for electric pertain to the combustion turbines and other electric equipment. The major O&M accounts for steam pertain to the heat recovery steam generators and water treatment.

C. Property Taxes

Property taxes associated with electric production equipment are charged to the electric customers and those for steam production equipment are charged to the steam customers. This allocation is shown in Appendix B, Tables 2 and 3.

D. Fuel

In the East River Repowering Project plant design, there are two fuel streams: (1) fuel fired in the gas turbines for electric generation, and (2) fuel fired in the HRSG duct burners for supplemental steam generation. Fuel fired in the combustion turbines for generating electricity is charged entirely to the electric system, and fuel fired in HRSGs is charged entirely to the steam system. Natural Gas is procured on a non-interruptible basis to meet emission restrictions. Low sulfur distillate is available but restricted to 16 hours per year and only for emergency gas contingencies.

The fuel allocation to the electric customers is consistent with the Incremental Method. All of this fuel burn is necessary for electric generation in a simple-cycle process. This is because the wasted heat content of the turbine exhaust is used in the HRSG; therefore steam is a byproduct of the electric production. Unlike other cogeneration plant designs, the steam produced by the East River Repowering Project does not cause any electric de-rating. Steam production, in fact, facilitates electric production as the HRSGs are the only disposition for the gas turbine exhaust gases which would not be permitted to be released without going through the environmental controls located in the HRSG. The environmental controls would not be functional unless the turbine exhaust gases are cooled by the HRSG.

The fuel (natural gas only) fired in the HRSG duct burners for additional steam generation is charged entirely to the steam customers. This fuel does not

contribute to any electric generation as there is no steam turbine in this plant design.

E. Electric Revenues (Energy, Capacity, Ancillary Services)

All of the revenues derived from East River Repowering Project's sales for electric energy, capacity and ancillary services are allocated to the electric customers. Energy payments are based on the NYISO's published prices and delivered volumes applicable to each of the two East River Repowering Project units. Capacity payments are based on the amounts certified by Con Edison and accepted by NYISO in accordance with the NYISO's tariffs and procedures. Ancillary service payments cover voltage support service and are based on amounts certified by Con Edison and accepted by NYISO in accordance with the NYISO's tariffs and procedures.

4. Analysis of the East River Repowering Project Electric Revenues and Costs and Steam Costs Using the Current Allocation Method

A. Energy and Fuel Cost Analysis

1. Market price assumptions when the East River Repowering Project was permitted

This section of the Study examines price forecasts in 2000 when ERRP was permitted. Price assumptions used in the original East River Repowering Project economic analyses were provided in Case 99-F-1314 in Volume 1, Section 2 of the Article X application. Tables 2.6, 2.7, and 2.8 from the Article X application have been reproduced in this document as Appendix C. These Company exhibits were reviewed by the Siting Board and supported findings that the Project was in the public interest.²³

On an overall avoided costs basis relative to Waterside and other alternatives, ERRP was determined to be economic. The Siting Board stated:

“Adding the electrical generation to the Project, the examiners concluded, would reduce electric production costs and enhance reliability within the lower Manhattan and in-City load pockets. The examiners observed that the project would displace the Waterside Station’s dispatch of approximately 600 Gigawatt-hours (GWh) of electricity per year and an additional 1,700 GWh of generation from other plants. Were this generation displaced in the year 2002, the examiners noted that the associated fuel cost savings would be approximately \$25 Million....

The sum of the fuel cost savings and other production cost savings resulting from the Project, the examiners found,

²³ Case 99-F-1314, pp. 38-39, Initial Order, August 21, 2001.

would amount to \$27 Million per year.... If the Real Estate Benefits were included, the total economic benefits from the Project to ratepayers would average approximately \$45 Million per year over 20 years.”

Article X - Table 2.6 in Appendix C shows the monthly fuel price for both Waterside and the Con Edison steam stations, as well as the annual Market Energy and Capacity prices, for 2002. This table identified and calculated the monthly avoided costs for the Study Year of 2002 in the Con Edison system that would be generated from the introduction of the East River Repowering Project. Article X - Table 2.7 further analyzes these avoided costs and extends them over a 20-year period to obtain the overall levelized avoided costs of the project.

At the time that the Article X application was filed, the annual average gas price in NYC was shown to be around \$3.40/ MMBtu, which is significantly lower than the 2008 market conditions. The gas price forecast used to generate the levelized fuel costs savings in Article X - Table 2.7 estimated that the gas price would escalate throughout the 20 year period, shown in the increasing avoided fuel costs in subsequent years. Based upon the levelized cost analysis, the gas prices used in the original East River Repowering Project analysis ranged from \$3.40/MMBtu - \$4.90/MMBtu.

The Energy Market price for Study Year 2002 was an annual average of \$29/MWh, as shown in Article X - Table 2.6, which is also much lower than current market conditions. The Energy Market price forecast used to generate the levelized Energy Cost savings shown in Article X - Table 2.7 estimated that the energy price would escalate throughout the 20 year period, shown in the increasing avoided energy costs in subsequent years. Based upon the levelized cost analysis, the energy prices used in the original East River Repowering Project analysis ranged from \$29/MWh - \$44/MWh.

Figure 4.1 below provides the projected fuel costs and energy revenues using this same set of forecasted prices from 2002 through 2008. The table shows that fuel costs were expected to exceed energy revenues through 2008. This demonstrates that fuel costs anticipated at the time the project was permitted might not be fully recovered through offsetting energy revenues.

Figure 4.1

	ERRP Forecast						
	2002	2003	2004	2005	2006	2007	2008
Generation (MWh)	2,360,000	2,360,000	2,360,000	2,360,000	2,360,000	2,360,000	2,360,000
Electric Fuel (\$1000)	\$107,300	\$109,200	\$111,100	\$113,000	\$115,200	\$117,400	\$119,600
Fuel (\$/MWh)	\$45.47	\$46.27	\$47.08	\$47.88	\$48.81	\$49.75	\$50.68
Energy (\$1000)	\$68,652	\$70,210	\$71,768	\$73,325	\$75,001	\$76,700	\$78,376
Energy (\$/MWh)	\$29.09	\$29.75	\$30.41	\$31.07	\$31.78	\$32.50	\$33.21
Net Fuel (\$1000)	\$38,648	\$38,990	\$39,332	\$39,675	\$40,199	\$40,700	\$41,224
Net Fuel (\$/MWh)	\$16.38	\$16.52	\$16.67	\$16.81	\$17.03	\$17.25	\$17.47

2. East River Repowering Project Electric Energy Market Prices and Fuel Prices from In-Service date through first quarter 2009 And Forecast Prices through 2011

Figures 4.2 shows unit monthly average prices for electric energy along with associated unit fuel costs charged against the East River Repowering Project production cost for the period starting with the plant's in-service date of April 2005 in-service date through first quarter 2009.²⁴ Both fuel and electric prices have increased substantially between the time the Project was permitted and late 2008. The wholesale energy prices in the figure reflect extreme market volatility in both gas and electricity markets where the energy prices ranged from a low of \$52/MWh to a high of almost \$150/MWh. The average electric price through the period was \$85/MWh. Monthly fuel unit costs during this same time period ranged from a low of \$8/MMBtu to a high of \$15/MMBtu with the average price being \$10/MMBtu.²⁵ The standard deviation for wholesale electricity prices during this period was \$24/MWh or 28% around the mean and for gas it was \$2.31/MMBtu or 23% around the mean.

Figure 4.2 also shows forecasted electric energy and fuel prices from May 2009 through December 2011. There has been a drop-off in natural gas prices since early 2009. These low gas prices are anticipated to continue through 2010 due to a combination of industry-specific and general economic factors.²⁶ Figure 4.3 shows the extent of the reduction since June 2008. For example, forward prices as of June 2008 for summer 2009 were above \$11.00 and have dropped below \$4.00.

²⁴ The unit electric energy prices are monthly averages derived from hourly prices and hourly deliveries.

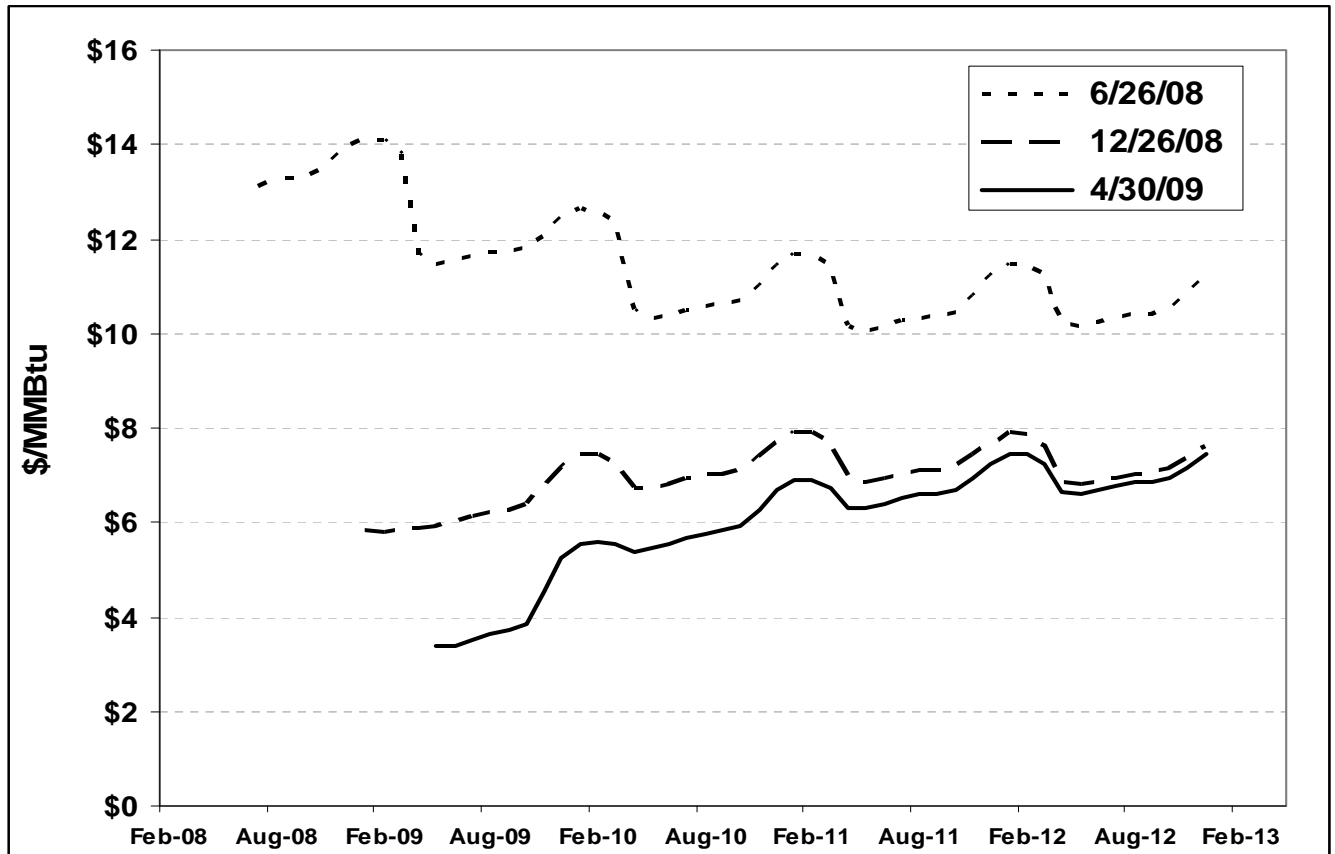
²⁵ The fuel prices are shown in terms of \$/MWh in Figure 42a and Figure 42b shows the conversion of unit gas prices to unit electric energy prices based on the East River Repowering Project heat rate.

²⁶ Northeast Gas Association, Regional Market Update, February 2009, pp. 11- 12.

Figure 4.2
East River Repowering Project Natural Gas Prices
 (\$/MMBtu and \$/MWh)

	2005		2006		2007		2008		2009		2010		2011	
	\$/MMBtu	\$/MWh	\$/MMBtu	\$/MWh	\$/MMBtu	\$/MWh	\$/MMBtu	\$/MWh	\$/MMBtu	\$/MWh	\$/MMBtu	\$/MWh	\$/MMBtu	\$/MWh
Jan			\$13.8	\$81.7	\$8.7	\$68.0	\$10.9	\$93.8	\$10.1	\$74.6	\$9.0	\$70.0	\$10.0	\$80.0
Feb			\$10.6	\$73.8	\$10.8	\$90.8	\$11.2	\$97.8	\$8.1	\$53.6	\$8.0	\$70.0	\$9.0	\$80.0
Mar			\$9.2	\$70.7	\$10.1	\$79.8	\$11.3	\$90.9	\$7.5	\$53.4	\$7.0	\$60.0	\$8.0	\$60.0
Apr			\$9.2	\$66.5	\$9.5	\$82.1	\$12.0	\$102.8	\$5.0	\$50.0	\$6.0	\$60.0	\$7.0	\$60.0
May	\$8.8	\$66.0	\$8.6	\$62.1	\$9.2	\$75.0	\$12.6	\$104.3	\$5.0	\$50.0	\$6.0	\$60.0	\$7.0	\$70.0
Jun	\$8.1	\$92.6	\$7.5	\$70.1	\$9.3	\$82.6	\$13.7	\$149.3	\$5.0	\$60.0	\$7.0	\$70.0	\$7.0	\$70.0
Jul	\$8.4	\$101.5	\$7.3	\$92.9	\$8.6	\$76.9	\$15.0	\$144.6	\$5.0	\$70.0	\$7.0	\$80.0	\$7.0	\$90.0
Aug	\$9.2	\$130.3	\$8.4	\$97.7	\$7.6	\$80.1	\$11.1	\$91.3	\$5.0	\$70.0	\$7.0	\$80.0	\$7.0	\$90.0
Sep	\$12.9	\$144.5	\$8.2	\$51.7	\$7.2	\$65.5	\$10.0	\$81.9	\$5.0	\$60.0	\$7.0	\$60.0	\$8.0	\$70.0
Oct	\$15.7	\$131.2	\$5.7	\$62.0	\$8.3	\$70.0	\$8.9	\$67.1	\$5.0	\$50.0	\$7.0	\$60.0	\$8.0	\$70.0
Nov	\$15.8	\$90.6	\$9.4	\$69.2	\$9.4	\$69.4	\$8.8	\$66.5	\$6.0	\$50.0	\$8.0	\$60.0	\$8.0	\$60.0
Dec	\$13.9	\$114.6	\$10.7	\$64.6	\$10.1	\$93.3	\$10.7	\$67.5	\$8.0	\$60.0	\$9.0	\$60.0	\$9.0	\$60.0
<i>Forecast</i>														

Figure 4.3
Changes to Natural Gas Forward Prices since June 2008
 (NYMEX – Henry Hub)



Electric energy prices, which track natural gas prices during on-peak periods in Zone J, are also dropping. Figure 4.2 includes a recent set of forward electric prices for zone J dropping to the \$50s and \$60s. The forecasts also indicate that the “spark spread” which is the difference between the fuel production cost and the energy price, will generate positive revenues for ERRP in some months and that there will be a significant reduction in East River Repowering Project’s fuel costs not recovered from electric energy revenues that is allocated to electric in 2009. For example, July and August NYC gas prices are forecasted to be \$5.00/MMBtu and zone J energy prices are forecasted to be \$70/MWh. This indicates a market heat rate during this time frame of 14.0, well above ERRP’s actual heat rate.

3. Actual Monthly East River Repowering Project Electric Revenues and Costs

Fuel Costs and Electric Energy Revenues

Appendix D, Table 1 shows monthly fuel costs and electric energy revenues from April 2005 through first quarter 2009. This table reflects the extreme price increases and its impact on fuel costs and electric revenues. Fuel costs charged to electric range from a low of slightly under \$60 Million per month to a high of nearly \$180 Million. As shown in Appendix D, Table 2, fuel consumption and resulting electric production volume have been steady at the ERRP plants. Therefore, this wide swing in fuel costs and in net fuel costs, after receipt of electric revenues, is due almost entirely to the fuel and electric price swings discussed above. The monthly margin ranged from positive (electric over fuel) \$2 Million to negative \$14 Million. Figure 4.1 also shows forecasted fuel and energy prices through 2011. The figure shows that the East River Repowering Project energy revenues may exceed fuel costs for much of the next 24 months. Based on 2008 fuel volumes and energy sales, the monthly margin will range

from positive \$2.5 Million to negative \$4.5 Million and the total annual net fuel cost for the period April 2009 through March 2010 is forecasted to be negative \$15 Million. This substantial reduction in forecasted net fuel costs is a result of the low gas price environment discussed previously.

4. Monthly East River Repowering Project Steam Costs

Actual fuel usage and actual fuel costs are shown in Appendix D, Table 1 and 2. Over half of the plant's steam production capability is met through duct-firing capability. When steam sendout exceeds approximately 750 Mlb per Unit, duct-firing is required and all fuel used for duct-firing is allocated to the steam department (See Section 2, Figure 2.5). Thus, the proportion of fuel charged to steam will vary depending on the level at which the plant is run.

B. Analysis of Capacity Market Prices Relative to Fixed Cost Recovery

1. Capacity Prices at the time the Project was Permitted.

The capacity market price was assumed to be starting at \$105/kW-yr in 2002 or an annual average of \$8.75/kW/month. As was discussed previously, the Article X application anticipated that there would be significant new supply coming into the market that would drive prices down to the "long-run cost of a new in-City CTG by 2010." This assumption can be seen in the significant decline in Capacity Costs shown in Article X - Table 2.7 between 2002 and 2010. After 2010, the analysis assumed that capacity prices would increase slightly year to year for the remainder of the 20 years. From this analysis it can be seen that the Capacity Market price was expected to range from \$77/kW-yr - \$105/kW-yr during the 20 year period evaluated. This is comparable to capacity price ranges experienced since the Project's operation in 2005. These actual prices are shown in Figure 4.4 below.

Figure 4.4
Annual Capacity Prices

Year	Annual Price (\$/kW)
2005	107.02
2006	105.88
2007	107.54
2008	65.86

2. East River Repowering Project Fixed Costs and Capacity Payments

East River Repowering Project fixed costs for electric and steam are shown in Appendix B, Table 2 and Table 3. Fixed costs consist of:

- Depreciation expense;
- Cost of debt and equity;
- Income taxes;
- Property taxes; and
- Maintenance expenses.

The table shows that the carrying charge component of the fixed costs, which consists of depreciation, cost of debt and equity, and income taxes, declines as the book value of the plant declines with depreciation. This is offset by increased fixed maintenance costs and potential increases in property taxes. The East River Repowering Project is depreciated over a 30 year period at 3.3% per year. Since the cost of debt and equity and income taxes are a percentage of the depreciating book value of the plant, the carrying charge declines over time.

Capacity revenues reflecting sales of unforced capacity of approximately 300 MW (summer) and 360 MW (winter) are shown in Appendix D, Table 1. They

range from a winter low of less than \$1 million per month to a summer period high of over \$3.7 million per month. As discussed previously, the monthly interdepartmental rents charged to the electric department represent payment for the share of total plant that has been designated for electric service

3. O&M directly charged to electric and steam

Appendix B, Table 4 shows 2008 O&M charged to electric and steam. As discussed previously in Section 3 B, allocation of charges between electric and steam for O&M are based on whether the associated equipment is classified as electric production or steam production equipment. In 2008, 57% of O&M was charged to electric and 43% charged to steam.

5. Steam Production Costs for Steam-only Stations and Alternative Steam/Electric Cost Allocation Methods

This part of the Study, which analyses the impact of alternative allocation methods, was requested as a result of input from the active parties in Case 09-S-0029. In this section, the Study reviews system wide steam production costs: (i) prior to ERRP's operation, (ii) during the operation of ERRP through the present; and (iii) forecasted production costs. In addition, this part of the Study reviews system production costs under alternative East River cost allocation methods.

A. Cost of producing steam at Con Edison's other steam stations when the East River Repowering Project was permitted

Annual steam production unit costs and total costs are shown for the years 2000 through 2004 in Table 5.1. The stations included are the same as those currently operating with the exception that Waterside was operating and not the East River Repowering Project. The table shows the average annual unit production cost, total sendout and total fuel cost for these years. It should be noted that these unit costs reflect fuel prices during this time frame. Details are shown in Appendix E, Table 1.

Table 5.1
Annual Steam Production Costs (2000 – 2004)

Year	2000	2002	2002	2003	2004
Sendout (MMlb)	26,757	25,593	25,117	26,823	26,147
Total Cost (\$MM)	\$207	\$212	\$165	\$259	\$254
\$/Mlb	\$7.73	\$8.28	\$6.57	\$9.65	\$9.70

B. Actual cost of producing steam at steam stations other than the East River Repowering Project in-service date through 2008.

Annual steam production unit costs and total costs are shown for the years 2005 through 2008. Supporting details are shown in Appendix E, Table 2. The stations included are those producing “live steam” which excludes steam cogenerated by the East River Repowering Project units 1 and 2 as well as the Brooklyn Navy Yard’s share or steam costs. It should be noted that these unit costs reflect fuel prices during this time frame.

**Table 5.2
 Annual Steam Production Costs (2005 – 2008)**

Year	2005	2006	2007	2008
Sendout (MMlb)	9,062	11,946	15,341	13,592
Total Cost (\$MM)	\$138	\$183	\$233	\$278
\$/Mlb	\$15.21	\$15.28	\$15.19	\$20.48

C. Forecasted cost of producing steam at new steam boiler plant proposed at Hudson Avenue.

Forecasted annual steam production unit costs and total costs are shown for the balance of 2009 through 2011. The costs are based on the fuel forecasts the Company provided in the ongoing steam proceeding multiplied by the expected steam heat rate for the proposed new package boilers. See Appendix D, Table 3 for supporting details.

Table 5.3
Annual Steam Production Costs (2009 – 2011)

Year	2009	2010	2011
Gas Price (\$/MMBtu)	\$5.64	\$7.49	\$8.00
Steam Cost (\$/Mlb)	\$8.36	\$11.10	\$11.86

D. Description of Other Methods for Cost Allocation and Comparison of the Resulting Allocation of Costs to Current Method

Comparison of Alternative Cost Allocation Methodologies

This part of the Study examines the following alternate cogeneration fuel cost allocation methodologies and compares them with the current method. The following approaches are reviewed:

- Current Method (Incremental Method which includes the use of cost causation)
- Above-market reallocation
- East River 6 method.
- “Proportional Method” (used from 1975 to 1978)
- “Steam as a by-product” (used before 1975 and after 1978)

Figure 5.4 shows how system wide steam and electric production costs vary based on application of these alternative methods. Appendix F provides a detailed explanation of each alternative method as well as the backup for this summary table. The 2008 steam systemwide fuel production cost was \$12.22/Mlb. If the portion of the East River Repowering Project fuel costs that are consumed in the gas turbine for electric production and not offset by electric revenues are allocated to steam, the table shows that the steam system fuel

production cost becomes \$14.86/Mlb, a 16% increase in fuel costs and approximately an 8% increase in all-in rates. The table shows that electric rates would decrease by 0.6% if the fuel costs that are higher than the market value of electric are allocated to steam.²⁷ This is called the “above market method.”

Figure 5.4

Comparison of Fuel Cost Allocation Methodologies Using Year 2008 Actual Data							
Method	Method Description	Steam System Fuel Cost	ER 1, 2 Net Electric Fuel Cost*	Cost Shift from Electric to Steam	Electric Price % Savings from Cost shift to Steam	Steam Price % Increase from Cost Shift to Steam - all-in	Steam Price % Increase from Cost Shift to Steam - Non-fuel
		\$/Mlb	\$1,000	\$1,000			
Current	Charge GT fuel to electric, HRSG fuel to steam.	\$12.22	\$62,499	NA	NA	N/A	N/A
Above Market	Current method modified: transfer GT fuel costs above electric revenue to steam.	\$14.86	\$0	\$62,499	0.62%	8.07%	15.6%
East River 6 Method	Steam charged for fuel @ 1185 Btu/Mlb of steam, balance to electric.	\$17.51	-\$62,664	\$125,163	1.25%	16.17%	31.3%
Used from 1975 to 1978, PSC Case 26794	Electric and steam share fuel savings arising from cogeneration process on equal percent savings basis.	\$16.17	-\$30,993	\$93,492	0.93%	12.08%	23.4%
Steam priced as byproduct (Pre-1975 method)	Electric is charged entire fuel cost estimated of a proxy generator with Heat Rate 12.09 Btu/kW, remaining fuel charged to steam.	\$11.16	\$87,718	-\$25,219	-0.25%	-3.26%	-6.3%
Steam priced as byproduct (Modified Pre-1975 method)	Electric is charged entire fuel cost estimated of a proxy generator with Heat Rate equal to that of ER 1&2, remaining fuel charged to steam.	\$12.22	\$62,527	-\$28	0.00%	0.00%	0.0%

* Electric fuel cost = cost of fuel charged to electric net of electric revenue.

²⁷ Electric revenue savings based on Con Edison total revenues at 4/1/08 (including supply)(\$62.5 M/\$9,832 M).

Other methods have been applied to Con Edison steam-electric plants prior to divestiture of electric generating plants in 1999. In those cases, the plants were constructed primarily to meet electric needs and steam was produced from waste heat. Steam was extracted from a steam turbine or bypassed a steam turbine. In either case, steam usage caused reduced electric generation. Overall plant efficiency improved however. Given these circumstances, and because most of the plant fixed costs, which was initially designed as an electric plant, was allocated to electric, various methods were devised to allocate fuel costs.

Appendix F includes a more detailed description of each of these alternate methods along with a calculation of the impact of those methods on the allocation of ERRP costs between electric and steam.

With the East River 6 method, when steam extraction results in reduction in electric production, the steam system is charged for the heat content of the steam at 1,185 Btu/Mlb. Thus, the electric system is compensated because its sale of steam has reduced electric production. The East River 6/60 method, if applied to ERRP fuel consumption, would have the most significant impact on steam rates, at 16% (on all-in rates) and 31% on fuel-only. This method is not appropriate for ERRP because steam production at ERRP does not result in a derating of electric capacity.

With the proportional method, savings from cogeneration at a given plant is shared based on the percentage fuel savings steam and electric enjoys from cogeneration, as compared to fuel usage from separate steam and electric production. The percentage difference between cogeneration and separate steam and electric is applied to this proxy generation. This method is described and illustrated in more detail in Appendix F. If this "1975-78 Method" were to be applied to the 2008 ERRP fuel costs, Figure 6.2 shows that the steam customers would incur 12% increase in all-in rates and a 23% increase in fuel costs, but electric customer would save only 1.04% of fuel costs.

Table 5.4 identifies two sets of calculations using the steam as a by-product approach. With this approach, fuel is allocated to electric based on the estimated fuel consumption of a proxy generator with the balance of the actual fuel consumption being charged to steam. In one set, the proxy generator uses a heat rate consistent with that used in the 1975 case. In the second set, ERRP's actual 2008 heat rate is used. In the latter case, the fuel costs allocation is approximately equal to that derived from the use of the Incremental Method.

Regardless of the method used, the impact from shifting costs from electric to steam will tend to have much greater impact on steam rates compared to electric rates because total electric revenues are more than ten times more than total steam revenues.²⁸

E. Discussion of 1975 and 1978 Experiences with Changes to Cost Allocation Methods²⁹

At the time of the 1975 rate proceeding, most summer steam demand was met from cogeneration units. Also, a substantial proportion of energy production from steam-electric boilers was delivered to steam.³⁰ In order to make up for proportionate changes to electric capacity relative to steam capacity, the Company requested transferring some plant carrying charges and fuel costs from electric to steam departments. The requested changes were intended to have no impact on the Company balance sheet.³¹ The 1975 Steam Rate Decision

²⁸ This fact is not intended to justify a particular allocation method based on its rate impact. It is relevant, however, because of the degree to which a rate increase in the smaller, more competitive steam business may lead to more business losses that in the longer run, would have an even greater impact on electric than the purported foregone savings from the current fuel allocation.

²⁹ Case 27276, *Consolidated Edison Company of New York, Inc. – Steam Rates*, Opinion and Order Determining Revenue Requirement, NYS PSC Opinion 78-27, (“1978 Steam Rate Order”) November 14, 1978.

³⁰ Currently, summer period steam demand has no material effect on electric production.

³¹ At this time and prior to the divestiture of Con Edison's non-steam producing power plants, steam and electric assets were owned by Con Edison and consolidated into a single set of Company financial

proceeding changed the fuel allocation to the proportionate method identified previously and described in detail in Appendix F.³² This called for steam and electric departments to share the cost savings arising from the cogeneration process on an equal percentage basis

Between 1975 and 1978, the steam business experienced an exodus of steam customers attributable to conversions from purchased steam to on-site generation. Higher steam rates resulting from adapting the proportionate method in the 1975 proceeding was a significant contributor to the conversion of steam customer to electric. Additionally, electric generation during this period from Con Edison steam/electric plants increased significantly to meet electric system requirements. This was particularly evident after the 1977 blackout. Thus, Con Edison's position in the 1978 steam rate proceeding (Case 27276) was that the expectations of 1975 were reversed and that steam should be treated as a byproduct. The PSC considered the Company's position and concluded:

The record is clear enough. There has been an exodus from the steam system attributable to conversions and it is also undisputed that lower rates would aid in stemming the tide of conversions. If the ultimate result of ever-increasing rates is the departure of all steam customers from the system, it will be disadvantageous to Con Edison's electric and gas customers. The ultimate benefit of retention of steam customers, flows, therefore, to all of Con Edison's customers and not merely to steam customers.³³

The Opinion described the following additional reasons for reallocation:

- Electric dispatch data indicated circumstances changed from 1975;

statements. The situation is quite different today, where most of the electric system is owned by independent power producers.

³² Case 26794, *Consolidated Edison Company of New York, Inc. – Steam Rates*, Opinion and Order Determining Increased Revenue Requirement (November 25, 1975).

³³ 1978 Steam Rate Order, p. 7

- The steam system would retain responsibility for some of the cost of the joint facilities even after the re-allocation;
- Reallocation will provide incentive for steam customers to remain on the system rather than encouraging them to begin conversions at substantial cost;
- Conversions once made will never allow customers to return as steam customers; and
- Fuel required to produce electricity and exhaust steam is less than the total fuel required to produce equivalent steam and electricity in separate facilities; this benefit can not be realized in the absence of a steam business.³⁴

As a result of these considerations, the Commission returned to treating steam as a by-product of electric generation with savings from cogeneration flowing to it, as compared to the proportional savings method that had been in place for three years back to 1975.

³⁴ 1978 Steam Rate Order, pp. 7-8.

6. East River Repowering Project Benefits³⁵

The Commission has long recognized that ERRP provides substantial benefits to both electric and steam customers. For example, in its 2004 Steam Rate Order, the Commission stated that the “electric system will receive substantial benefits from this in-City electric plant because it will serve load pockets on Manhattan’s east side and elsewhere in the borough.”³⁶ In the 2008 Steam Rate Order, the Commission stated that:

Previous decisions regarding ERRP clearly establish that the value of the plant and the allocation of its associated costs are based on a consideration of numerous factors, including the desire to “stem an unacceptable exodus of steam customers to electric and gas service” and “retain steam customers and maintain a viable steam system”; enhancing reliability in Manhattan; securing the economic and environmental benefits associated with the displacement and sale of the First Avenue Properties; and avoiding costs for electric transmission and distribution system reinforcements that would have otherwise been needed.³⁷

This section of the Study describes the various benefits that ERRP provides.

A. Reliability benefits to the Electric System

1. Electric Reliability Needs when The East River Repowering Project was being Planned and Permitted:

During the time frame that the East River Repowering Project was planned and permitted, there was an urgent statewide and New York City need for additional

³⁵ Quantifiable to the extent practicable.

³⁶ 2004 Steam Rate Order, p.27. See also, 1978 Steam Rate Order, pp. 7-8.

³⁷ 2008 Steam Rate Order, p.39 (footnotes omitted).

generating capacity. The 2001 NYISO Power Alert included the following recommendations:

- New York State should approve a substantial amount of new generation, in the range of 4,000 – 5,000 MW during 2001;
- New York State should also approve approximately 1,000 MW of generating capacity statewide each year for the next three to four years, with more than 50 percent of it located in New York City and Long Island;
- New York City, because it is both a major consumer of electrical power and also a “load pocket” (with limited ability to import power from outside the city over existing transmission lines) must have 2,000-3,000 MW of this additional capacity approved within its own area;³⁸

Within one year of this 2001 report, The New York State Siting Board approved six new plants and repowerings totaling new net supply of 3,680 MW projected to be online by 2005. In addition, the New York Power Authority installed 440 MW of combustion turbines in New York City in 2001 on an emergency basis. The consensus among interested parties, regulators and generation suppliers was the extreme shortage of electrical generation in the New York City geographic area could lead to a California type issue of rolling blackouts and high prices which would hinder economic growth.

The East River Repowering Project contributed to resolving this reliability need. The project was approved by the Siting Board in May 2001 and was clearly a part of the solution to these reliability needs. The NYISO Power Alert II issued in March 2002 summarized the actions taken to meet reliability in the preceding year.³⁹

³⁸ NYISO Power Alert, March 2001, p. 4.

³⁹ NYISO Power Alert, March 2002, pp. 16-17.

Approved Projects

<u>Name</u>	<u>Company</u>	<u>MW</u>	<u>Expected In Service</u>
East River	Con Edison	360 Gross 160 Net	2Q 2003
Ravenswood	KeySpan	250	2003
Astoria Energy	SCS Energy	1000	3Q 2004

Application Pending Certification

<u>Name</u>	<u>Company</u>	<u>MW</u>	<u>Possible Certification Date</u>
Poletti	NYPA	500	2Q 2002

Emergency Actions

NYPA Combustion Turbines – 440 MW (6 sites)
 Con Edison Hudson Avenue 10/100 Repowering from Retirement (66 MW)

2. Additional Studies

The New York City Energy Policy Task Force issued the New York City Energy Policy: An Electricity Resource Roadmap in January 2004, which agreed with the Con Edison approach to determining the need and placement for the East River Repowering Project. The need and placement for the East River Repowering Project as also supported by the report, Power Conundrums: Electrical Resources in the NYC Load Pocket by Michael F. Bobker of Association for Energy Affordability in 2004. These studies both concluded the need for in-City generation was valid to meet the 80% requirement in the near and intermediate term.

3. System Planning Perspective

The East River Repowering Project continues to provide important electric reliability benefits both locally and to the bulk transmission system.

The August 2003 East Coast Blackout reinforced the widely recognized fact that the regional electric system is integrated. Many technical studies that followed

this incident documented the extent of this interconnectedness. A report from the United States General Accounting Office; 2003 Blackout Identifies Crisis and Opportunity for the Electricity Sector highlighted the following:

- Electricity must be produced and consumed at almost the same time;
- A change in one area of the grid can affect other areas almost instantaneously;
- Infrastructure (such as power plants and transmission grid) has limited capacity;
- Local and regional supply and demand must be balanced to avoid blackouts; and
- Overall demand increases about 2-3% per year, but can vary widely by region.

Thus, generators and transmission lines within one neighborhood, county or region are needed to maintain supply and load balance throughout the grid. Con Edison's planning disciplines apply layers of design criteria in determining the impact that one or a collection of system elements has on reliability. The two most well known criteria which apply to generation in New York City are the 80% In-City generation rule and second contingency design. The East River Repowering Project was designed to enhance local electric reliability in general as well as to support adherence to these specific design criteria.

The documentation in the East River Repowering Project's Article X application emphasized the East River Repowering Project's contribution to electric reliability by pointing out that the East River Repowering Project are the only generating units located in southern Manhattan and are interconnected to some of the most critical electric loads in the state. Specifically, Section 2.6 of the Article X Application states that the:

...project will provide increased electric generating capacity in the lower Manhattan and overall in-City load pockets. As

described in Appendix I of the Application, the lower Manhattan load pocket would become deficient by 2005 absent the Project. The East River Generating Station is the only source of generation located within the lower Manhattan load pocket. All other generation must be "imported" from other areas of the City. The Project also provides a net increase in in-City generation of 125 MW (Project summer DMNC rating 288 MW less Waterside Station's rating of 163 MW). Absent the Project there is risk of deficiency in the in-City load pocket in 2002. Thus, the Project will help to insure reliability...

Any report related to electric reliability in New York City calls for discussion of load areas and networks.⁴⁰ The Company supplies electrical power to Manhattan through a grid of networks and load areas to ensure reliability. A network is one of several methods that Con Edison uses to provide power to customers. Other methods (used primarily for industrial and large commercial users) include High Tension (Direct supply from primary feeders at 13kV or 27 kV, depending on area), 460 Volt (supplied directly from primary feeders by dedicated transformers), 4kV networks, and autoloops. Networks represent the most typical infrastructure that is used to get power from the area stations (transmission and/or generation) to the customer.

The East River Repowering Project Article X application defined a load pocket as "a geographic area that, because of transmission limitations, must have internal generation resources available to ensure reliable service for the area's load under normal and contingency (equipment failure) conditions."⁴¹ Although there may be a variety of definitions for a "load pocket" and while Con Edison studies the transmission system from a holistic system-wide perspective, the company utilizes the concept of transmission load pockets to illustrate the balance of generation, ties, and load within smaller areas.

⁴⁰ Load pockets are also referred to as load areas.

⁴¹ ERRP Article X Application, Glossary of Appendix A, p. 16.

The East River Repowering Project is located within the Manhattan electrical network which contains the East 13th Street load pocket.

The East 13th Street load pocket is the combination of the East 13th Street 138 kV and East River 69 kV stations. This includes generators East River 6, 7, 1, and 2, the loads at Leonard Street, Cherry Street, West 19th Street, Avenue A, East 29th Street and East 36th Street, as well as the ties from East 13th Street 138 kV to East 13th Street 345 kV and the tie from East River 69 kV to East 13th Street 345 kV. This load pocket encompasses all of lower Manhattan except for two areas: the areas west of Broadway and south of Thomas Street and the South Street Seaport area and its immediate vicinity. The East 13th Street area load is projected to be 1,554 MW in 2009.

Because it provides power into areas within Manhattan, the East 13th Street load pocket is considered a Second Contingency Design load areas. For reliability purposes, this load area must be able to withstand the loss of any two supply elements (i.e., a transmission tie into the load area or generation within the load area) and be able to maintain all remaining ties at or below normal ratings.

A load pocket projection was done for the East 13th Street load area as shown in Table 6.1. This shows that the load pocket contains adequate reserve of 281 MW initially, dropping to 116 MW for 2010 and to 109 MW for 2011. These are the overall changes to the reserves in the load area. The pre-contingency transmission loading is in the range of 90%, which is acceptable but nearing the upper limit. The load pocket was then re-evaluated with the East River Unit 1 and Unit 2 contribution to the network being removed. Without the support of ERRP, the reserve in the East 13th load pocket is -14 MW for 2009. Therefore, without East River Units 1 and 2, the East 13th Street load area would not meet its second contingency design criteria. The projected deficit grows to -179 MW for 2010 and -86 MW for 2011 due in part to retiring the Poletti Station. Thus,

ERRP is an essential element in satisfying electric reliability criteria for the East 13th Street load project. Reliability of the East 13th Street load area would be immediately compromised if the East River Repowering Project were not part of the present network.

Figure 6.1

ERRP Load Pocket Review

Based on the Load Forecast of September 25, 2008 with 658 MW of DSM - DSM 1,2,3,4 & 5
 Summer Independent MW Area Peak Loads from Load Relief Program

	<u>2009</u>	<u>2010</u>	<u>2011</u>
East 13th Street Area Load			
Total Load (1,2)	1,554	1,500	1,507
East 13th Street Area Supply			
East River GT 1 (ERRP)	147	147	147
East River GT 2 (ERRP)	148	148	148
Other Generation	<u>314</u>	<u>314</u>	<u>314</u>
Generation Sub-Total:	609	609	609
Transmission Sub-Total:	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>
Total Supply	2,631	2,631	2,631
<u>Design Contingency</u>			
Contingency Loss (3,4)	(796)	(1,015)	(1,015)
Area Capability	1,835	1,616	1,616
Reserve (Deficit)	281	116	109
Transmission Equipment Loading	77%	88%	89%
Reserve (Deficit) less ERRP	(14)	(179)	(186)

Notes:

- (1) Normal Rating based on R. Boggia's ratings of October 10,2001
- (2) MW ratings based on load flow studies
- (3) Loss of Tr 15 plus Tr 10 & 11
- (4) With the retirement of Poletti, the design contingency becomes the loss of 4 transformers TR 10,11,16 & 17

B. Price Benefits to the Electric System

Although difficult to quantify, there can be no question that the new efficient additional generating capacity provided by ERRP as compared to Waterside has resulted in lower LBMPs which provide a benefit to the retail customers of Con Edison and other LSEs throughout New York State and especially in New York City and Westchester County. Although it is difficult to precisely predict the level

of savings that accrue to New York City and Westchester County consumers by virtue of the existence of ERRP, this study provides some estimates based on certain supportable assumptions (a detailed list of those assumptions is provided in Appendix G). But clearly, the difficulty in estimating precisely how much higher the market prices would have been absent ERRP is not a reason to ignore the fact that customers receive a substantial benefit from ERRP in the form of reduced LBMPs. Thus, the value of ERRP to electric customers in both New York City and Westchester is not only the current market prices, but also the amount by which market prices decreased as a result of ERRP.

1. Impact on wholesale electric energy prices, capacity prices and ancillary services prices on system wide costs.

a. Electric Energy Price Impact:

Consistent with commitments Con Edison made as part of its Application for Certification of a Major Electric Generation Facility under Article X of the New York State Public Service Law (Case no. 99-F-1314) to construct East River Repowering Project, the Company bids its electric output into the electric market at its “to-go” cost.⁴² Specifically, the Order approving the East River Repowering Project Article X application states “Since the Project’s operation is dictated by steam system demand, the examiners found that the applicable “to-go” cost for electric generation is likely to be zero at most times.”⁴³

For this study, Con Edison performed an analysis of ERRP’s impact on wholesale energy prices using the year 2010 as an example. This analysis was based on the Generic Price Forecast of oil and gas prices that were provided by Con Edison to the parties in Case 09-S-0029. The analysis shows an estimated

⁴²East River Repowering Project Article X Application, May 2000, Volume2, pp. 2-10.

⁴³ Opinion and Order Granting Certificate of Environmental Compatibility and Public Need, Issued and Effective August 30, 2001, in Case 99-F-1314, pp. 8-9.

customer savings for 2010 of approximately \$109 Million in Zone J (NYC), approximately \$15 Million in Zone H and Zone I (Con Edison's Westchester service territory) and approximately \$206 Million statewide.⁴⁴ These estimated savings occur because East River Repowering Project's energy production results in reduced congestion and losses. Moreover, as this analysis indicates, the output from ERRP displaces a higher cost unit thus allowing ERRP's production to provide a benefit to electric consumers in the form of lower LBMPs. The assumptions and results of this study are shown in Appendix G, Tables 1 and 2. As indicated in Section 4.B.1, net fuel cost from East River Repowering Project's electric production was \$62.1 Million in 2008. This amount may be significantly less in 2009 due to current low gas prices. In any event, this analysis indicates that this level of net fuel costs and its associated impact on electric rates is more than offset by cost reductions to New York City and Westchester customers from ERRP electric deliveries and dispatch.

b. Capacity Price Impacts

Since the capacity from the East River units are considered to be self-supplied units, it is offered into the NYISO capacity auctions at a zero price, as is the case with self supplied capacity from other LSEs. The estimated price that all load serving entities pay for capacity procured in the auctions is effectively reduced by this self-supply. The price difference for the 300 MW of summer period self-supply is approximately \$0.90/kW/month per 100 MW or \$2.70/kW/month for this volume and approximately half of this amount for the six month winter period, based on the current capacity procurement method which utilizes a demand curve⁴⁵. Although the total cost differential is subject to large estimating variation because it is difficult to quantify the amount of capacity the Company or other load serving entities buy under fixed price ("hedged") arrangements, even if only

⁴⁴ Load costs are the costs paid by LSEs to purchase energy for their customers.

⁴⁵ Final NYISO ICAP Demand Curve Recommendations – Capability Years 2008 – 2011 in WWW.NYISO.com (Products, ICAP).

50% of the Company's in-city procurement component (about 4,000 MW) were bought on the spot market, our estimates indicate that this price difference lowers in-city capacity costs by approximately \$100 Million over an annual period.⁴⁶

c. Ancillary Services – Voltage Support:

A major portion of customer load is made up of transformers and motors. These devices generate magnetic fields in order to perform their function, creating "reactive" load which alters the relationship between the driving voltage and the resulting current that is seen by the utility's supply grid. If ignored, the growth in the reactive load could reach the point where electric system voltages would decline and customer loads could not be adequately supported. However, the impact of reactive load can be compensated by the utility through the utilization of capacitor banks, and through the manipulation of voltage at generation sources and transformers tap changers. The NYISO recognizes the value of this service and compensates generators accordingly. The East River Repowering Project provides this Voltage Support Service ("VSS") to the NYISO in accordance with Con Edison and NYISO guidelines.⁴⁷ This service enhances the voltage performance of the system supplying the East 13th Street 138 kV and East River 69 kV load areas and the bulk power transmission system by providing approximately 200 MVAR of reactive power support.

Generally, reactive compensation for load dissipates quickly over distance, and must be located within close proximity to that load. Furthermore, the effectiveness of reactive compensation varies according to the source, with generation being a robust source of reactive compensation, while capacitors or transformers tap changers are more limited in their capabilities to provide

⁴⁶ The Company acknowledges that recently enacted buyer-side mitigation will require new self-supplied capacity to offer its capacity into the auctions at 75% of the Cost of New Entry under most circumstances. However, existing facilities including the East River Repowering Unit are grandfathered.

⁴⁷ East River Repowering Project Article X Application, Appendix I, Electric Interconnect Technical Studies, Section II.

reactive compensation. The East River Repowering Project provides an excellent source of reactive power compensation, as it satisfies both criteria. The generation is a robust source of reactive compensation, and is located close to the load for the strongest impact. The East River units are compensated at approximately \$1.4 Million per year by the NYISO for providing this service.

d. Avoided generation and transmission costs

The Commission in the 2009 Steam Rate Order stated that "...we note the record evidence that ERRP's 2007 electric fixed costs of \$93 Million are fair and reasonable with respect to estimated avoided costs totaling \$90 Million.⁴⁸ The electric fixed costs were \$85 Million in 2008 and are anticipated to decline moderately in the future due to plant depreciation. The Company's avoided costs were based on generation and transmission costs at the time ERRP was put into service in 2005. Therefore, there is no reason to revise this part of the Company's analysis or the Commission's findings.

C. Analysis of Environmental Benefits

As shown below, ERRP has provided significant environmental benefits to the New York metropolitan area. Their benefits were recognized by the Commission in its recent rate orders.⁴⁹

1. Emissions and Air Quality Improvements

The New York metropolitan area has experienced substantial improvements in ambient air quality since the passage of the 1963 Federal Clean Air Act. This is due to several pollution control initiatives including modernization of generating plants with newer technologies, retirement of older plants and switching to fuels

⁴⁸ 2008 Steam Rate Order, p.40.

⁴⁹ 2008 Steam Rate Order, p. 39; 2004 Steam Rate Order, p. 27.

that emit fewer pollutants. However, the region has not achieved full compliance with certain National Air Quality Standards (“NAQS”). As a result, new large generating plants are required to comply with Nonattainment New Source Review (“NNSR”) regulations and Prevention of Significant Deterioration (“PSD”) regulations for other criteria pollutants. These regulations applied to construction of the East River Repowering Project. The project was a major step forward in achieving quality improvements sought by the public.

The PSD/NNSR regulations call for a two-fold process: 1) application of technological improvements to new emission sources combined with 2) phasing out operation of older, more polluting sources. The East River Repowering Project accomplished both objectives by retiring one of the older emission sources (Waterside) while replacing its capacity with the most fuel efficient plant in the area.

The East River Repowering Project has contributed to the improved air quality in the New York metropolitan area in several ways. To begin with ERRP phased out the following emissions sources:

- Retirement and demolition of Waterside removed an older emission source. Subsequent redevelopment of its real estate for non-industrial commercial and residential purposes improves the aesthetics in the city. The Waterside Generating Station occupied five city blocks along the East River, just south of the United Nations Building and among some of the most valuable and sought after commercial and residential real estate in the country;
- Five of the ten package boilers in East River South Steam Station (“ERSSS”) were taken out of service, thus reducing ERSSS emissions by 50%;

- As part of the project that retired Waterside and constructed the East River Repowering Project, a portion of the real estate sales was used to fund the following NOx reduction projects implemented at other plants, resulting in a significant reduction in NOx emissions:
 - East River Unit 6/ 60: Over fire air system;
 - East River Unit 7/70: Induced flue gas recirculation and over fire air systems;
 - East River South Steam Station: Gas burning capability;
 - 59th Street Station: Induced flue gas recirculation system for Boiler 118, and individual opacity meters for all boilers;
 - 60th Street Station: CO monitoring system for all boilers; and
 - 74th Street Station: Individual O2 meters and Beck drives for FD fan dampers for all package boilers, and individual opacity meters for all HP and package boilers.

In addition, the East River Repowering Project provided an indirect benefit by enabling the Company to implement the following other projects that improved the air quality:

- Prior to the construction of East River Units 1/10 and 2/20, East River Unit 5/50 was retired (with its water cooled condenser) benefiting air and river environments.

The East River Repowering Project emits significantly lower air pollutants compared to other existing steam and electric plants because this new plant was designed with modern combustion technologies that minimize the formation of air pollutants. East River Units 1/10 and 2/20 are operating with clean burning fuels, firm supply of natural gas and low sulfur distillate as emergency backup. The cogeneration process provides overall thermal efficiency requiring less fuel burn

for a given combined production of steam and electricity. Additionally, East River Units 1/10 and 2/20 are equipped with the following emission control equipment to remove pollutants from the exhaust gases:

- Selective Catalytic Reduction (“SCR”) reduces NO_x generated in the combustion process;
- Oxidation Catalyst reduces CO and VOC; and
- Low sulfur content of the fuels reduces sulfur dioxide (“SO₂”) that causes acid rain, and also reduces particulate matter.

2. Environmental benefits of the East River Repowering Project compared to Waterside

Following is a summary of an analysis that was submitted with the Article X permit application (2000), providing an estimate of statewide and citywide environmental benefits of the project. Two cases (before and after the project) were compared.

Case 1: Waterside was in service; East River Units 1/10 and 2/20 did not exist.

Case 2: Retired Waterside; East River Unit 1/10 and Unit 2/20 cogeneration were in service.

The Market Assessment and Portfolio Strategies (“MAPS”) program was used for determining the displaced electric production using a database of NYS electric generators recommended by NYSDPS staff. Purchases from neighboring power pools were also modeled. A computer simulation program (PROMOD) was utilized to determine the displaced steam production. These two programs are designed to approximate differences in area energy prices and production costs under varying supply and demand assumptions. In addition to prices, the programs calculate fuel costs, fuel usage and emissions.

The results of these analyses are summarized in Figure 6.2 and Figure 6.3. Figure 6.2 shows fuel usage reductions and emission reductions from running the East River Repowering Project compared with the system when Waterside was running before the East River Repowering Project. Total fuel saving was estimated at 7 Million MMBtu. To put this in perspective, this is the equivalent to eliminating the fuel consumption of a 500 MW load following conventional steam-electric generating station operating at 15-20 % annual capacity factor. This is a major fuel reduction increment.

Figure 6.2
Statewide Generation and Fuel Displacement Study - 2002

Source	Electric MWh	Steam MMib	Fuel* Billions Btu	Fuel Cost* \$Million 2002\$
Case 1				
Waterside	593	10,700	18,800	63
In-City steam plants	-	3,100	4,400	16
In-City electric plants	280	-	2,888	8
Hudson Valley Plants	849	-	7,060	19
Other NYS plants	524	-	3,717	13
Total displaced *	2,246	13,800	36,865	119
Case 2				
ER1&2	2,360	13,800	29,815	100
Savings *			7,050	19

- Note: Does not include displaced energy from out of NY State.

The majority of the displaced generation from more polluting sources is expected to be from the New York City and the Hudson Valley region, and also from upstate sources. Figure 6.3 shows that the emission reduction benefits are not limited to New York City but that the entire state benefits from the East River Repowering Project. Statewide benefits include a reduction of 1,800 tons of SO₂, 2,500 tons of NO_x and half Million tons of CO₂, excluding the emissions due to the displaced generation from out of state sources. These air quality benefits would mitigate the environmental impacts from acid rain due to SO₂, respiratory health problems due to ozone formation from NO_x, and global warming due to CO₂ emissions.

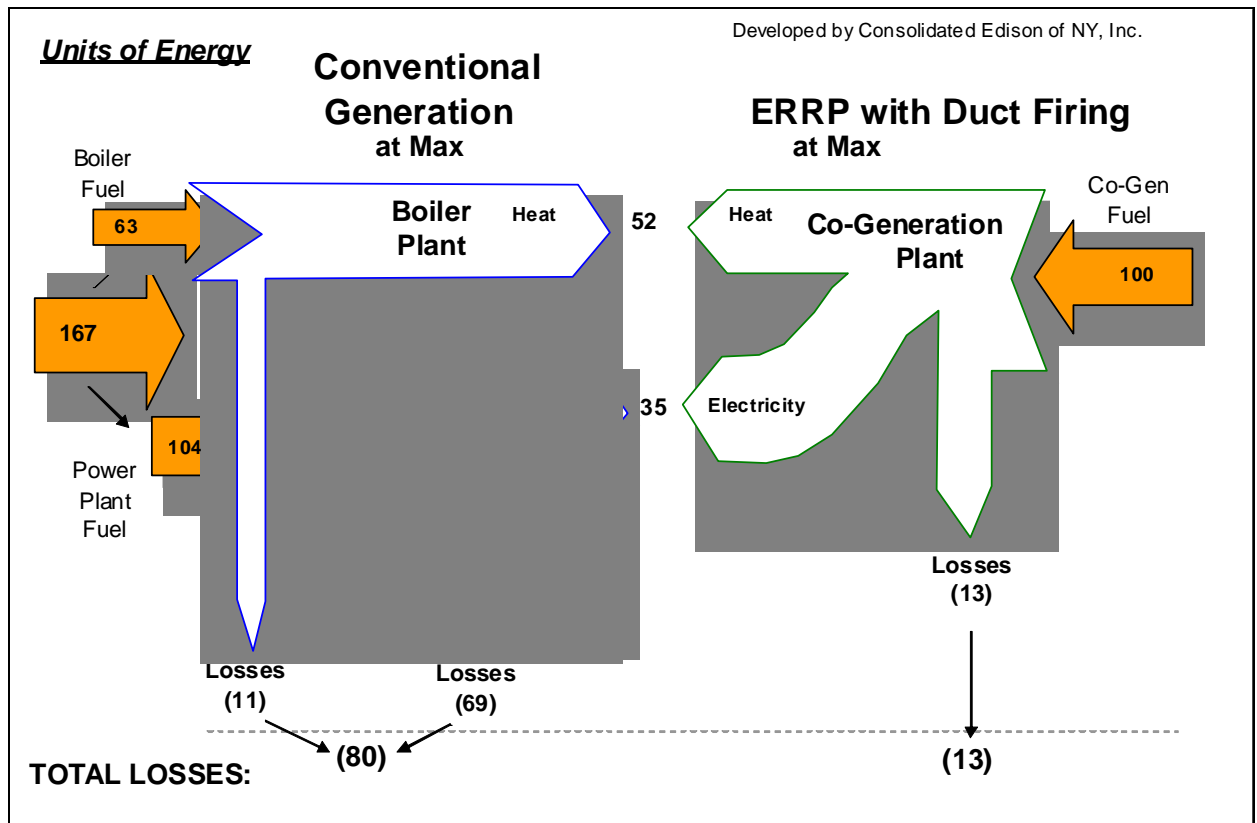
Figure 6.3
Statewide and Citywide Emissions Reduction Study (tons/Year)*

New York State:	Case 1 with Waterside	Case 2 with East River Units 1/10 & 2/20	Benefits
SO ₂	271,300	269,500	1,800
NO _x	79,200	76,700	2,500
CO ₂	60,000,000	59,500,000	500,000
New York City:			
SO ₂	1,000	200	800
NO _x	7,900	5,900	2,000
CO ₂	6,950,000	7,050,000	(100,000)

* Reference: Case No. 99-F-1314, East River Repowering Project Article X Application Supplemental Information, S2, Amended MAPS Study (Analysis of Statewide Benefits), July 2000

3. Environmental benefits of the East River Repowering Project compared to steam-only and electric- only plants

Unlike many electric plants, there is no condenser in the East River Units 1/10 and 2/20 plants. Electric plants that do not have steam hosts emit waste heat up stacks or absorb waste heat in condensers. With the East River Repowering Project, most waste heat is used to produce steam. This design realizes the synergistic benefits of cogeneration at all load levels with less fuel burn and reduced air pollutant emissions. This results in a higher overall plant thermal efficiency (up to 87%) considering net steam and electric energy outputs. This compares to up to about 33% efficiency in a conventional boiler - steam turbine generator unit and up to 47% in a combined cycle plant with air cooled condensers and no cogeneration. The efficiency benefits are illustrated below.



Air emissions from cogeneration and non-cogeneration are compared in this analysis. In Case 1, actual data for East River Units 1/10 and 2/20 are used (annual 2007 emissions and fuel burn data). In Case 2, emissions are estimated for the same amount of steam being generated by a typical package boiler, and the same amount of electric power being generated by a combination of conventional steam turbine-generators and new combined cycle non-cogeneration plants (47% each). In this analysis, it is assumed all displaced steam and electric generation occurs in the metropolitan area, so no coal plants are included in Case 2. Heat rates and fuel mixes assumed in the analysis are shown in Figure 6.4.

Results in Figure 6.4, show that the East River Units 1/10 and 2/20 cogeneration process results in significant avoidance of air pollutant emissions in the city compared to generating steam from package boilers and electricity from existing power plants in the city. In terms of avoided allowance cost, the benefits are \$3 Million for carbon dioxide, \$0.14 Million for sulfur and \$4 Million for nitrogen oxides.

Figure 6.4
Environmental Benefit Estimate
Comparison - East River Units 1/10 & 2/20 Cogeneration vs. Non-Cogeneration*

	Generation		Emissions (tons per year)				Fuel Mix	
	Steam MMBtu	Electric GWh	CO2	SO2	NOx	PM10	Gas	Fuel Oil
East River 1 & 2 (Year 2007)	10,012	2,221	1,477,255	8	87	71	100%	0%

Proxy Boiler								
Typical package boiler	10,012		1,135,224	1,417	2,236	209	40%	60%

Proxy Electric Generator								
50% from typical steam turbine generator		1,110	776,124	699	1,610	118	60%	40%
50% from new combined cycle plant		1,110	519,953	0	31	0	100%	0%
Total Proxy for ER 1 & 2	10,012	2,221	2,431,301	2,116	3,877	326		
Allowance Cost Avoided per year (\$1000)			\$3,435	\$138	\$4,074			

Allowance cost (2009 vintage) per ton from April 2009 market prices \$3.60 \$65.50 \$1,075.00

Heat Rate Assumptions:

East River Units 1/10 and 2/20: Actual fuel data for 2007, burning 100% gas;

Proxy Boiler: 1.5 MMBtu / Mlb burning 60% residual oil and 40% gas

STG: 10 MMBtu / MWh, burning 40% residual oil and 60% gas and

Case 2 CC: 8 MMBtu / MWh, fuel and emission factors same as East River Units 1/10 and 2/20

Emission Factors: Based on annual emission statements or EPA's AP-42 emission factors.

4. Environmental Benefits to Water Resources

Conventional electric plants use water cooled condensers that cause thermal pollution in the rivers and pose certain risk of killing fish in the service water intakes. More recent combined cycle plants are equipped with cooling towers or air cooled condensers that contribute thermal pollution in the ambient air and noise pollution to the neighborhood. By not having a condenser East River Units 1/10 and 2/20 plant design has completely eliminated these risks to air and water environments.

5. East River Repowering Project's Reliability Benefits to Steam System

The Con Edison steam system contains four geographic areas of Manhattan; Downtown (below 14th Street), Midtown (14th Street to 59th Street), Upper West Side and Upper East Side. The Hudson Avenue Station and the Brooklyn Navy Yard supply steam to the Downtown area; 74th Street Station, 60th Street Station, 59th Street Station and Ravenswood supply the Upper East and West Sides plus Midtown; and the East River Station is capable of supplying all four regions.

The ability to supply steam to all areas of the steam system makes the East River Station unique to the reliability of the system. East River Units 1/10 and 2/20 are interconnected throughout the service territory via two ring headers and five supply lines. The unit is the most important provider of operating reserve which "backfills" supply in the event a steam supply unit experiences a forced outage. Therefore, in addition to providing needed capacity throughout the system, the configuration and location of these units improves operating flexibility. In particular, by utilizing these units for operating reserve, the system dispatchers can avoid running more expensive units.

Since there is no industry-wide reliability standard to follow for steam distribution systems and since this is the largest steam system in the United States, Con Edison developed its own standard. This standard is ST01-01-20 and it requires that the Company maintain a certain amount of installed and operating reserve. The East River Project provides both types of reserves.

In sum, ERRP provides unique and substantial benefits to both the electric and steam systems, a fact clearly recognized by the Commission.⁵⁰ Notably, in the

⁵⁰ 2008 Steam Rate Order, p.39; 2006 Steam Rate Order, p.24; 2004 Steam Rate Order, pp. 27-28.

2006 Steam Rate Order, the Commission specifically stated that “ERRP also has provided valuable reliability benefits to customers in Westchester.”⁵¹

⁵¹ 2006 Steam Rate Order, p.24.

7. Importance of Steam Service to New York City

A. Impact on Steam Customers

Steam service provides numerous advantages for commercial and residential heating customers. The Company has highlighted these advantages in many forums and it emphasizes them in its customer attraction and retention programs.⁵² Steam customers avoid attendant problems of on-site boilers, such as hazardous material storage, emission distributions at lower elevations, the need for high-pressure boiler operators and increased traffic congestion where fuel oil deliveries are required. Steam service for air conditioning is provided in lieu of electric air conditioning, which, if unavailable, would increase electric generation and distribution resource needs. Steam air conditioning avoids approximately 350 MW of peak summer electric load and related electric distribution and transmission infrastructure. The need for additional gas distribution and transmission infrastructure is also avoided.

Nonetheless, the Company recognizes that steam rates are the primary decision criteria for choosing between steam purchases from Con Edison or on-site boilers for many customers. As discussed in Con Edison's 2007 Steam Resource Plan, a modest growth of less than 1% per year in peak demand is forecasted over a 20 year planning horizon. In the winter of 2008-09, the Company has observed conservation behavior that has reduced temperature adjusted steam sales volume. This behavior is most likely a reaction to both increased awareness of conservation techniques, in part through the Company's educational and outreach programs, but also the very high fuel prices experienced in the third quarter of 2008. In addition, the economic downturn has reduced new building development in the near term. Overall, the Company's

⁵² April 27, 2009 Technical Conference Presentation Materials in Case 09-S-0029, "Value of the Steam System"; The Company's 2008 Steam Strategic Plan.

steam customer base is not expected to grow substantially over the long term but the value of the service to the existing customer base as well as new commercial buildings/customers built near the steam distribution system remains strong under current conditions. Steam remains an essential part of New York City's energy supply portfolio.

The Company closely monitors lost business and takes action as appropriate to retain existing customers and attract new customers. The Company notes that approximately 80% of steam volumes are consumed by 25% of the customers. This 25% tends to include most of the customers that have realistic options for switching to on-site steam production – the “at-risk customers.” These large customers have the wherewithal to invest in capital improvements with longer paybacks. They also tend to more closely monitor their steam monthly bills. Large increases in steam rates will be noticed by these customers. Single large increases and/or several consecutive increases may therefore be a major threat to the long term viability of the steam business.

Service Classification 2 customers – Large Commercial Buildings – are the largest share of steam sales and have the most large customers. The average annual sales level for this grouping is roughly 50,000 Mlb per year. Given the approximate current annual sales level of 25,000 Mlb per year, a loss of 5 major customers reduce sales by 1%, causing a commensurate increase in steam base rates, all other things equal. There is significant risk that customer switching would accelerate from rate increases that are more frequent and of greater magnitude than has been recently exhibited. Although customer switching behavior trends have not caused net losses in sales since the 1975 to 1978 period, that experience is still illuminating. As noted above, the alternate fuel allocation methods all cause increases in cost allocations toward steam, ranging from 3% to 18% when measured against all-in rates. To the extent these increases exacerbate other non-discretionary increases associated with maintaining a safe and reliable steam service, the risk of a lost business chain

reaction are greater than the very small benefit which electric customers would yield in the form of slightly lower rates.

B. Impact on Electric Customers

The benefits to electric customers from steam service have also been documented in several forums.⁵³ This report has explained electric reliability and environmental benefits that accrue to electric customers and the entire Con Edison service territories. Furthermore, steam air conditioning has been shown to reduce electric peak load, thereby reducing transmission, distribution and generation costs. Overall, the small benefits in reduced rates to electric from a change in the East River Repowering Project's allocation methods will be more than offset by the potential lost benefits that could occur if it triggers customer terminations of service and switching to competitive alternatives.

⁵³ Id.

8. Recommendations

The well-established regulatory principle of the Incremental Method has been used by the Commission to allocate costs between electric and steam systems since 1978 and has been applied to ERRP costs since 2004 in recognition that the “electric system will receive substantial benefits from this in-City electric plant.”⁵⁴ The Commission also recognized that “ERRP also has provided valuable reliability benefits to customers in Westchester.”⁵⁵ This Study shows that the benefits long recognized by the Commission still exist today. Indeed, this Study demonstrates that nothing has changed that would warrant a reversal of the Commission’s decision to apply the Incremental Method of cost allocation to ERRP.

Specifically, this Study shows that the Incremental Method recognizes that ERRP provides significant benefits to electric customers and provides a just and reasonable mechanism to allocate the costs associated with those benefits. Those benefits, which have been repeatedly cited by the Commission, include both quantifiable benefits, such as the substantial proceeds from the sale of the First Avenue Properties that were made possible by the replacement of the Waterside plant by ERRP, as well as benefits that are difficult to quantify, such as regional air quality improvements, economic development, and the substantial savings to electric customers from the continued viability of the steam system. The Commission has also explicitly recognized that the existence of ERRP has avoided the need to build new generation and transmission equal to \$90 Million per year which is a reasonable offset to annual fixed costs charged to electric customers.⁵⁶

⁵⁴ 2004 Steam Rate Order, p. 27.

⁵⁵ 2004 Steam Rate Order, p. 24, fn. 22.

⁵⁶ 2008 Steam Rate Order, p. 39.

Beyond the past Commission rulings cited in this Study, the Company has provided herein additional information to inform the Commission of the benefits of ERRP. Specifically, the Company has provided a reasonable estimate of the savings to electric customers from ERRP's participation in the NYISO's energy and capacity markets. For example, the Company estimates that for the years 2010 ERRP's participation in the electric market could save customers approximately \$200 million statewide, of which \$109 million will accrue to NYC and \$15 million will accrue to County of Westchester. In addition, approximately \$100 Million in annual capacity savings are enjoyed by Con Edison customers from Con Edison's using ERRP as a source of self-supplied capacity.

This Study also demonstrates that the Incremental Method supports the assignment of fixed costs on a cost causation basis, and allows fuel costs to be allocated based on the reason why a quantity of fuel is being burned.

Thus, as the Commission has stated and reaffirmed on several occasions, the numerous benefits provided by ERRP to electric customers in New York City and Westchester mandates that ERRP costs be allocated using the long-standing regulatory principle of the Incremental Method.

Accordingly, for the reasons set forth herein, the current Incremental Method (including its cost causation principles) should continue to be applied to ERRP costs.

Appendix A

Con Edison Steam Cases and Steam/Electric Cost Provisions

Table 1

Con Edison Steam and Steam/Electric Cost Allocation Provisions			
Date	PSC Document	Ruling	Basis
November 14, 1978	Case 27276, Op. No. 78-27	Readopted "incremental" pricing for steam from steam/electric stations	The Commission concluded that the continuation of a proportional allocation of costs too the steam system would result in noncompetitive steam rates and a loss of steam customers to the detriment of all customers, including electric customers.
October 3, 1991	Case 90-S-0938, Op No.91-20	Reaffirmed "incremental" pricing with the exception of Op. no. 81-16	The basis from Case 27877 and Op. no. 81-16 remain in force
October 12, 1994	Case 93-S-0996, Op. No. 94-21	Reaffirmed "incremental" pricing with the exception of Op. no. 81-16	The basis from Case 27877 and Op. no. 81-16 remain in force
September 25, 1997	Case 96-S-1065, Case 96-S-1121, Op No. 97-15	Reaffirmed "incremental" pricing	The Commission approved the rate structure since 'the current cost allocation method - under which most costs are allocated to the production of electricity, while steam production is allocated only the incremental costs of producing steam - would continue to be justified in a fully- regulated environment, it may may not be sustainable in a competitive environment.'
April 3, 2001	Case 99-S-1621, Op. No. 00-15	Reaffirmed "incremental" pricing	The Commission approved the rate structure and requested ConEdison to conduct studies designed to determine how best to maximize efficiency and minimize steam cost, especially in the 74th, 59th and Hudson Avenue steam plant sites. R. Stanley testimony had "subsidy" at 1% to electric but 20% to steam
September 27, 2004	Case 03-S-1672	Reaffirmed "incremental" pricing	The Commission approved the rate structure and the establishment of the Steam Business Development Task Force by Consolidated Edison to coordinate, where appropriate, the company's economic development efforts related to steam service with those of New York City and the state, especially for redevelopment efforts in lower Manhattan.
September 22, 2006	Case 05-S-1376	Reaffirmed "incremental" pricing	The Commission approve the rate structure with a modification of the cost method for 59th St and 74th St stations to the square footage of the facility which supports electric or steam to be charged to that entity. The Joint Proposal reflects Con Edison's agreement to undertake numerous steam business development (SBD) initiatives and other measures in the interest of maintaining the steam customer base, rate stability, and infrastructure integrity.
September 17,2008	Case 07-S-1315	Reaffirmed "incremental" pricing	The Commission approved the current rate structure and Con Edison is required to conduct customer focus groups and customer satisfaction surveys, and prepare reports on such efforts for submission to Staff of the Department of Public Service and any interested parties who so request. Failure to conduct the surveys and submit the reports may result in revenue adjustments.

Appendix B

East River Repowering Costs with Current Allocation

Table 1
East River Repowering Project Book Cost & Net Plant (\$)

	Book Cost	Plant Additions	Ending Plant Balance	Depreciation Reserve	Depreciation Accruals	Ending Reserve Balance	Net Plant
Apr-05	\$0	\$707,068,979	\$707,068,979	\$0	\$2,289,750	\$2,289,750	\$704,779,229
Dec-05	\$744,393,991	\$3,573,242	\$747,967,233	\$18,821,596	\$2,429,424	\$21,251,020	\$726,716,213
Dec-06	\$765,539,431	\$3,987,920	\$769,527,351	\$47,876,739	\$2,372,054	\$50,248,793	\$719,278,558
Dec-07	\$778,086,078	\$574,715	\$778,660,793	\$77,120,484	\$3,241,319	\$80,361,803	\$698,298,990
Dec-08	\$793,041,824	\$564,000	\$793,605,824	\$107,867,327	\$2,530,802	\$110,398,128	\$683,207,696

Table 2
Electric Carrying Charges (\$)

	Pre-Tax Rate of Return	Book Depreciation	Federal Income Taxes	Property Taxes	Total	Allocation to Electric
Apr-05	\$5,876,216	\$2,289,750	\$265,595	\$214,603	\$8,646,163	\$5,745,280
Dec-05	\$6,049,748	\$2,429,424	\$265,595	\$385,834	\$9,130,602	\$6,067,184
Dec-06	\$5,690,395	\$2,372,054	\$325,005	\$381,008	\$8,768,461	\$5,826,546
Dec-07	\$5,471,911	\$3,241,319	\$356,883	\$847,143	\$9,917,257	\$6,589,908
Dec-08	\$5,075,648	\$2,530,802	\$331,813	\$928,880	\$8,867,143	\$5,892,118

Table 3
Steam Carrying Charges (\$)

	Pre-Tax Rate of Return	Book Depreciation	Federal Income Taxes	Property Taxes	ERRP O&M	Waterside Savings	Total
Apr-05	\$1,923,726	\$706,777	\$89,110	\$72,002	\$154,799	-\$460,456	\$2,485,958
Dec-05	\$1,857,404	\$749,891	\$89,110	\$129,452	\$1,157,626	-\$912,000	\$3,071,483
Dec-06	\$1,909,190	\$795,850	\$109,043	\$127,832	\$0	\$0	\$2,941,916
Dec-07	\$1,835,887	\$1,087,498	\$119,738	\$284,226	\$0	\$0	\$3,327,349
Dec-08	\$1,702,936	\$849,112	\$111,327	\$311,650	\$0	\$0	\$2,975,024

Table 4
2008 Steam & Electric O&M

FCAT Description	<u>Total</u>	<u>Electric</u>	<u>Steam</u>
Fixed Post Labor	1,870,230	1,302,714.22	567,515.61
Water Treatment	1,620,700	0	1,620,700
Water & Chemicals	7,161,936	0	7,161,936
Environmental Programs	327,296	327,296	0
Boiler Cleaning	0	0	0
Scheduled Overhauls - Major	7,503,771	7,503,771	0
Asbestos	0	0	0
Preventive Maintenance	1,317,247	1,109,973	207,273
Corrective Maintenance	3,138,867	981,862	2,157,004.66
Plant Component Upgrade	207,950	182,084.13	25,865.89
Facilities Maintenance	695,580	695,580	0
Non-direct Expense	3,479,193	3,479,193	0
Total	27,322,769	15,582,474	11,740,295

Appendix C

East River Repowering Project Article X Tables

Article X – Table 2.6

Table 2-6
Avoided Steam/Electric Production and Fuel Cost
Study Year 2002

Waterside Station	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Steam Production (Million lb)	1,173	1,088	1,114	1,057	757	762	876	830	519	728	812	997	10,681
Electric Generation (GWh)	65	59	62	59	42	42	49	46	29	40	45	55	593
Fuel - Billions of BTU	2,088	1,865	1,963	1,863	1,334	1,343	1,543	1,464	915	1,283	1,432	1,758	18,830
Fuel price - \$/Million BTU	\$4.44	\$4.24	\$3.41	\$2.79	\$2.75	\$2.74	\$2.71	\$2.71	\$2.77	\$2.83	\$3.51	\$4.16	\$3.34
Fuel Cost - \$/Million	9.2	7.9	6.7	5.2	3.7	3.7	4.2	4.0	2.5	3.6	5.0	7.3	63
Variable O&M (\$/.34/thousand lb)	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.4	3.8
Total Avoided Cost - \$/Million	9.6	8.3	7.1	5.6	3.9	3.9	4.5	4.3	2.7	3.9	5.3	7.7	66.7

Other Steam Plants	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Steam Production (Million lb)	243	284	254	126	270	191	186	176	352	356	308	392	3,134
Fuel - Billions of BTU	346	405	362	180	385	272	265	251	501	507	432	559	4,465
Fuel price - \$/Million BTU	\$3.67	\$3.68	\$3.68	\$3.68	\$3.68	\$3.63	\$3.64	\$3.63	\$3.58	\$3.60	\$3.68	\$3.77	\$3.66
Fuel Cost - \$/Million	1.3	1.5	1.3	0.7	1.4	1.0	1.0	0.9	1.8	1.8	1.6	2.1	16.4
Variable O&M (\$/.34/thousand lb)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.3
Total Avoided Cost - \$/Million	1.4	1.6	1.4	0.7	1.5	1.1	1.0	1.0	1.9	2.0	1.7	2.3	17.7

Electric Market Generation	Avoided Cost
GWh	1767
Market Energy Price - \$/kWh	0.029
Energy Cost - \$/Million	51
MW	125
Market Capacity Price - \$/kW	105
Capacity Cost - \$/Million	13

Article X – Table 2.7

Table 2.7
Avoided Costs
(Millions of Dollars)

Avoided Cost Components	2002	2005	2010	2020	Levelized
Recovery of Future Investments					
Waterside Station	-	1.6	3.4	5.8	2.6
East River South	1.0	0.9	0.7	0.5	0.8
Electric T&D	-	4.2	3.5	2.3	2.9
Property Taxes	12.7	14.7	16.3	19.8	15.8
Fixed O&M (Waterside & ERS)	26.0	27.2	29.4	34.6	27.0
Variable O&M (Waterside & Steam System)	5.1	5.4	6.0	7.3	5.9
Fuel (Waterside & Steam System)	79.3	83.9	92.5	113.0	91.2
Electric Market					
Energy Cost	51.4	54.9	61.2	76.1	60.3
Capacity Cost	13.1	12.5	9.6	10.8	11.2
Total Avoided Costs¹	189	205	23	270	218

Notes:

1. Cost components may not add to total cost due to rounding

Article X - Figure 2.8

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
ERRP Generation (GWh)	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360
Energy Price (\$ / MWh)	\$ 29.09	\$ 29.75	\$ 30.41	\$ 31.07	\$ 31.78	\$ 32.50	\$ 33.21	\$ 33.92	\$ 34.63	\$ 35.48	\$ 36.32	\$ 37.16	\$ 38.01	\$ 38.85	\$ 39.69	\$ 40.54	\$ 41.38	\$ 42.22	\$ 43.07	\$ 43.86
Total Revenue (\$ MM)	\$ 68.6	\$ 70.2	\$ 71.8	\$ 73.3	\$ 75.0	\$ 76.7	\$ 78.4	\$ 80.1	\$ 81.7	\$ 83.7	\$ 85.7	\$ 87.7	\$ 89.7	\$ 91.7	\$ 93.7	\$ 95.7	\$ 97.7	\$ 99.6	\$ 101.6	\$ 103.5
Estimated Fuel Cost (\$ MM)	\$ 107.3	\$ 109.2	\$ 111.1	\$ 113.0	\$ 115.2	\$ 117.4	\$ 119.6	\$ 121.8	\$ 124.0	\$ 126.6	\$ 129.2	\$ 131.8	\$ 134.4	\$ 137.0	\$ 139.6	\$ 142.2	\$ 144.8	\$ 147.4	\$ 150.0	\$ 153.0
Delta (\$ MM)	\$ (38.7)	\$ (39.0)	\$ (39.3)	\$ (39.7)	\$ (40.2)	\$ (40.7)	\$ (41.2)	\$ (41.7)	\$ (42.3)	\$ (42.9)	\$ (43.5)	\$ (44.1)	\$ (44.7)	\$ (45.3)	\$ (45.9)	\$ (46.5)	\$ (47.1)	\$ (47.8)	\$ (48.4)	\$ (49.5)
Levelized Revenue (\$ MM)	\$ 81.28																			
Fuel (\$ MM)	\$ 123.48																			
Delta (\$ MM)	\$ (42.20)																			

Appendix D

East River Repowering Project Electric Revenue & Costs

Table 1
Electric Costs & Revenue (\$1000)

	Electric Cost				Electric Revenue				Net Cost		
	Fuel \$1,000	O&M \$1,000	Rent \$1,000	Total \$1,000	Energy \$1,000	Capacity \$1,000	Ancillary \$1,000	Total \$1,000	Energy \$1,000	Capacity \$1,000	Net Cost \$1,000
2005											
May	\$10,563	\$1,167	\$6,038	\$17,768	-\$7,001	-\$3,210	\$17	-\$10,194	\$3,563	\$4,012	\$7,574
Jun	\$11,793	\$1,167	\$5,989	\$18,949	-\$10,917	-\$3,210	\$19	-\$14,108	\$876	\$3,965	\$4,841
Jul	\$16,021	\$1,167	\$8,591	\$25,779	-\$15,121	-\$3,216	\$27	-\$18,310	\$901	\$6,569	\$7,469
Aug	\$17,652	\$1,167	\$6,326	\$25,144	-\$17,604	-\$3,216	\$26	-\$20,794	\$48	\$4,302	\$4,350
Sep	\$22,710	\$1,167	\$6,641	\$30,517	-\$20,876	-\$3,216	\$24	-\$24,069	\$1,834	\$4,615	\$6,449
Oct	\$17,244	\$1,167	\$6,157	\$24,567	-\$12,312	-\$3,241	\$15	-\$15,539	\$4,932	\$4,097	\$9,029
Nov	\$30,447	\$1,167	\$7,136	\$38,749	-\$15,494	-\$1,750	\$27	-\$17,216	\$14,953	\$6,580	\$21,533
Dec	\$34,256	\$1,167	\$3,964	\$39,386	-\$26,368	-\$1,750	\$36	-\$28,081	\$7,888	\$3,417	\$11,305
	\$160,686	\$9,333	\$50,841	\$220,860	-\$125,693	-\$22,810	\$191	-\$148,312	\$34,993	\$37,555	\$72,549
2006											
Jan	\$29,109	\$1,142	\$4,406	\$34,657	-\$15,449	-\$1,750	\$30	-\$17,169	\$13,660	\$3,828	\$17,489
Feb	\$22,296	\$1,149	\$4,647	\$28,092	-\$14,324	-\$1,750	\$31	-\$16,043	\$7,973	\$4,077	\$12,049
Mar	\$22,046	\$1,129	\$4,167	\$27,343	-\$15,526	-\$1,750	\$35	-\$17,242	\$6,520	\$3,581	\$10,101
Apr	\$11,781	\$1,228	\$6,675	\$19,685	-\$8,057	-\$1,750	\$19	-\$9,787	\$3,725	\$6,172	\$9,897
May	\$15,608	\$1,169	\$7,404	\$24,182	-\$10,157	-\$3,441	-\$38	-\$13,636	\$5,452	\$5,094	\$10,546
Jun	\$15,618	\$1,152	\$6,856	\$23,627	-\$12,891	-\$3,441	-\$35	-\$16,367	\$2,727	\$4,533	\$7,260
Jul	\$15,877	\$1,287	\$5,453	\$22,617	-\$17,968	-\$3,441	-\$34	-\$21,442	-\$2,091	\$3,266	\$1,175
Aug	\$18,592	\$1,274	\$5,726	\$25,591	-\$19,230	-\$3,503	-\$33	-\$22,765	-\$638	\$3,464	\$2,826
Sep	\$16,703	\$1,082	\$6,551	\$24,336	-\$9,230	-\$3,503	-\$36	-\$12,769	\$7,473	\$4,095	\$11,567
Oct	\$7,077	\$1,153	\$7,972	\$16,202	-\$6,493	-\$3,503	-\$48	-\$10,043	\$584	\$5,574	\$6,159
Nov	\$14,011	\$1,236	\$7,465	\$22,712	-\$8,799	-\$1,999	-\$44	-\$10,842	\$5,212	\$6,658	\$11,870
Dec	\$26,306	\$1,324	\$6,519	\$34,149	-\$15,047	-\$1,999	-\$28	-\$17,074	\$11,259	\$5,817	\$17,076
	\$215,025	\$14,325	\$73,843	\$303,193	-\$153,169	-\$31,828	-\$181	-\$185,178	\$61,856	\$56,159	\$118,015
2007											
Jan	\$22,066	\$1,208	\$6,086	\$29,360	-\$16,182	-\$1,999	-\$26	-\$18,206	\$5,884	\$5,270	\$11,153
Feb	\$24,234	\$938	\$3,890	\$29,062	-\$19,107	-\$2,029	-\$31	-\$21,167	\$5,127	\$2,768	\$7,895
Mar	\$25,730	\$1,135	\$4,477	\$31,342	-\$19,180	-\$2,029	-\$26	-\$21,235	\$6,550	\$3,557	\$10,107
Apr	\$12,944	\$1,754	\$5,366	\$20,064	-\$10,566	-\$2,029	-\$44	-\$12,640	\$2,378	\$5,047	\$7,425
May	\$18,619	\$1,319	\$10,724	\$30,663	-\$13,729	-\$3,636	-\$35	-\$17,401	\$4,891	\$8,371	\$13,262
Jun	\$16,230	\$1,127	\$8,118	\$25,475	-\$12,884	-\$3,636	-\$40	-\$16,560	\$3,346	\$5,569	\$8,914
Jul	\$14,882	\$1,295	\$5,337	\$21,515	-\$11,509	-\$3,636	-\$41	-\$15,186	\$3,374	\$2,955	\$6,329
Aug	\$17,128	\$1,215	\$6,699	\$25,041	-\$15,930	-\$3,636	-\$33	-\$19,599	\$1,197	\$4,245	\$5,442
Sep	\$9,256	\$1,339	\$4,209	\$14,804	-\$7,027	-\$3,636	-\$48	-\$10,711	\$2,229	\$1,864	\$4,093
Oct	\$12,698	\$1,231	\$4,172	\$18,101	-\$9,082	-\$3,636	-\$44	-\$12,763	\$3,615	\$1,722	\$5,338
Nov	\$23,231	\$1,001	\$4,382	\$28,614	-\$15,909	-\$1,947	-\$28	-\$17,883	\$7,322	\$3,409	\$10,731
Dec	\$26,694	\$1,029	\$6,010	\$33,733	-\$23,256	-\$1,947	-\$25	-\$25,227	\$3,438	\$5,068	\$8,506
	\$223,711	\$14,591	\$69,472	\$307,773	-\$174,360	-\$33,797	-\$420	-\$208,577	\$49,351	\$49,845	\$99,196
2008											
Jan	\$29,264	\$1,156	\$5,527	\$35,947	-\$24,197	-\$1,947	-\$25	-\$26,169	\$5,067	\$4,711	\$9,778
Feb	\$24,850	\$1,199	\$5,896	\$31,945	-\$20,491	-\$1,947	-\$32	-\$22,470	\$4,359	\$5,116	\$9,476
Mar	\$20,145	\$1,366	\$5,922	\$27,433	-\$15,266	-\$1,947	-\$38	-\$17,251	\$4,879	\$5,303	\$10,182
Apr	\$14,031	\$1,608	\$6,909	\$22,548	-\$11,234	-\$1,947	-\$47	-\$13,228	\$2,798	\$6,523	\$9,320
May	\$15,533	\$2,125	\$5,945	\$23,603	-\$10,728	-\$1,858	-\$48	-\$12,634	\$4,805	\$6,164	\$10,969
Jun	\$29,413	\$833	\$5,913	\$36,159	-\$27,829	-\$1,858	-\$35	-\$29,722	\$1,584	\$4,853	\$6,437
Jul	\$32,139	\$1,194	\$5,860	\$39,193	-\$26,968	-\$1,858	-\$35	-\$28,861	\$5,171	\$5,160	\$10,332
Aug	\$25,039	\$1,189	\$5,929	\$32,157	-\$18,130	-\$1,858	-\$33	-\$20,022	\$6,909	\$5,226	\$12,136
Sep	\$14,172	\$1,331	\$5,905	\$21,407	-\$10,116	-\$1,858	-\$45	-\$12,020	\$4,055	\$5,332	\$9,387
Oct	\$17,084	\$1,247	\$5,796	\$24,127	-\$11,570	-\$1,858	-\$37	-\$13,466	\$5,513	\$5,148	\$10,661
Nov	\$21,153	\$1,115	\$4,777	\$27,045	-\$14,775	-\$997	-\$30	-\$15,802	\$6,378	\$4,865	\$11,243
Dec	\$26,825	\$1,219	\$5,643	\$33,687	-\$15,847	-\$997	-\$28	-\$16,872	\$10,979	\$5,836	\$16,815
	\$269,649	\$15,582	\$70,022	\$355,253	-\$207,150	-\$20,932	-\$434	-\$228,516	\$62,499	\$64,239	\$126,737
2009											
Jan	\$27,560	\$1,272	\$5,972	\$34,804	-\$19,213	-\$997	-\$23	-\$20,233	\$8,347	\$6,224	\$14,571
Feb	\$14,664	\$1,146	\$5,913	\$21,723	-\$9,112	-\$997	-\$37	-\$10,146	\$5,553	\$6,024	\$11,577
Mar	\$10,956	\$1,289	\$5,898	\$18,143	-\$7,243	-\$997	-\$42	-\$8,283	\$3,713	\$6,147	\$9,859

Table 2

East River Repowering Project Electric Production & Fuel Consumption

		Electric (net) Generation MWh	Electric MMbtu	Steam MMbtu	Total MMbtu
2006	Jan	189,197	2,103,815	34,592	2,138,407
	Feb	194,032	2,098,864	39,246	2,138,110
	Mar	219,475	2,384,052	47,518	2,431,570
	Apr	121,163	1,284,051	7,565	1,291,616
	May	163,657	1,818,030	15,753	1,833,783
	Jun	184,012	2,086,176	48,326	2,134,502
	Jul	193,507	2,177,670	53,033	2,230,703
	Aug	196,807	2,223,963	57,344	2,281,307
	Sep	178,369	2,027,322	6,474	2,033,796
	Oct	104,707	1,244,105	8,639	1,252,744
	Nov	127,172	1,488,899	1,232	1,490,131
	Dec	<u>232,816</u>	<u>2,462,702</u>	<u>36,171</u>	<u>2,498,873</u>
		2,104,914	23,399,649	355,893	23,755,542
2007	Jan	237,872	2,541,152	65,704	2,606,856
	Feb	210,455	2,242,105	66,521	2,308,626
	Mar	240,215	2,541,578	46,908	2,588,486
	Apr	128,634	1,360,181	11,059	1,371,240
	May	183,151	2,024,194	29,276	2,053,470
	Jun	155,908	1,749,529	35,629	1,785,158
	Jul	149,746	1,727,689	31,714	1,759,403
	Aug	198,928	2,246,312	71,123	2,317,435
	Sep	107,282	1,284,732	18,193	1,302,925
	Oct	129,797	1,537,535	4,922	1,542,457
	Nov	229,282	2,469,238	40,343	2,509,581
	Dec	<u>249,237</u>	<u>2,647,178</u>	<u>71,322</u>	<u>2,718,500</u>
		2,220,507	24,371,423	492,714	24,864,137
2008	Jan	254,526	2,678,975	65,576	2,744,551
	Feb	209,492	2,222,077	58,226	2,280,303
	Mar	168,009	1,782,272	23,512	1,805,784
	Apr	109,237	1,172,204	497	1,172,701
	May	102,875	1,234,011	4,216	1,238,227
	Jun	186,428	2,143,011	23,424	2,166,435
	Jul	186,531	2,145,801	57,968	2,203,769
	Aug	198,628	2,264,163	64,748	2,328,911
	Sep	123,598	1,414,412	16,251	1,430,663
	Oct	172,436	1,928,689	3,597	1,932,286
	Nov	222,229	2,414,918	30,710	2,445,628
	Dec	234,697	2,517,026	81,476	2,598,502
		2,168,686	23,917,559	430,201	24,347,760

Appendix E

East River Repowering Project Steam Costs

Table 1
Cost of producing steam at other steam stations when East River Repowering Project was permitted:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
2000													
\$/Mlb	\$6.44	\$7.44	\$7.23	\$6.50	\$7.38	\$7.36	\$7.41	\$7.34	\$8.18	\$9.20	\$8.90	\$9.32	\$7.73
Sendout (Mlb) *	3,887,283	2,940,217	2,113,997	1,715,824	1,301,383	1,778,454	1,879,951	2,069,966	1,575,023	1,544,411	2,299,360	3,651,918	26,757,787
Total Cost (\$1000)	\$25,052	\$21,888	\$15,280	\$11,158	\$9,609	\$13,098	\$13,934	\$15,203	\$12,889	\$14,210	\$20,461	\$34,043	\$206,823
2001													
\$/Mlb	\$13.51	\$9.75	\$8.46	\$8.50	\$7.57	\$6.84	\$6.70	\$6.35	\$5.96	\$5.73	\$6.52	\$7.46	\$8.28
Sendout (Mlb) *	3,449,272	2,855,223	2,836,510	1,900,791	1,381,621	1,938,250	1,860,298	2,272,446	1,420,026	1,560,248	1,635,713	2,482,224	25,592,622
Total Cost (\$1000)	\$46,616	\$27,835	\$23,993	\$16,159	\$10,601	\$13,250	\$12,458	\$14,430	\$8,470	\$8,934	\$10,660	\$18,527	\$211,932
2002													
\$/Mlb	\$6.41	\$5.95	\$5.16	\$5.60	\$6.30	\$6.31	\$6.34	\$7.18	\$6.03	\$7.20	\$7.29	\$8.15	\$6.57
Sendout (Mlb) *	2,729,528	2,302,615	2,315,307	1,657,708	1,414,896	1,697,220	2,127,207	2,115,672	1,673,941	1,703,738	2,205,352	3,173,589	25,116,773
Total Cost (\$1000)	\$17,496	\$13,701	\$11,947	\$9,283	\$8,914	\$10,709	\$13,486	\$15,191	\$10,094	\$12,267	\$16,077	\$25,865	\$165,017
2003													
\$/Mlb	\$9.67	\$11.12	\$12.04	\$9.39	\$8.71	\$9.54	\$9.69	\$8.62	\$8.88	\$9.91	\$8.46	\$8.76	\$9.65
Sendout (Mlb) *	3,951,470	3,415,355	2,560,118	1,991,423	1,459,785	1,583,598	2,040,681	1,991,019	1,492,675	1,399,811	1,867,204	3,069,866	26,823,005
Total Cost (\$1000)	\$38,211	\$37,979	\$30,824	\$18,699	\$12,715	\$15,108	\$19,774	\$17,163	\$13,255	\$12,472	\$15,797	\$26,892	\$258,842
2004													
\$/Mlb	\$10.04	\$9.76	\$9.04	\$8.82	\$9.30	\$9.79	\$9.64	\$8.90	\$8.89	\$9.52	\$10.48	\$10.95	\$9.70
Sendout (Mlb) *	4,413,071	3,235,748	2,423,956	1,616,994	1,366,577	1,639,875	1,849,012	1,957,427	1,615,016	1,325,475	1,794,674	2,879,589	26,147,414
Total Cost (\$1000)	\$44,307	\$31,581	\$21,913	\$14,262	\$12,988	\$16,054	\$17,824	\$17,421	\$14,357	\$12,619	\$18,808	\$31,531	\$253,630

* *Waterside, East River, 74th Street, Hudson Ave, 59th Street, Ravenswood, 60th Street*

Table 2
Actual cost of producing steam at other station from East River Repowering Project in-
service date:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
2005													
\$/Mlb					\$13.48	\$12.00	\$12.94	\$13.61	\$16.96	\$16.68	\$16.62	\$17.47	\$15.20
Sendout (Mlb) *					687,035	1,129,938	1,070,987	1,184,374	805,155	1,067,166	1,132,709	1,994,958	9,062,352
Total Cost (\$1000)					\$9,261	\$13,560	\$13,859	\$16,119	\$13,655	\$17,800	\$18,826	\$34,677	\$137,757
2006													
\$/Mlb	\$17.03	\$15.32	\$13.52	\$14.34	\$17.18	\$15.68	\$14.53	\$15.42	\$15.42	\$11.76	\$18.75	\$15.14	\$15.27
Sendout (Mlb) *	1,684,551	1,784,329	1,434,331	851,223	180,688	665,573	993,640	880,816	389,856	829,732	917,607	1,303,941	11,946,237
Total Cost (\$1000)	\$28,772	\$27,336	\$19,392	\$12,207	\$3,104	\$10,907	\$14,438	\$13,582	\$5,012	\$9,758	\$17,205	\$19,742	\$182,454
2007													
\$/Mlb	\$14.84	\$15.09	\$14.57	\$14.77	\$15.35	\$14.48	\$14.78	\$14.70	\$13.66	\$16.22	\$16.81	\$16.63	\$15.18
Sendout (Mlb) *	1,840,404	2,605,080	1,588,297	1,367,555	497,172	797,315	1,101,674	825,194	994,117	751,925	1,071,632	1,900,944	15,341,319
Total Cost (\$1000)	\$27,312	\$39,311	\$23,141	\$20,199	\$7,632	\$11,545	\$16,283	\$12,130	\$13,550	\$12,196	\$18,014	\$31,613	\$232,955
2008													
\$/Mlb	\$18.98	\$18.80	\$19.35	\$20.32	\$20.90	\$22.33	\$23.73	\$22.00	\$20.42	\$20.22	\$21.79	\$21.44	\$20.48
Sendout (Mlb) *	1,910,773	1,906,365	1,657,461	1,100,287	929,261	660,913	886,219	482,764	710,489	567,725	1,051,946	1,688,359	13,592,562
Total Cost (\$1000)	\$36,266	\$35,840	\$32,072	\$22,368	\$19,422	\$15,428	\$21,030	\$10,621	\$14,508	\$11,479	\$22,922	\$36,413	\$278,359

* Live steam= ER7 & pkg, 74th St, HA 50th St, Rav, 60th St

Table 3
Forecasted cost of producing steam at proposed new Hudson Avenue boiler:

	Steam Sendout (a)	Heat Rate (b)	Fuel Burn	Gas Price (c)	Total Cost	Unit cost
	Mlbs	btu/lb	MMBtu	\$/ MMBtu	\$/,000	\$/ Mlb
2009						
Apr	448,249	1,459	653,846	\$5.00	\$3,269	\$7.29
May	519,298	1,497	777,389	\$5.00	\$3,887	\$7.49
Jun	898,230	1,491	1,339,261	\$5.00	\$6,696	\$7.46
Jul	946,541	1,488	1,408,137	\$5.00	\$7,041	\$7.44
Aug	996,126	1,490	1,484,560	\$5.00	\$7,423	\$7.45
Sep	604,967	1,487	899,788	\$5.00	\$4,499	\$7.44
Oct	743,935	1,484	1,104,248	\$5.00	\$5,521	\$7.42
Nov	938,863	1,465	1,375,121	\$6.00	\$8,251	\$8.79
Dec	<u>978,114</u>	<u>1,473</u>	<u>1,441,088</u>	<u>\$8.00</u>	<u>\$11,529</u>	<u>\$11.79</u>
	7,074,323	1,482	10,483,438	\$5.64	\$59,116	\$8.36
Year 2010						
Jan	1,043,814	1,377	1,437,680	\$9.00	\$12,939	\$12.40
Feb	884,201	1,486	1,314,217	\$8.00	\$10,514	\$11.89
Mar	688,277	1,460	1,005,114	\$7.00	\$7,036	\$10.22
Apr	448,249	1,459	653,846	\$6.00	\$3,923	\$8.75
May	519,298	1,497	777,389	\$6.00	\$4,664	\$8.98
Jun	898,230	1,491	1,339,261	\$7.00	\$9,375	\$10.44
Jul	946,541	1,488	1,408,137	\$7.00	\$9,857	\$10.41
Aug	996,126	1,490	1,484,560	\$7.00	\$10,392	\$10.43
Sep	604,967	1,487	899,788	\$7.00	\$6,299	\$10.41
Oct	743,935	1,484	1,104,248	\$7.00	\$7,730	\$10.39
Nov	938,863	1,465	1,375,121	\$8.00	\$11,001	\$11.72
Dec	<u>978,114</u>	<u>1,473</u>	<u>1,441,088</u>	<u>\$9.00</u>	<u>\$12,970</u>	<u>\$13.26</u>
	9,690,615	1,470	14,240,449	\$7.49	\$106,699	\$11.01
Year 2011						
Jan	1,043,814	1,377	1,437,680	\$10.00	\$14,377	\$13.77
Feb	884,201	1,486	1,314,217	\$9.00	\$11,828	\$13.38
Mar	688,277	1,460	1,005,114	\$8.00	\$8,041	\$11.68
Apr	448,249	1,459	653,846	\$7.00	\$4,577	\$10.21
May	519,298	1,497	777,389	\$7.00	\$5,442	\$10.48
Jun	898,230	1,491	1,339,261	\$7.00	\$9,375	\$10.44
Jul	946,541	1,488	1,408,137	\$7.00	\$9,857	\$10.41
Aug	996,126	1,490	1,484,560	\$7.00	\$10,392	\$10.43
Sep	604,967	1,487	899,788	\$8.00	\$7,198	\$11.90
Oct	743,935	1,484	1,104,248	\$8.00	\$8,834	\$11.87
Nov	938,863	1,465	1,375,121	\$8.00	\$11,001	\$11.72
Dec	<u>978,114</u>	<u>1,473</u>	<u>1,441,088</u>	<u>\$9.00</u>	<u>\$12,970</u>	<u>\$13.26</u>
	9,690,615	1,470	14,240,449	\$8.00	\$113,891	\$11.75

(a) 2008 ER 10 & 20 steam sendout

(b) heat rates from SRP new boiler analysis

(c) generic fuel price forecast

Appendix F

Calculation of Steam and Electric Fuel Costs using Alternative Cost Allocation Methods

The Current Method

The current Method used to allocate ERRP costs is the Incremental Method, which is based on the cost causation principle as explained in Section 3.D The following table shows the allocation of ERRP costs using the Incremental Methods.

Table 1
2008 Fuel Allocation Based on Current Method

2008 Fuel Allocation Based on Current Method

	Steam						Total				Electric			
	Fuel (ER 10 & 20) \$1,000	Steam Sendout ER10&20 Mlbs	Steam Fuel Current Method MMBtu	Fuel Price \$/MMBtu	Fuel ER10&20 \$/Mlb	Fuel \$1,000	System Fuel \$1,000	Steam Sendout Mlbs	Total Fuel \$/Mlb	Total Fuel \$1,000	Fuel (net) Generation MWh	MMBTU	Energy Revenue \$1,000	Fuel \$/Mwh
Jan	\$714	1,043,814	65,576	\$10.92	\$0.68	\$37,471	2,954,587	\$12.68	\$29,264	254,526	2,678,975	-\$24,197	\$20	
Feb	\$648	884,201	58,226	\$11.18	\$0.73	\$36,568	2,796,369	\$13.08	\$24,850	209,492	2,222,077	-\$20,491	\$21	
Mar	\$264	688,277	23,513	\$11.30	\$0.38	\$33,061	2,399,149	\$13.78	\$20,145	168,009	1,782,272	-\$15,266	\$29	
Apr	\$6	448,249	497	\$11.97	\$0.01	\$22,845	1,582,551	\$14.44	\$14,031	109,237	1,172,204	-\$11,234	\$26	
May	\$53	519,298	4,218	\$12.59	\$0.10	\$19,607	1,455,414	\$13.47	\$15,533	102,875	1,234,011	-\$10,728	\$47	
Jun	\$321	898,230	23,424	\$13.72	\$0.36	\$16,389	1,627,274	\$10.07	\$29,413	186,428	2,143,011	-\$27,829	\$8	
Jul	\$867	946,541	57,968	\$14.98	\$0.92	\$22,936	1,890,156	\$12.13	\$32,139	186,531	2,145,801	-\$26,968	\$28	
Aug	\$716	996,126	64,748	\$11.06	\$0.72	\$12,397	1,553,037	\$7.98	\$25,039	198,628	2,264,163	-\$18,130	\$35	
Sep	\$162	604,967	16,251	\$10.02	\$0.27	\$15,147	1,351,819	\$11.21	\$14,172	123,598	1,414,412	-\$10,116	\$33	
Oct	\$32	743,935	3,597	\$8.86	\$0.04	\$11,660	1,322,148	\$8.82	\$17,084	172,436	1,928,689	-\$11,570	\$32	
Nov	\$269	938,863	30,710	\$8.76	\$0.29	\$23,269	1,995,818	\$11.66	\$21,153	222,229	2,414,918	-\$14,775	\$29	
Dec	\$866	978,114	81,478	\$10.66	\$0.89	\$37,982	2,749,986	\$13.81	\$26,825	234,697	2,517,026	-\$15,847	\$47	
2008	\$4,916	9,690,615	430,206	\$11.28	\$0.51	\$289,330	23,678,308	\$12.22	\$269,649	2,168,686	23,917,559	-\$207,150	\$29	

Electric Market Price Based Approach

This approach would modify the current East River Repowering Project cost allocation method by adding to the steam customer's fuel allocation a charge for the difference between electric revenue and the cost of fuel burn in gas turbines. However, because the plant is necessary to meet steam demand, the East River Repowering Project electric production costs may frequently exceed the wholesale price of electricity paid by the NYISO because the plant is bid into the NYISO. By paying the difference between electric revenue and electric production cost, steam customers would be exposed to electric market risk. The following tables share what the allocation of ERRP costs would be using this method.

Table 2

2008 Fuel Allocation Based on Above Market Method

	Steam					Electric					
	Fuel (ER 10 & 20)	Steam Sendout (ER 10 & 20)	Fuel (ER 10 & 20)	Total Fuel	Total Steam Sendout	Total Fuel	Fuel	Electric (net) Generation	Fuel (before energy revenue)	Energy Revenue	Fuel (after energy revenue)
	\$1,000	Mlbs	\$/Mlb	\$1,000	Mlbs	\$/Mlb	\$1,000	MWh	\$/Mwh	\$1,000	\$/Mwh
Jan	\$5,781	1,043,814	\$5.54	\$42,538	2,954,587	\$14.40	\$24,197	254,526	\$95	-\$24,197	\$0
Feb	\$5,007	884,201	\$5.66	\$40,927	2,796,369	\$14.64	\$20,491	209,492	\$98	-\$20,491	\$0
Mar	\$5,143	688,277	\$7.47	\$37,940	2,399,149	\$15.81	\$15,266	168,009	\$91	-\$15,266	\$0
Apr	\$2,803	448,249	\$6.25	\$25,642	1,582,551	\$16.20	\$11,234	109,237	\$103	-\$11,234	\$0
May	\$4,857	519,298	\$9.35	\$24,412	1,455,414	\$16.77	\$10,728	102,875	\$104	-\$10,728	\$0
Jun	\$1,905	898,230	\$2.12	\$17,973	1,627,274	\$11.04	\$27,829	186,428	\$149	-\$27,829	\$0
Jul	\$6,038	946,541	\$6.38	\$28,107	1,890,156	\$14.87	\$26,968	186,531	\$145	-\$26,968	\$0
Aug	\$7,626	996,126	\$7.66	\$19,306	1,553,037	\$12.43	\$18,130	198,628	\$91	-\$18,130	\$0
Sep	\$4,217	604,967	\$6.97	\$19,202	1,351,819	\$14.20	\$10,116	123,598	\$82	-\$10,116	\$0
Oct	\$5,545	743,935	\$7.45	\$17,174	1,322,148	\$12.99	\$11,570	172,436	\$67	-\$11,570	\$0
Nov	\$6,647	938,863	\$7.08	\$29,647	1,995,818	\$14.85	\$14,775	222,229	\$66	-\$14,775	\$0
Dec	\$11,845	978,114	\$12.11	\$48,960	2,749,986	\$17.80	\$15,847	234,697	\$68	-\$15,847	\$0
2008	\$67,415	9,690,615	\$6.96	\$351,829	23,678,308	\$14.86	\$207,150	2,168,686	\$96	-\$207,150	\$0

East River Unit 6/60 Methodology

East River Unit 6/60 is a conventional steam turbine based plant (Rankin cycle), consisting of a boiler, two steam turbines (one high and one low pressure) and a condenser, as shown in Figure 6.1.

This unit can operate in three alternate modes:

- Fully electric mode when no steam is extracted;
- Cogeneration mode when steam is extracted from the high pressure steam turbine with a corresponding de-rating of electric output; and
- “Live steam” mode when the turbines are bypassed with no electric generation and all the steam from the boiler is sent out to the steam system.

Fuel is charged entirely to the electric department during Mode 1 and entirely to steam during Mode 3 operation.

In Mode 2 cogeneration, the cost allocation methodology approved by PSC would charge the steam system for fuel at the rate of 1185 Btu/Mlb of steam and the remaining fuel is charged to electric. Additionally, steam is charged actual costs for steam processing, and incremental water treatment cost due to the increased make up water needed for steam sendout. The rate of 1185 Btu/Mlb is the heat provided by the plant for producing steam, which is the heat content (enthalpy) of steam minus that of make up water.

Unlike ERRP, this unit has only one fuel stream (either interruptible gas or residual oil) into the boiler for both electric generation and steam production. Steam production in East River Unit 6/60 requires incremental fuel consumption,

whereas ERRP steam production is based on the waste heat from combustion turbine exhaust.

Carrying charges for capital cost of the boiler, turbines, generator, condenser and balance of the plant are charged to electric department. The steam system capital cost is relatively small, and includes a portion of the water treatment plant (that is incremental to the steam sendout capability), steam conditioning equipment and steam piping.

Electric revenues (energy and capacity) belong to the electric department, so steam customers are not exposed to electric market risk and vice versa.

Table 4 shows what the allocation of ERRP costs would be, using East River 6 method.

Table 3
Schematic for East River Unit 6/60 Cogeneration Unit

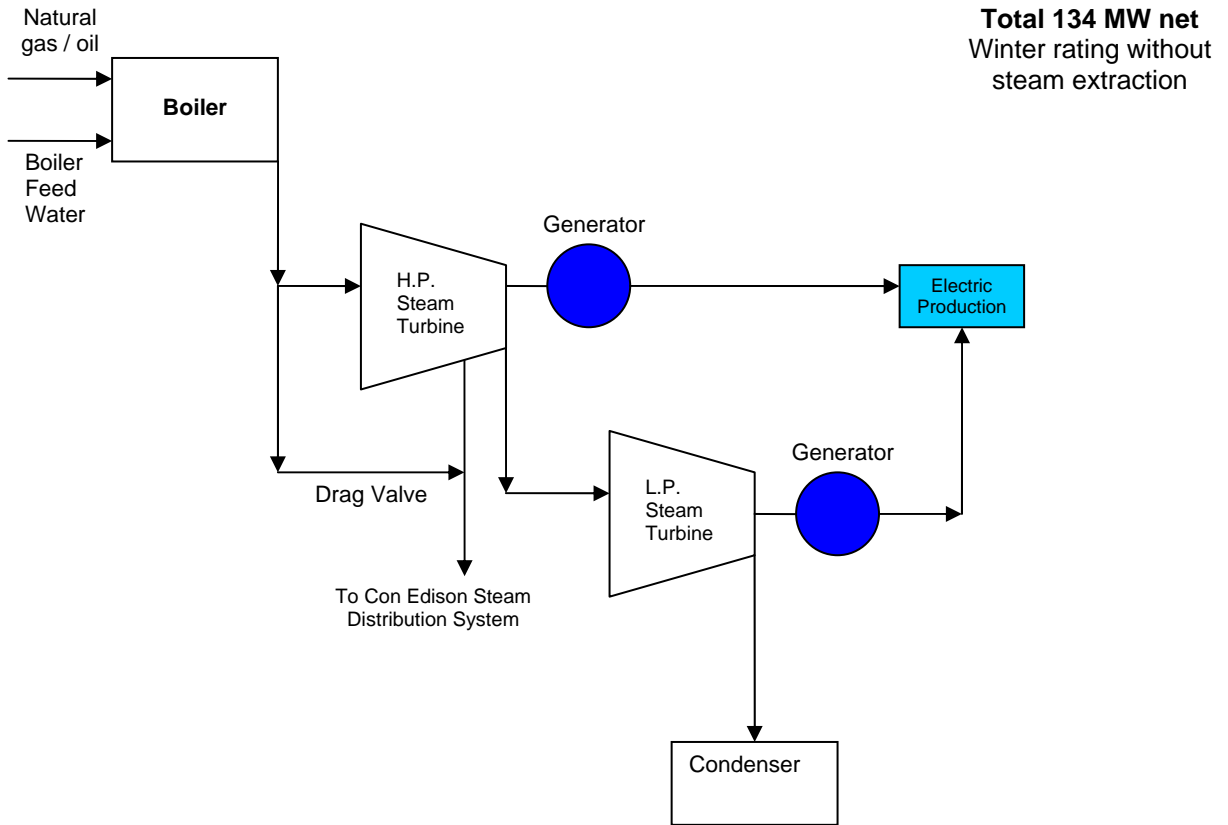


Table 4

2008 Fuel Allocation based on East River Unit 6 Method

2008 Fuel Allocation Based on East River Unit 6 Method

	Steam										Electric			
	Fuel ER10&20 \$1,000	Steam Sendout ER10&20 Mlbs	Steam Fuel @ 1185 Btu/Mlb MMBtu	Fuel Price \$/MMBtu	Fuel ER10&20 \$/Mlb	Total System Fuel \$1,000	Total Steam Sendout Mlbs	Total Steam System \$/Mlb	Fuel \$1,000	Electric (net) Generation MWh	Elec Fuel MMBtu	Energy Revenue \$1,000	Fuel \$/Mwh	
Jan	\$13,510	1,043,814	1,236,920	\$10.92	\$12.94	\$50,268	2,954,587	\$17.01	\$16,467	254,526	1,507,631	-\$24,197	-\$30	
Feb	\$11,716	884,201	1,047,778	\$11.18	\$13.25	\$47,637	2,796,369	\$17.04	\$13,782	209,492	1,232,525	-\$20,491	-\$32	
Mar	\$9,218	688,277	815,608	\$11.30	\$13.39	\$42,015	2,399,149	\$17.51	\$11,191	188,009	990,177	-\$15,266	-\$24	
Apr	\$6,372	448,249	531,175	\$12.00	\$14.21	\$29,211	1,582,551	\$18.46	\$7,696	109,237	641,526	-\$11,234	-\$32	
May	\$7,748	519,298	615,368	\$12.59	\$14.92	\$27,302	1,455,414	\$18.76	\$7,842	102,875	622,861	-\$10,728	-\$28	
Jun	\$14,609	898,230	1,064,403	\$13.72	\$16.26	\$30,676	1,627,274	\$18.85	\$15,125	186,428	1,102,032	-\$27,829	-\$68	
Jul	\$16,799	946,541	1,121,651	\$14.98	\$17.75	\$38,868	1,890,156	\$20.56	\$16,207	186,531	1,082,118	-\$26,968	-\$58	
Aug	\$13,054	996,126	1,180,409	\$11.06	\$13.10	\$24,735	1,553,037	\$15.93	\$12,701	198,628	1,148,502	-\$18,130	-\$27	
Sep	\$7,182	604,967	716,886	\$10.02	\$11.87	\$22,168	1,351,819	\$16.40	\$7,151	123,598	713,777	-\$10,116	-\$24	
Oct	\$7,809	743,935	881,563	\$8.86	\$10.50	\$19,437	1,322,148	\$14.70	\$9,307	172,436	1,050,723	-\$11,570	-\$13	
Nov	\$9,745	938,863	1,112,553	\$8.76	\$10.38	\$32,745	1,995,818	\$16.41	\$11,677	222,229	1,333,075	-\$14,775	-\$14	
Dec	\$12,352	978,114	1,159,065	\$10.66	\$12.63	\$49,468	2,749,986	\$17.99	\$15,340	234,697	1,439,439	-\$15,847	-\$2	
2008	\$130,114	9,690,615	11,483,379	\$11.28	\$13.43	\$414,528	23,678,308	\$17.51	\$144,486	2,168,686	12,864,386	-\$207,150	-\$29	

Assumption: Steam is charged fuel at the rate of 1,185 BTU/Mlb, and remaining fuel is charged to electric.

Proportional Method (1975 Rate Case)

For purpose of calculation, the method assumes steam is produced elsewhere in a proxy boiler having a heat rate equivalent to the steam system boilers, and electricity is produced in a proxy electric plant having a heat rate equivalent to the system average. Using actual data for steam and electric production, the fuel consumption in the proxy boiler and proxy electric plant are calculated assuming equivalent steam and electricity are produced separately. Of the total fuel for proxy generation, the percent of fuel for steam and electric are calculated. These percentages are then applied to the actual total fuel consumption of the cogeneration unit to determine fuel allocation for actual steam and electric production. In this approach, steam and electric departments benefit equally by having the same percentage of fuel saving compared to proxy generation. The following tables show what the allocations for ERRP costs would be using this method.

Table 5a

Fuel Allocation Worksheet Using 1975 rate Case Method

2008 Fuel Allocation Worksheet
Method Used from 1975-78 Based on Case 26794 - 1975

2008 Actual data with current allocation										Case 26794 1975 method										co gen versus proxy	
ER 10 & 20 steam sendout	Fuel current allocation to steam	Electric (net) Generation	Fuel current allocation to Electric	Total actual fuel	Fuel for proxy boiler plant	Fuel for Proxy electric plant	Total proxy steam & electric plants	Fuel proxy steam	Fuel proxy electric	Fuel 10&20 electric	Fuel 10&20 Steam	Fuel proxy steam	Fuel proxy electric	Fuel 10&20 electric	Fuel 10&20 Steam	Steam fuel savings	Electric fuel savings				
Mlbs	MMBtu	MWh	MMBtu	MMBtu	MMBtu	MMBtu	MMBtu	%	%	MMBtu	MMBtu	%	%	MMBtu	MMBtu	%	%				
Jan	1,043,814	254,526	2,678,975	2,744,551	1,565,721	3,077,219	4,642,940	33.7%	66.3%	1,819,017	925,534	33.7%	66.3%	1,819,017	925,534	40.9%	40.9%				
Feb	884,201	209,492	2,222,077	2,280,303	1,326,302	2,532,753	3,859,055	34.4%	65.6%	1,496,596	783,707	34.4%	65.6%	1,496,596	783,707	40.9%	40.9%				
Mar	688,277	168,009	1,782,272	1,805,785	1,032,416	2,031,230	3,063,645	33.7%	66.3%	1,197,255	608,530	33.7%	66.3%	1,197,255	608,530	41.1%	41.1%				
Apr	448,249	109,237	1,172,204	1,172,701	672,374	1,320,679	1,993,052	33.7%	66.3%	777,080	395,621	33.7%	66.3%	777,080	395,621	41.2%	41.2%				
May	519,298	102,875	1,234,011	1,238,229	778,947	1,243,762	2,022,709	38.5%	61.5%	761,386	476,843	38.5%	61.5%	761,386	476,843	38.8%	38.8%				
Jun	898,230	186,428	2,143,011	2,166,435	1,347,345	2,253,912	3,601,257	37.4%	62.6%	1,355,903	810,532	37.4%	62.6%	1,355,903	810,532	39.8%	39.8%				
Jul	946,541	186,531	2,145,801	2,203,769	1,419,812	2,255,161	3,674,972	38.6%	61.4%	1,352,351	851,418	38.6%	61.4%	1,352,351	851,418	40.0%	40.0%				
Aug	996,126	198,628	2,264,163	2,328,911	1,494,189	2,401,412	3,895,601	38.4%	61.6%	1,435,639	893,272	38.4%	61.6%	1,435,639	893,272	40.2%	40.2%				
Sep	604,967	123,598	1,414,412	1,430,663	907,451	1,494,295	2,401,746	37.8%	62.2%	890,116	540,547	37.8%	62.2%	890,116	540,547	40.4%	40.4%				
Oct	743,935	172,436	1,928,689	1,932,286	1,115,903	2,084,752	3,200,655	34.9%	65.1%	1,258,598	673,888	34.9%	65.1%	1,258,598	673,888	39.6%	39.6%				
Nov	938,863	222,229	2,414,918	2,445,628	1,408,295	2,686,752	4,095,047	34.4%	65.6%	1,604,572	841,056	34.4%	65.6%	1,604,572	841,056	40.3%	40.3%				
Dec	978,114	234,697	2,517,026	2,598,504	1,467,171	2,837,490	4,304,661	34.1%	65.9%	1,712,848	885,656	34.1%	65.9%	1,712,848	885,656	39.6%	39.6%				
2008	9,690,615	2,168,686	23,917,559	24,347,765	14,535,923	26,219,417	40,755,339			15,661,359	8,686,406			15,661,359	8,686,406	40.2%	40.3%				

Assumptions:
Heat Rates: 1.5 MMBtu/Mlb proxy boiler, and 12.09 MMBtu/MWh proxy electric generator.
Actual cogeneration fuel is allocated by the same percentage as the calculated fuel for proxy generators.
See next page for cost allocation.

Table 5b

2008 Fuel Allocation Using 1975 Rate Case Method

2008 Fuel Allocation Method Used from 1975-78 Based on Case 26794 - 1975

	Steam				Total System				Electric				Fuel	
	Fuel ER10&20 \$1,000	Sendout ER10&20 Mlbs	Steam Fuel from worksheets MMBtu	Fuel Price \$/MMBtu	Fuel ER 10&20 \$/Mlb	Total System Fuel \$1,000	Total Steam Sendout Mlbs	Total System Fuel \$/Mlb	Fuel \$1,000	Generation (net) MWh	Elec Fuel from worksheets MMBtu	Energy Revenue \$1,000		
Jan	\$10,109	1,043,814	925,534	\$10.92	\$9.68	\$46,867	2,954,587	\$15.86	0	\$19,868	254,526	1,819,017	-\$24,197	-\$17
Feb	\$8,763	884,201	783,707	\$11.18	\$9.91	\$44,684	2,796,369	\$15.98	0	\$16,735	209,492	1,496,596	-\$20,491	-\$18
Mar	\$6,878	688,277	608,530	\$11.30	\$9.99	\$39,674	2,399,149	\$16.54	0	\$13,531	168,009	1,197,255	-\$15,266	-\$10
Apr	\$4,746	448,249	395,621	\$12.00	\$10.59	\$27,584	1,582,551	\$17.43	0	\$9,322	109,237	777,080	-\$11,234	-\$18
May	\$6,004	519,298	476,843	\$12.59	\$11.56	\$25,558	1,455,414	\$17.56	0	\$9,587	102,875	761,386	-\$10,728	-\$11
Jun	\$11,124	898,230	810,532	\$13.72	\$12.38	\$27,192	1,627,274	\$16.71	0	\$18,610	186,428	1,355,903	-\$27,829	-\$49
Jul	\$12,752	946,541	851,418	\$14.98	\$13.47	\$34,821	1,890,156	\$18.42	0	\$20,254	186,531	1,352,351	-\$26,968	-\$36
Aug	\$9,879	996,126	893,272	\$11.06	\$9.92	\$21,559	1,553,037	\$13.88	0	\$15,877	198,628	1,435,639	-\$18,130	-\$11
Sep	\$5,416	604,967	540,547	\$10.02	\$8.95	\$20,401	1,351,819	\$15.09	0	\$8,918	123,598	890,116	-\$10,116	-\$10
Oct	\$5,967	743,935	673,688	\$8.86	\$8.02	\$17,596	1,322,148	\$13.31	0	\$11,148	172,436	1,258,598	-\$11,570	-\$2
Nov	\$7,367	938,863	841,056	\$8.76	\$7.85	\$30,367	1,995,818	\$15.22	0	\$14,055	222,229	1,604,572	-\$14,775	-\$3
Dec	\$9,438	978,114	865,656	\$10.66	\$9.65	\$46,554	2,749,986	\$16.93	0	\$18,253	234,697	1,712,848	-\$15,847	\$10
2008	98,443	9,690,615	8,686,406			382,857	23,678,308	\$16.17	#	176,157	2,168,686	15,661,359	-\$207,150	-\$14

See previous page for worksheet.

**Steam priced as by-product (Incremental Method)
(Used Pre-1975 and Post 1978)**

Prior to the 1975 rate case proceeding, steam was priced as a byproduct of electric production. This was done by assigning to the electric sendout a heat input based upon the heat required to generate the same amount of electricity elsewhere on the system at a proxy electric plant having an electric heat rate equivalent to the system average.

Fuel consumption estimated for the proxy electric station is charged to the electric department for generating electric power. The difference between actual fuel consumption and that charged to the electric department is then charged to the steam department. In this approach, fuel costs for the electric department were similar to electric production from elsewhere, and the fuel cost savings from cogeneration were passed on entirely to the steam system. Tables 6a and 6b show the allocation of ERRP costs using this method with an electric heat rate used in 1975. Tables 6c and 6d apply the same method but use an electric heat rate equal to that of ERRP based on 2008 operation.

Table 6a

Fuel Allocation Worksheet Based on Pre 1975 Rate Case Method

**2008 Fuel Allocation Worksheet
 Method Prior to Case 26794 - 1975**

		2008 Actual data with current allocation						Method prior to Case 26794			
ER10&20 Steam Sendout	Mlbs	Fuel current allocation to steam MMBtu	Electric (net) Generation MWh	Fuel current allocation to Electric MMBtu	Total actual fuel MMBtu	Fuel for Proxy electric plant MMBtu	Fuel allocation to cogen electric MMBtu	Fuel allocation to cogen steam MMBtu			
2008											
Jan	1,043,814	65,576	254,526	2,678,975	2,744,551	3,077,219	3,077,219	-332,668			
Feb	884,201	58,226	209,492	2,222,077	2,280,303	2,532,753	2,532,753	-252,450			
Mar	688,277	23,513	168,009	1,782,272	1,805,785	2,031,230	2,031,230	-225,445			
Apr	448,249	497	109,237	1,172,204	1,172,701	1,320,679	1,320,679	-147,977			
May	519,298	4,218	102,875	1,234,011	1,238,229	1,243,762	1,243,762	-5,533			
Jun	898,230	23,424	186,428	2,143,011	2,166,435	2,253,912	2,253,912	-87,477			
Jul	946,541	57,968	186,531	2,145,801	2,203,769	2,255,161	2,255,161	-51,392			
Aug	996,126	64,748	198,628	2,264,163	2,328,911	2,401,412	2,401,412	-72,501			
Sep	604,967	16,251	123,598	1,414,412	1,430,663	1,494,295	1,494,295	-63,632			
Oct	743,935	3,597	172,436	1,928,689	1,932,286	2,084,752	2,084,752	-152,466			
Nov	938,863	30,710	222,229	2,414,918	2,445,628	2,686,752	2,686,752	-241,124			
Dec	978,114	81,478	234,697	2,517,026	2,598,504	2,837,490	2,837,490	-238,986			
Annual	9,690,615	430,206	2,168,686	23,917,559	24,347,765	26,219,417	26,219,417	-1,871,652			

Assumptions:
 Electric is charged the fuel calculated for a proxy electric generator having a heat rate equivalent to 1975 system average,
 12.09 MMBtu/MWh per Case 2673 (11/25/1975) proceeding page 2236.
 Balance of fuel charged to steam. See next page for cost allocation.

Table 6b
2008 Fuel Allocation Base on Pre 1975 Method

Steam Priced as byproduct (Pre-1975 Method)
2008 Fuel Cost Allocation

	Steam										Electric				
	Fuel ER10&20	Steam Sendout ER10&20	Steam Fuel from worksheet	Fuel Price	Fuel ER10&20	Total System Fuel	Total Steam Sendout	System Fuel	Total System Fuel	Fuel \$/Mlb	Fuel \$/MWh	Fuel \$/MWh	Electric (net) Generation	Elec Fuel	Energy Revenue
Jan	-\$3,634	1,043,814	-332,668	\$10.92	-\$3.48	\$33,124	2,954,587	\$11.21	\$33,611	254,526	3,077,219	-\$24,197	3,077,219	-\$24,197	\$37
Feb	-\$2,823	884,201	-252,450	\$11.18	-\$3.19	\$33,098	2,796,369	\$11.84	\$28,321	209,492	2,532,753	-\$20,491	2,532,753	-\$20,491	\$37
Mar	-\$2,548	688,277	-225,445	\$11.30	-\$3.70	\$30,249	2,399,149	\$12.61	\$22,957	168,009	2,031,230	-\$15,266	2,031,230	-\$15,266	\$46
Apr	-\$1,775	448,249	-147,977	\$12.00	-\$3.96	\$21,064	1,582,551	\$13.31	\$15,842	109,237	1,320,679	-\$11,234	1,320,679	-\$11,234	\$42
May	-\$70	519,298	-5,533	\$12.59	-\$0.13	\$19,484	1,455,414	\$13.39	\$15,660	102,875	1,243,762	-\$10,728	1,243,762	-\$10,728	\$48
Jun	-\$1,201	898,230	-87,477	\$13.72	-\$1.34	\$14,867	1,627,274	\$9.14	\$30,935	186,428	2,253,912	-\$27,829	2,253,912	-\$27,829	\$17
Jul	-\$770	946,541	-51,392	\$14.98	-\$0.81	\$21,300	1,890,156	\$11.27	\$33,775	186,531	2,255,161	-\$26,968	2,255,161	-\$26,968	\$36
Aug	-\$802	996,126	-72,501	\$11.06	-\$0.80	\$10,879	1,553,037	\$7.00	\$26,557	198,628	2,401,412	-\$18,130	2,401,412	-\$18,130	\$42
Sep	-\$638	604,967	-63,632	\$10.02	-\$1.05	\$14,348	1,351,819	\$10.61	\$14,971	123,598	1,494,295	-\$10,116	1,494,295	-\$10,116	\$39
Oct	-\$1,351	743,935	-152,466	\$8.86	-\$1.82	\$10,278	1,322,148	\$7.77	\$18,466	172,436	2,084,752	-\$11,570	2,084,752	-\$11,570	\$40
Nov	-\$2,112	938,863	-241,124	\$8.76	-\$2.25	\$20,888	1,995,818	\$10.47	\$23,534	222,229	2,686,752	-\$14,775	2,686,752	-\$14,775	\$39
Dec	-\$2,547	978,114	-238,986	\$10.66	-\$2.60	\$34,569	2,749,986	\$12.57	\$30,238	234,697	2,837,490	-\$15,847	2,837,490	-\$15,847	\$61
2008	-\$20,268	9,690,615	-1,871,652	\$11.28	-\$2.09	\$264,146	23,678,308	\$11.16	\$294,868	2,168,686	26,219,417	-\$207,150	26,219,417	-\$207,150	\$40

Note: See previous page for the worksheet allocating East River 10 & 20 fuel for steam and electric generation.

Table 6c

Modified Pre-1975 Method Worksheet

**2008 Fuel Allocation Worksheet
Modified Pre-1975 Method (Steam as Byproduct)**

		2008 Actual data with current allocation					Method prior to Case 26794				
ER10&20 Steam Sendout	Mlbs	Fuel current allocation to steam MMBtu	Electric (net) Generation MWh	Fuel current allocation to Electric MMBtu	Total actual fuel MMBtu	ER 10&20 Heat Rate MMBtu/MWh	Proxy electric plant MMBtu	Fuel allocation to cogen electric MMBtu	Fuel allocation to cogen steam MMBtu		
2008											
Jan	1,043,814	65,576	254,526	2,678,975	2,744,551	10.525	2,678,886	2,678,886	65,665		
Feb	884,201	58,226	209,492	2,222,077	2,280,303	10.607	2,222,077	2,222,077	58,226		
Mar	688,277	23,513	168,009	1,782,272	1,805,785	10.608	1,782,240	1,782,240	23,545		
Apr	448,249	497	109,237	1,172,204	1,172,701	10.731	1,172,225	1,172,225	476		
May	519,298	4,218	102,875	1,234,011	1,238,229	12.000	1,234,451	1,234,451	3,778		
Jun	898,230	23,424	186,428	2,143,011	2,166,435	11.495	2,142,988	2,142,988	23,447		
Jul	946,541	57,968	186,531	2,145,801	2,203,769	11.504	2,145,853	2,145,853	57,916		
Aug	996,126	64,748	198,628	2,264,163	2,328,911	11.399	2,264,160	2,264,160	64,751		
Sep	604,967	16,251	123,598	1,414,412	1,430,663	11.444	1,414,451	1,414,451	16,212		
Oct	743,935	3,597	172,436	1,928,689	1,932,286	11.185	1,928,698	1,928,698	3,588		
Nov	938,863	30,710	222,229	2,414,918	2,445,628	10.867	2,414,966	2,414,966	30,662		
Dec	978,114	81,478	234,697	2,517,026	2,598,504	10.725	2,517,128	2,517,128	81,376		
Annual	9,690,615	430,206	2,168,686	23,917,559	24,347,765		23,918,124	23,918,124	429,641		

Electric is charged the fuel calculated for a proxy electric generator having a heat rate equivalent to 1975 system average.

12.09 MMBtu/MWh per Case 2673 (11/25/1975) proceeding page 2236.

Balance of fuel charged to steam. See next page for cost allocation.

Table 6d

Modified Pre-1975 method

**Modified Pre-1975 Method (Steam as Byproduct)
2008 Fuel Cost Allocation**

	Steam										Electric				
	Fuel ER10&20	Steam Sendout ER10&20	Steam Fuel from worksheet	Fuel Price \$/MMBtu	Fuel ER10&20 \$/Mib	Total System Fuel	Total Steam Sendout	Total System Fuel	Fuel \$/Mib	Total Steam System Fuel	Fuel	Electric (net) Generation	Elec Fuel	Energy Revenue	Fuel
	\$1,000	Mibs	MMBtu	\$/MMBtu	\$/Mib	\$1,000	Mibs	\$1,000	\$/Mib	\$1,000	MWh	MMBtu	\$1,000	\$/Mwh	
Jan	\$717	1,043,814	65,665	\$10.92	\$0.69	\$37,475	2,954,587	\$12.68	\$12.68	\$29,260	254,526	2,678,886	-\$24,197	\$20	
Feb	\$651	884,201	58,226	\$11.18	\$0.74	\$36,571	2,796,369	\$13.08	\$13.08	\$24,847	209,492	2,222,077	-\$20,491	\$21	
Mar	\$266	688,277	23,545	\$11.30	\$0.39	\$33,063	2,399,149	\$13.78	\$13.78	\$20,143	168,009	1,782,240	-\$15,266	\$29	
Apr	\$6	448,249	476	\$12.00	\$0.01	\$22,844	1,582,551	\$14.44	\$14.44	\$14,062	109,237	1,172,225	-\$11,234	\$26	
May	\$48	519,298	3,778	\$12.59	\$0.09	\$19,602	1,455,414	\$13.47	\$13.47	\$15,543	102,875	1,234,451	-\$10,728	\$47	
Jun	\$322	898,230	23,447	\$13.72	\$0.36	\$16,389	1,627,274	\$10.07	\$10.07	\$29,412	186,428	2,142,988	-\$27,829	\$8	
Jul	\$867	946,541	57,916	\$14.98	\$0.92	\$22,937	1,890,156	\$12.13	\$12.13	\$32,138	186,531	2,145,853	-\$26,968	\$28	
Aug	\$716	996,126	64,751	\$11.06	\$0.72	\$12,397	1,553,037	\$7.98	\$7.98	\$25,039	198,628	2,264,160	-\$18,130	\$35	
Sep	\$162	604,967	16,212	\$10.02	\$0.27	\$15,148	1,351,819	\$11.21	\$11.21	\$14,171	123,598	1,414,451	-\$10,116	\$33	
Oct	\$32	743,935	3,588	\$8.86	\$0.04	\$11,660	1,322,148	\$8.82	\$8.82	\$17,084	172,436	1,928,698	-\$11,570	\$32	
Nov	\$269	938,863	30,662	\$8.76	\$0.29	\$23,269	1,995,818	\$11.66	\$11.66	\$21,153	222,229	2,414,966	-\$14,775	\$29	
Dec	<u>\$867</u>	<u>978,114</u>	<u>81,376</u>	<u>\$10.66</u>	<u>\$0.89</u>	<u>\$37,983</u>	<u>2,749,986</u>	<u>\$13.81</u>	<u>\$13.81</u>	<u>\$26,824</u>	<u>234,697</u>	<u>2,517,128</u>	<u>-\$15,847</u>	<u>\$47</u>	
2008	\$4,923	9,690,615	429,641	\$11.28	\$0.51	\$289,337	23,678,308	\$12.22	\$12.22	\$269,677	2,168,686	23,918,124	-\$207,150	\$29	

Note: See previous page for the worksheet allocating East River 10 & 20 fuel for steam and electric generation.

Appendix G

East River Repowering Project MAPS Review & Results

Table 1a
MAPS Base Case Assumptions:

1. Peak Load and Energy send-out as per 2009 NYISO Gold Book.
2. Fuel forecast as per Steam Resource Planning, March 2009.
3. Poletti retired in 2010.
4. VFT project in service in 2010.
5. M-29 project in service in 2011.
6. Con Ed / PSEG 1000 MW Wheeling Contract in service.
7. 660 MW Besicorp CC plant in service in 2010.
8. All coal-fired generation retired in Ontario in 2010.
9. SCS Astoria-2 500 MW in-city CC plant in service in 2011.
10. Susquehanna-to-Roseland line (800 MW; 500 kV) in service in PJM in 2013.
11. All NYCA transmission interface limits modeled at current ratings.

Table 1b
NYC Fuel Price Assumptions:

	Gas	Oil	
	Natural Gas	#2 Oil	0.3% #6 Oil
	\$/ MMBTU	\$/ MMBTU	\$/ MMBTU
Jan-2010	\$ 9.00	\$ 11.60	\$ 10.00
Feb-2010	\$ 8.10	\$ 11.70	\$ 10.10
Mar-2010	\$ 7.00	\$ 11.80	\$ 10.20
Apr-2010	\$ 6.50	\$ 11.90	\$ 10.20
May-2010	\$ 6.50	\$ 12.10	\$ 10.30
Jun-2010	\$ 6.60	\$ 12.20	\$ 10.40
Jul-2010	\$ 6.80	\$ 12.30	\$ 10.50
Aug-2010	\$ 6.90	\$ 12.40	\$ 10.60
Sep-2010	\$ 6.90	\$ 12.40	\$ 10.60
Oct-2010	\$ 7.00	\$ 12.50	\$ 10.70
Nov-2010	\$ 7.70	\$ 12.60	\$ 10.80
Dec-2010	\$ 8.70	\$ 12.70	\$ 10.80
Average	\$ 7.31	\$ 12.18	\$ 10.43

Table 2
MAPS Results

MAPS Results: ERRP Dispatchable Case

Case Version: 4/10/2009

Fuel Prices: Fuel prices are those provided by Steam Resource Planning for the purposes of this studies, as of Monday, March 9, 2009.

Year of Study: 2010

Load Shape: 2006

LBMP Summary:

Area Names	Base 2010			ERRP Dispatchable			Impact of ERRP Dispatchable		
	Average Spot Price	Weighted total cost (\$)	Average Weighted Cost	Average Spot Price	Weighted total cost (\$)	Average Weighted Cost	Average Spot Price	Weighted total cost (\$)	Average Weighted Cost
A - West	35.09	579,888,176.00	35.95	35.62	588,193,984.00	36.46	0.53	8,295,808.00	0.51
B - Genessee	38.18	388,798,368.00	39.78	38.78	394,329,088.00	40.35	0.60	5,530,720.00	0.57
C - Central	39.77	666,038,400.00	40.82	40.42	676,398,016.00	41.46	0.65	10,359,616.00	0.63
D - North	34.84	227,195,872.00	34.80	35.35	230,417,088.00	36.30	0.51	3,221,216.00	0.49
E - Mohawk Valley	39.75	315,993,504.00	41.22	40.44	321,135,424.00	41.89	0.69	5,141,920.00	0.67
F - Capital	46.00	559,463,296.00	47.90	46.67	566,766,464.00	48.52	0.67	7,303,168.00	0.63
G - Hudson Valley	48.30	535,858,368.00	50.90	49.74	551,525,376.00	52.39	1.45	15,667,008.00	1.49
H - Millwood	49.63	149,834,832.00	53.59	51.24	154,608,096.00	55.30	1.61	4,773,264.00	1.71
I - Dunwoodie	49.56	332,105,952.00	54.09	51.19	342,733,856.00	55.82	1.63	10,627,904.00	1.73
J - New York City	54.51	3,189,754,112.00	58.80	56.50	3,298,520,576.00	60.80	1.99	108,766,464.00	2.00
K - Long Island	54.31	1,337,648,640.00	59.15	55.46	1,363,686,144.00	60.30	1.15	26,037,504.00	1.15
NYCA Total		8,282,589,520.00			8,488,314,112.00			205,724,592.00	

3.41%

2.48%

Appendix H

East River Load Area Review

Table 1
ERRP Load Area Pocket Review

ERRP Load Area Review										
<i>Based on the Load Forecast of September 25, 2008 with 658 MW of DSM - DSM 1,2,3,4 & 5</i>										
<i>Summer Independent MW Area Peak Loads from Load Relief Program</i>										
	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
East 13th Street Area Load										
Total Load	(1,2) 1,554	1,500	1,507	1,488	1,485	1,484	1,472	1,485	1,487	1,499
East 13th St Area Supply										
East River GT 1 (ERRP)	147	147	147	147	147	147	147	147	147	147
East River GT 2 (ERRP)	148	148	148	148	148	148	148	148	148	148
Other Generation	314	314	314	314	314	314	314	314	314	314
Generation Sub Total	609	609	609	609	609	609	609	609	609	609
Transmission Sub Total	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>	<u>2,022</u>
Total Supply	2,631	2,631	2,631	2,631	2,631	2,631	2,631	2,631	2,631	2,631
Design Contingency										
Contingency Loss	(796)	(3)	(1,015)	(4)	(1,015)	(1,015)	(1,015)	(1,015)	(1,015)	(1,015)
Area Capability	1,835	1,616	1,616	1,616	1,616	1,616	1,616	1,616	1,616	1,616
Reserve (Deficit)	281	116	109	129	132	133	145	132	130	118
Transmission Equipment Loading	77%	88%	89%	87%	87%	87%	86%	87%	87%	88%
Reserve (Deficit) less ER 1 & 2	(14)	(179)	(186)	(166)	(163)	(162)	(150)	(163)	(165)	(177)

Notes:

- (1) Normal Rating based on R. Boggia's ratings of October 10, 2001
- (2) MW ratings based on load flow studies
- (3) Loss of Tr 15 plus Tr 10 & 11
- (4) With the retirement of Poletti, the design contingency becomes the loss of 4 transformers TR 10,11,16 & 17

Appendix C



Neil H. Butterklee
Assistant General Counsel

September 8, 2009

Via Overnight Mail and E-Mail

Honorable Jaclyn A. Brillling
Secretary
State of New York
Public Service Commission
Three Empire State Plaza
Albany, New York 12223-1350

Re: Case 09-S-0029 – Proceeding on Motion of the Commission to Consider Steam Resource Plan and East River Re-powering Project Cost Allocation Study, and Steam Energy Efficiency Programs for Consolidated Edison Company of New York, Inc.

Dear Secretary Brillling:

Pursuant to the July 3, 2009 Ruling by Administrative Law Judge (“ALJ”) Rudy Stegemoeller in this proceeding, Consolidated Edison Company of New York, Inc. (“Con Edison” or the “Company”) hereby files an original and one copy of the Company’s rebuttal testimony and exhibits with respect to the East River Repowering Project (“ERRP”) cost allocation phase of this proceeding. Please contact me if you have any questions regarding this matter.

Very truly yours,

Enc

cc: ALJ Stegemoeller (via e-mail and hardcopy)
Active Parties (via e-mail)

ERRP Allocation Panel Rebuttal - Steam

1 Q. Please state your names and business addresses.

2 A. Our names are Timothy W. Foxen and John Catuogno and
3 collectively we make up the East River Repowering
4 Project ("ERRP") Allocation Panel for this case. We
5 are both employed by Consolidated Edison Company of New
6 York, Inc. ("Con Edison" or "the Company") and have our
7 business address at 4 Irving Place, New York, New York
8 10003.

9 Q. Are you the same individuals who submitted initial
10 testimony in this proceeding for Con Edison as the ERRP
11 Allocation Panel?

12 A. Yes.

13 Q. Mr. Foxen, have you previously testified before the
14 Commission?

15 A. Yes, in Case 07-S-1315.

16 Q. Mr. Catuogno, have you previously testified before the
17 Commission?

18 A. Yes, in Case 07-S-1315.

19 Purpose of Testimony

20 Q. What is the Purpose of your rebuttal testimony?

21 A. We are responding to the direct testimony of the County
22 of Westchester's ("COW") witness Frank Radigan and the
23 direct testimony of the New York State Department of

ERRP Allocation Panel Rebuttal - Steam

1 Public Service's ("Staff") ERRP Allocation Panel in
2 this proceeding.

3 Q. Please summarize the areas of Mr. Radigan's testimony
4 on which you will focus your rebuttal testimony.

5 A. First, we will respond to Mr. Radigan's incorrect
6 assertions regarding the extent of the benefits from
7 ERRP's location, design and operation to Con Edison's
8 electric customers in both New York City ("NYC") and
9 Westchester County. We will point out that Mr.
10 Radigan's testimony overlooks or understates the
11 quantifiable economic and environmental benefits from
12 ERRP and its replacement of the older and less
13 efficient Waterside Generating Station. We will
14 explain why Mr. Radigan's comparison of ERRP's fuel
15 costs to NYISO locational based marginal prices is too
16 narrow and therefore an incomplete approach for
17 determining the value of the ERRP to Electric
18 customers. Finally, we will explain why the current
19 Incremental Method for allocation of ERRP costs between
20 the Company's Electric and Steam Departments should not
21 be modified.

22 Mr. Radigan's testimony regarding the East 13th Street
23 load pocket and the reliability benefits of ERRP are

ERRP Allocation Panel Rebuttal - Steam

1 being addressed by the Company's ERRP Electric
2 Reliability Panel.

3 Q. Please summarize the areas of Staff's testimony on
4 which you will focus your rebuttal testimony?

5 A. We will describe why Staff's conclusion as to the
6 benefits to Electric Customers of the ERRP Project is
7 understated. We will also comment on Staff's proposed
8 economic allocation methods and demonstrate that the
9 current Incremental Method should be retained for ERRP.
10 Finally, we will respond to Staff's position with
11 respect to consideration of any change to the current
12 cost allocation method in terms of their relative
13 impact to electric and steam rates.

14 Response to the County of Westchester

15 Q. On page 4, line 7 of his testimony, Mr. Radigan states
16 that "there are no Con Edison steam customers in
17 Westchester." Do you believe that this statement
18 provides a reasonable indicator of whether the County
19 of Westchester's residents receive benefits from ERRP
20 or the Company's steam business?

21 A. No. To begin with, ERRP supports an integrated
22 Electric System. The Company's ERRP Cost Allocation
23 Study ("ERRP Study"), which has been marked as Exhibit
24 ____ (ERRP AP-1), our testimony and the testimony of the

ERRP Allocation Panel Rebuttal - Steam

1 Company's ERRP Electric Reliability Panel, demonstrates
2 and highlights the contributions that ERRP makes to the
3 provision of electric reliability in the region,
4 including Westchester County. From an air quality
5 perspective, the metropolitan New York region, which
6 includes Westchester, is monitored by the New York
7 State Department of Environmental Conservation as if it
8 were one region so that emission control requirements
9 modeled for a facility in one part of the region is
10 assumed to impact air quality throughout the entire
11 region, including Westchester. Secondly, employment in
12 commercial office buildings in NYC, which are served by
13 both the steam and electric output of ERRP, benefits
14 the metropolitan area, including Westchester. The
15 development of Manhattan as the most dense urban
16 employment center in the country is in part facilitated
17 by economical steam service for building heating. The
18 degree to which the residents of the County of
19 Westchester utilize this office space can be estimated
20 by reviewing ridership patterns on the Metro-North
21 commuter rail. Based on estimates of monthly ridership
22 on the three Metro-North lines that serve Westchester,
23 and prorating those by stops in Westchester, we
24 estimate there are approximately 70,000 persons

ERRP Allocation Panel Rebuttal - Steam

1 commuting into New York City from Westchester on
2 weekdays. These Westchester commuters benefit from the
3 Steam System's delivery of heat, hot water, and air
4 conditioning in the same way that NYC residents
5 benefit.

6 Q. On pages 6 and 7 of Mr. Radigan's testimony, he refers
7 to the Company's conflicting positions with respect to
8 its development of ERRP as a cogeneration facility in
9 contrast to its recommendation to build a boiler only
10 plant at Hudson Avenue. Please explain the different
11 factors that lead to the Company's decision to build
12 ERRP and the Company's current recommendation to build
13 boilers at Hudson Avenue instead of cogeneration.

14 A. The main difference between these two situations
15 relates to the needs of the Company's Electric System.
16 At the time of the ERRP decision, the In-City
17 generation to be lost upon the retirement of the
18 Waterside Generating Station ("Waterside") needed to be
19 replaced. In addition, in 2001, 2002, and 2003, the
20 New York Independent System Operator ("NYISO") had
21 identified a need for additional in-City generation.
22 In contrast, the most recent NYISO Reliability Needs
23 Assessment ("RNA") shows that there is no need for
24 additional electric generation through at least 2018.

ERRP Allocation Panel Rebuttal - Steam

1 In addition, ERRP was implemented to help alleviate an
2 identified need in the East 13th Street load pocket.

3 Q. On pages 8 and 21 of his testimony, COW witness Radigan
4 questions the benefits provided to the Electric System
5 from the retirement of Waterside and its sale for use
6 as a valuable residential property. Do you agree with
7 this assessment?

8 A. No. The retirement and sale of the First Avenue
9 properties, which includes Waterside, provided
10 significant benefits to the Company's electric
11 customers. This was one of the very few examples of
12 utility property of this scale being demolished and
13 remediated for non-utility use. Extensive planning and
14 consultation with public officials and regulators
15 preceded the Company's decision to move forward with
16 this project. A consensus was established that the
17 sale of the First Avenue Properties provided
18 substantial benefits to Con Edison's customers, the
19 community, and the State as a whole. Considering that
20 power plant sites are difficult to find anywhere in New
21 York City, ERRP created value for New York City by
22 converting the First Avenue properties to residential
23 use while simultaneously adding approximately 130 MW of
24 electric capacity above what was provided by Waterside

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1 in order to meet an identified need for new electric
2 generating capacity, as well as about 800 Mlb/hr of
3 additional steam capacity. ERRP, with its 11,000
4 btu/kWh electric heat rate, replaced Waterside, with
5 its 12,200 btu/kWh electric heat rate, resulting in an
6 improvement in efficiency of approximately a 10%.
7 Furthermore, all of this replacement and incremental
8 electric and steam capacity were built at an existing
9 site, further reducing environmental impact by avoiding
10 land use impacts on non-utility Greenfield sites.

11 Q. How much did the Company sell the First Avenue
12 Properties for and how were these funds applied?

13 A. The Company received \$602.9 million for the sale of the
14 properties. These funds were applied to the write-off
15 of the net book value of the plant, for demolition and
16 remediation of the site, and for certain pollution
17 control measures at other sites. After payment for
18 these items, most of which were otherwise being
19 recovered through electric rates, 93.1% million of net
20 sales proceeds were applied to Electric customers and
21 6.9% million to Steam customers. Thus, Electric
22 customers benefited immensely from the sale of the
23 First Avenue Properties and Mr. Radigan is incorrect in
24 his statement on page 8 that the benefit to customers

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1 from the sale of Waterside "are of relatively small
2 magnitude."

3 Q. On pages 16 to 18, Mr. Radigan takes issue with the
4 efficiency of ERRP. Do you consider ERRP to be an
5 efficient unit when compared to the gas turbines shown
6 in the bar charts in his direct testimony?

7 A. Yes, ERRP is a highly efficient unit. Many of the
8 other generating facilities in New York State run on
9 oil and the rest run on interruptible gas with oil
10 backup and the emission rates of these units are much
11 higher than the emission rates of ERRP. The average
12 heat rates of such units range from approximately
13 14,200 btu/kWh to 17,500 btu/kWh, significantly worse
14 than newer gas turbines like ERRP. More importantly,
15 none of the older units are cogeneration units. ERRP's
16 overall combined electric and thermal efficiency is as
17 high as 87% in cogeneration mode and well above the
18 efficiencies of electric-only plants, which range from
19 20% to 47% efficiency.

20 Q. Please explain why ERRP has high total efficiency
21 compared to these other gas turbines.

22 A. ERRP provides electric and steam output. Efficiency is
23 defined as electric output plus steam output divided by

ERRP Allocation Panel Rebuttal - Steam

1 fuel input. Exhibit __ (ERRP AP-2) provides ERRP's
2 annual total efficiency for 2006, 2007, 2008.

3 MARK FOR INDENTIFICATION AS EXHIBIT ____ (ERRP AP-2).

4 Q. On page 9, line 20, Mr. Radigan states that "The
5 avoided infrastructure investments [from ERRP
6 operation] are temporary." Do you agree with Mr.
7 Radigan's statement?

8 Q. No, Mr. Radigan's assertion that the avoided
9 infrastructure costs are temporary is unsupported and
10 incorrect. Based on the discussion that follows on
11 pages 9, 10, 24, and 25 of his testimony, Mr. Radigan
12 appears to be referring to the avoided electric capital
13 infrastructure costs from the provision of steam
14 cooling. Currently, Con Edison delivers steam to
15 customers that generate approximately 580,000 tons of
16 steam cooling. This converts to 350 MW of avoided
17 electric supply, transmission, and distribution. In
18 more conversational terms, the Steam System is designed
19 to meet winter peak requirements associated with
20 building heating needs. In contrast, the Electric
21 System is designed to meet summer peak requirements
22 associated with incremental load from air conditioning
23 demand. Steam air conditioning replaces electric
24 plants designed to meet this peak period electric

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1 demand. However, there is excess steam production
2 capacity in the summer period, so no additional
3 infrastructure is needed to meet this electric demand.
4 Further on in our testimony, we cite the details of the
5 Company's April 27, 2008 testimony that identifies the
6 location and number of steam air conditioning customers
7 and the electric infrastructure these customer
8 installations avoid. It is misleading to call these
9 avoided costs "temporary," given the large numbers of
10 customers involved and the magnitude of the electric
11 infrastructure costs associated with their hypothetical
12 replacement.

13 Q. Is this a form of electric demand side management that
14 the Commission is considering in the ongoing Energy
15 Efficiency Portfolio Proceedings in Case 08-E-1007.

16 A. Yes it is. The Company has recommended that Steam
17 Cooling be established as a Program to help meet Con
18 Edison's contribution to New York State's 2015 energy
19 efficiency goals.

20 Q. Has Con Edison estimated the value of the avoided
21 electric infrastructure from steam-supplied air
22 conditioning?

23 A. Yes. Con Edison estimated this value in its April 27,
24 2009 Presentation, and supporting narrative filed on

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1 May 19, 2009, in this case. This detailed analysis
2 identified the locations of the steam air conditioning
3 customers, the associated electric load displaced by
4 network and then determined the electric infrastructure
5 that would be needed to serve these groupings of
6 customers with electric rather than steam for air
7 conditioning. All of this information has been
8 provided as part of this case. Exhibit __ (ERRP AP-3)
9 contains supporting cost analysis that shows that the
10 total capital investment for accelerated and new
11 projects for transmission and distribution would be
12 \$1.1 billion in 2009 dollars or \$180 million in annual
13 carrying charges.

14 MARK FOR IDENTIFICATION AS EXHIBIT __ (ERRP AP-3).

15 Q. Are there other avoided costs to Electric consumers
16 that should be considered?

17 A. Yes, beyond avoided infrastructure costs, the reduced
18 peak electric load translates to lower energy prices.
19 Con Edison estimates that the savings from lower priced
20 supply to be approximately \$140 million annually.

21 These estimates were explained in more detail in the
22 Company's ERRP Study, which has been previously marked
23 for identification as Exhibit __ (ERRP AP-1).

ERRP Allocation Panel Rebuttal - Steam

1 Q. What does avoided infrastructure and supply costs from
2 steam air conditioning have to do with ERRP cost
3 allocation issues?

4 A. Steam air conditioning competes with electric air
5 conditioning and an increase in capital or operating
6 costs of one alternative makes the other one relatively
7 more attractive. The avoided electric transmission,
8 distribution, and supply cost from steam air
9 conditioning can only be maintained with a viable and
10 competitive steam business. The degree to which costs
11 of owning and operating ERRP are allocated to Steam
12 customers has a material impact on the cost of steam
13 and by extension the competitiveness of steam air
14 conditioning. Moreover, the analysis of steam air
15 conditioning avoided costs is driven by a focus on the
16 overall Steam System's benefit to Electric customers.
17 The Steam System consists of over 13,200 Mlb/hr of
18 production capacity and a transmission and distribution
19 system that covers much of Manhattan.

20 Q. Please continue.

21 A. Mr. Radigan's approach is that the Electric customers
22 should get the full benefit of the substantial cost
23 avoided by the Steam System without any payment. That
24 is inequitable and at odds with basic economics in that

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1 there is no reason why the Electric customers should be
2 a "free rider" as to the substantial benefits conferred
3 on the Electric System by the Steam System.

4 Q. On pages 24 to 25, Mr. Radigan indicates that he does
5 not agree that the existence of ERRP avoids the need
6 for additional electric infrastructure. Do you agree?

7 A. No. Mr. Radigan's comments are unsupported by the
8 facts in this case. As shown in the ERRP Study, the
9 Company has estimated avoided electric generation and
10 transmission costs due to the construction of ERRP. As
11 indicated above, at the time ERRP was planned and
12 constructed, there was a widely understood need for new
13 In-City generating capacity. The ERRP Study discusses
14 this need on pages 44 to 50. Absent ERRP, other new
15 generation would have been required, along with
16 transmission to bring supply to the East River load
17 pocket. On page 55, the ERRP Study cites the
18 Commission's finding in Case 07-S-1315 that "... we
19 note the record evidence that ERRP's 2007 electric
20 fixed costs of \$93 million are fair and reasonable with
21 respect to estimated avoided costs totaling \$90
22 million." Case 07-S-1315, 2008 *Steam Rate Order*, p.
23 40. ERRP's electric supply also lowers energy supply
24 prices to all customers. This benefit was described in

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1 Section 6B of the ERRP Study and is described in more
2 detail below.

3 Q. On pages 8 and 19 to 20, Mr. Radigan takes issue with
4 the electric price benefits brought about by ERRP. Do
5 you agree with his assessment?

6 A. No. Mr. Radigan's assessment is incorrect and
7 unsupported by the facts in this case. The impact of
8 the ERRP energy deliveries on wholesale energy costs
9 was determined by the Company using a Multi Area Price
10 Simulation ("MAPS") run. The base case simulation
11 modeled ERRP as it is currently bid into the market,
12 with a price of zero in order to ensure that the
13 electric generation is accepted by the NYISO for the
14 steam output needed. A second case was run in which
15 the ERRP Units were bid into the electric market at
16 cost and therefore only generating when the marginal
17 costs cleared. The price difference between these two
18 cases was determined to be the cost savings to
19 wholesale energy prices as a result of the current
20 operating philosophy of the ERRP units. As stated on
21 page 53 of the ERRP Study, the estimated annual savings
22 (using forecasted 2010 commodity prices) was
23 approximately \$206 million for the entire New York
24 Control Area ("NYCA"), with an estimated savings of

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1 approximately \$109 million for NYC residents and
2 approximately \$15 million for Westchester residents.

3 Q. Please explain the Company's analysis of the impact of
4 ERRP on wholesale capacity costs.

5 A. The impact of the ERRP capacity on the in-City and Rest
6 of State ("ROS") capacity markets was calculated for a
7 base year of 2010. As shown on page 53 of the ERRP
8 Study, the estimated increase in capacity costs for New
9 York City rate payers would be approximately \$100
10 million due to the estimated increase in the auction
11 clearing price.

12 Q. On pages 19 to 20, Mr. Radigan takes issue with Con
13 Edison's "self elected scheduling" of ERRP. Is ERRP
14 unique or unusual in its approach to scheduling its
15 generation to ensure it will produce specific levels of
16 electric production to meet contractual obligations or
17 operational requirements?

18 A. No. ERRP's practice of "self-scheduling" generation is
19 not unique or unusual. Indeed, as Mr. Radigan admitted
20 in response to Con Edison interrogatory 1-10, the
21 NYISO's Market Administration and Control Area Services
22 Tariff ("Services Tariff") provides for such self-
23 scheduling. In fact, as Mr. Radigan further admits, it
24 is common for generators in New York State to "self

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1 schedule." We are submitting COW's response to Con
2 Edison interrogatory 1-10 as Exhibit ____ (ERRP AP-4).
3 MARK FOR IDENTIFICATION AS EXHIBIT __ (ERRP AP-4).

4 Q. Please continue.

5 A. In any given hour, there are likely many units offering
6 their energy into NYISO by self-scheduling. Although
7 Con Edison does not have any specific knowledge of how
8 competitive suppliers of generation bid their units
9 into the energy markets, the reasons behind self-
10 scheduling units are widely understood. We have listed
11 the following "typical" reasons why a given unit would
12 practice self-scheduling:

- 13 - A unit that needs continuous operation
14 overnight or over a weekend period in order to
15 avoid shutdown would self-schedule for those
16 hours when its production cost is expected to
17 be higher than the wholesale clearing price;
18
- 19 - A nuclear unit that must continuously operate
20 over extended periods;
21
- 22 - A unit that is being paid under a bilateral
23 contract at a known fixed price that wants to
24 avoid being dispatched below its contractual
25 obligation to avoid exposure to real time
26 market prices;
27
- 28 - A cogeneration unit that needs to adjust its
29 electric production to maintain adequate steam
30 production for its steam host.
31

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1 Q. How commonplace are cogeneration units in the NYISO?

2 A. There are approximately 68 cogeneration units in New
3 York totaling 5,000 MW of capacity and which produced
4 16.5 million MWh of energy in 2008.

5 Q. Do these cogeneration units come in a variety of
6 configurations?

7 A. Yes. As one would expect, designs of cogeneration
8 units follow from a variety of physical and economic
9 factors unique to particular projects. The NYISO Load
10 and Capacity Data Book shows that of the 68 projects
11 listed as cogeneration, less than half are combined
12 cycle and the rest are simple cycle gas turbines, steam
13 turbine, or internal combustion-based cogeneration.

14 Q. Are a large number of these cogeneration plants owned
15 by IPPs, which are not net buyers of electricity?

16 A. Yes, most of these cogeneration plants are IPPs.

17 Q. What does this tell you regarding Mr. Radigan's
18 statement on page 20, lines 8 and 9, that Con Edison
19 justifies the cost of ERRP's generation because it
20 lowers the overall amount charged for electricity in
21 New York City and the rest of state?

22 A. This tells me that Mr. Radigan's statement is not
23 accurate. IPPs have no "incentive" to lower prices by
24 offering energy below cost. IPPs, like ERRP, self-

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1 schedule their energy in order to meet physical
2 operating limitations and contractual obligations,
3 including steam deliveries.

4 Q. What were the reasons behind ERRP's location, design
5 and its practice of self-scheduling?

6 A. ERRP's location and design met criteria for maximizing
7 plant efficiency while providing needed electric and
8 steam needs and at the same time utilizing existing
9 space within the existing plant site.

10 Q. Is Mr. Radigan accurate in his statement on page 8,
11 line 1 that it "is not true" that the method the
12 Company is portraying to the Commission that has been
13 used for the last 25 years is the incremental method?

14 A. No, he is not accurate. In its Order on Steam Rates in
15 Case 03-S-1672, the Commission specifically uses the
16 term "Incremental Method" to describe the practice that
17 has been in place for the last 25 years. This in fact
18 refers back to Opinion No. 78-27 (Case 27276), issued
19 November 14, 1978. In the 2003 Order noted above, the
20 Commission is referring to the Company's proposal for
21 allocating ERRP costs which was adopted in that case
22 and which is now the subject of these hearings.

23 Indeed, as explained on page 3 of the ERRP Study, the
24 well-established Incremental Method "has been used by

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1 the Commission for allocating costs between electric
2 and Steam Systems since 1978 and has been applied to
3 ERRP costs since 2004." Specifically, in its 2004
4 Steam Rate Order in Case 03-S-1672, the Commission
5 stated:

6 To stem an unacceptable exodus of Steam Customers
7 to electric, the Commission adopted steam rates,
8 and set cost allocations, that were purposely
9 designed to retain Steam Customers and maintain a
10 viable Steam System. **It selected the**
11 **'incremental' method that has remained in use ever**
12 **since**, which requires Steam Customers to pay only
13 the separate steam production and capital costs."
14 (emphasis added.)
15

16 Q. Mr. Radigan's testimony disagrees with the use of the
17 Incremental Method for allocating ERRP costs between
18 the Company's Electric and Steam Departments. Do you
19 agree with Mr. Radigan?

20 A. No, we do not. ERRP's costs are allocated to Steam and
21 Electric based on cost causation principles, which are
22 a component of the well-established and long standing
23 Incremental Method. With respect to fixed costs,
24 equipment was assigned steam and electric account
25 designations based on their functions. As discussed in
26 detail in section 3 of the ERRP Study, capital costs
27 and resulting carrying charges and property taxes
28 assigned to electric included combustion-turbine
29 generators, electric transmission interconnections,

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1 internal plant fuel supply piping for the gas turbines.
2 Major equipment and resulting costs allocated to steam
3 were Heat Recovery Steam Generators, steam piping
4 inside and outside the plant, and water treatment
5 plant. Certain equipment that is associated with both
6 steam and electric, such as building structures, are
7 allocated to electric. The resulting accounting
8 resulted in two-thirds of the plant's fixed costs being
9 assigned to Electric and one-third to Steam.

10 Q. Would you consider all of these plant allocation
11 methodologies to be categorized within the terminology
12 of the Incremental Method?

13 A. Yes.

14 Q. On Pages 22 and 23, Mr. Radigan acknowledges and
15 explains the environmental benefits of ERRP to the
16 Steam Department. Is this analysis complete?

17 A. No. Mr. Radigan failed to acknowledge the
18 environmental benefits of ERRP attributable to its
19 electric generation and therefore benefitting the
20 Electric Department.

21 Q. Does Mr. Radigan's testimony on pages 22 and 23
22 recognize the reduced emissions from the displacement
23 of In-City and statewide electric generation by ERRP?

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1 A. No. Mr. Radigan failed to present any analysis of
2 reduced emissions attributable to the fact that the
3 more efficient ERRP cogeneration unit has displaced
4 electric generation from older plants.

5 Q. Please describe the environmental benefits of ERRP's
6 operation attributable to displaced electric generation
7 referenced in the Company's ERRP Study.

8 A. The Company presented the results of a MAPS analysis
9 that quantified the displaced electric generation from
10 older more polluting plants by ERRP as part of the ERRP
11 Study (see Chapter 6C, pages 55-60). This analysis
12 considered two cases: (1) Waterside still in operation
13 without ERRP and (2) ERRP in operation without
14 Waterside. The analysis results clearly demonstrated
15 that both steam and electric departments had derived
16 the environmental benefits in terms of reduced fuel use
17 as well as and NO_x, SO₂, and CO₂ reductions. These
18 emissions reductions result from the displacement by
19 ERRP of older more heavily-polluting plants.

20 Q. On page 22, Line 8, Mr. Radigan attributes the vast
21 majority of opacity incidents to East River South
22 before ERRP Operation. Is he correct?

23 A. No. The percentage of opacity incidents attributable
24 to East River South in 2004 and 2005 were 11% and 6% of

ERRP Allocation Panel Rebuttal - Steam

1 the total incidents. This is not a "vast majority" of
2 incidences in the system.

3 Q. On pages 22-23, Mr. Radigan attributes the ERRP's
4 environmental benefits mostly to the partial
5 curtailment of steam production capacity at the East
6 River South Station. Is he correct?

7 A. No. The environmental benefits of ERRP arise mostly
8 from its modern design with environmental control
9 equipment (Selective Catalytic Reduction and Oxidation
10 Catalyst) and its use of clean-burning natural gas.
11 Its steam and electric generation displaces production
12 from higher polluting older plants. Additionally, the
13 Company has achieved lower NOx emissions from the other
14 Company-owned electric generators (ER Unit 6/60 and ER
15 Unit 7/70) by implementing low NOx emission projects
16 with some of the funding from the First Avenue Property
17 sales (over-fire air system at ER Unit 6/60 and induced
18 flue gas recirculation and over fire air systems at ER
19 Unit 7/70). This is another environmental benefit to
20 the Electric Department.

21 Q. Do you agree with Mr. Radigan's assessment of the
22 alleged "economic harm" referred to on pages 11-14 of
23 his testimony?

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- 1 A. No. Mr. Radigan's comparison of the cost of ERRP to
2 the NYISO's spot market energy price is misleading in
3 that it fails to account for other costs that factor
4 into the price of energy paid by consumers. Purchases
5 from the NYISO spot market only accounts for part of
6 Con Edison's energy costs. Con Edison, like most
7 utilities, also procures its supply under mandated long
8 term contracts. In addition, Con Edison enters into
9 hedges in order to reduce price fluctuations.
10 Therefore, within any given billing period, Con
11 Edison's charge to a retail customer will deviate from
12 the wholesale market price due to various reasons in
13 addition to differences between the utility or retail
14 supplier's portfolio of supplies and the market price.
15 The ERRP fuel cost, net of the energy revenues ERRP
16 receives, is just one piece of a large energy supply
17 portfolio that makes up Con Edison's bill to customers.
18 Thus, basing a change in the allocation of ERRP costs
19 on the grounds that ERRP's production costs are higher
20 than the NYISO's wholesale spot market prices is flawed
21 because it fails to account for all elements of Con
22 Edison's electric bill.
- 23 Q. Do you agree with Mr. Radigan's recommendations
24 regarding the allocation of ERRP costs?

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1 A. No. In addition to all of the flaws in Mr. Radigan's
2 analyses discussed above, Mr. Radigan's recommendation
3 would place an undue burden on steam customers to
4 achieve a relatively small benefit to electric
5 customers. Moreover, Mr. Radigan's recommendation
6 rests solely on downplaying or ignoring ERRP's benefits
7 to Electric customers. As detailed in the ERRP Study,
8 ERRP provides and has provided several significant
9 benefits to Electric customers, including the financial
10 and environmental benefits associated with the sale of
11 the First Avenue Properties, satisfying load pocket
12 requirements, increased electric reliability, improved
13 environmental benefits and lower energy and capacity
14 prices. Mr. Radigan, however, ignores or discounts all
15 of these benefits in order to arrive at his
16 recommendation.

17 Q. What is the impact on steam customers of Mr. Radigan's
18 recommendation to have all of ERRP's gas turbine fuel
19 costs borne by Steam Customers?

20 A. The Company continues to evaluate the factors that
21 would result in Steam Customers switching to on-site
22 self-supply of steam. There is consensus, however,
23 that the likelihood of the Steam Customer base
24 shrinking to the point where its most important anchor-

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1 load customers can no longer be retained is far greater
2 than any threat to the viability of the Electric
3 System. The Steam System currently faces upward rate
4 pressure due to various operational improvements in
5 reliability and environmental performance. Those
6 recently completed and anticipated projects include
7 addition of new water treatment plants, conversion to
8 gas-capability, improved distribution system monitoring
9 and the repowering/replacement at Hudson Avenue. All
10 of these projects entail a long term commitment to
11 maintaining the Steam System. Reversing the
12 longstanding incremental cost allocation method for
13 ERRP at this time would provide the wrong signal to
14 existing and potential Steam Customers and would not be
15 in the public interest nor would it be in the interest
16 of Steam or Electric Ratepayers.

Response to Staff

18 Q. On pages 36 to 38 of its testimony, Staff takes issue
19 with the Company's estimate of savings that steam air
20 conditioning provides to the Electric System. Do you
21 agree with Staff's estimates of the amount of savings?

22 A. No. To begin with, it is important to note that in
23 presenting its estimate, Staff has explicitly
24 recognized that the existence of steam air conditioning

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1 provides a significant benefit to the Company's
2 Electric Customers. Staff's estimate of \$147 million
3 is lower than the Company's estimate of \$335 million
4 because Staff incorrectly assumed that Electric
5 Customers would not have to pay for both 350 MW of
6 electric energy and capacity charges as well as
7 associated distribution and transmission costs.

8 Q. Does Staff recognize that there is a long term benefit
9 to Electric Customers from steam air conditioning?

10 A. Yes, it does. Staff estimates that there are \$147
11 million per year in benefits to Electric Customers from
12 steam air conditioning over the long term. See Staff
13 Exhibit ____ (SEAP-7).

14 Q. How does the Company's quantification of these benefits
15 differ from the Staff's estimate?

16 A. One difference is that the Company estimated specific
17 equipment and installation costs, based on replacement
18 cost, for serving the electric networks that are
19 currently served with steam air conditioning. This
20 analysis was presented by the Company at the April 27,
21 2009 Technical Conference. In contrast, Staff's
22 approach was less specific in that it proportionalized
23 the 350 MW against the Company's total existing rate
24 base. The Company's approach is more robust because of

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1 the detailed equipment cost analysis that supports its
2 quantification, which was \$180 million per year as
3 opposed to staff's quantification of \$80 million per
4 year, which was based on book value of existing
5 equipment. The Company's detailed evaluation was set
6 forth on slides 19 through 26 of its April 27
7 presentation. Please see Exhibit ____ (ERRP AP-3),
8 which was previously marked for identification.

9 An excerpt is shown below:

10 With the additional 350 MW of peak electric load
11 in the 33 impacted Manhattan networks, a total of
12 27 major load relief projects would be accelerated
13 and two new area substations would be required in
14 the 2009 to 2028 time frame. This includes a
15 switching station, area substations, feeders, and
16 additional transformers. A total of nine load
17 transfer projects would be accelerated
18 and 4 new load transfer projects would be required
19 in the 2009 to 2028 time frame. Over the three
20 year transitional period (2011-2013) the
21 distribution networks would need to be reinforced
22 to meet the additional 350 MW of peak electric
23 load, which would include transformers, field
24 constructed manholes, vaults and bus compartments,
25 primary cable, section ties, conduit, and street
26 mains.

27
28 In addition, the Company's estimate applied a present
29 value factor of 7% to put its analysis into 2009\$ and
30 assumed the actual replacement would take place over a
31 three year period from 2011 to 2013. Moreover, the
32 Company's estimate included savings to the Electric
33 customers from lower-priced energy.

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1 Q. Should the benefit that steam air conditioning provides
2 to electric be factored into the allocation of ERRP
3 costs?

4 A. Yes. Both Con Edison's \$335 million estimate and
5 Staff's \$147 million estimate of the benefit that steam
6 air conditioning provides to electric is significantly
7 larger than the amount of costs that parties are
8 suggesting should be shifted from Electric to Steam.
9 Specifically, one of the alternate allocation methods
10 listed in Staff Exhibit SEAP-2, would require the
11 shifting of \$134.7 million from Electric to Steam
12 customers. In the event the Commission decides to
13 shift any costs from Electric to Steam customers, that
14 cost shift should be offset by the amount of savings
15 that Electric Customers receive from the existence of
16 steam air conditioning.

17 Q On page 16, does Staff's discussion of past steam and
18 electric cost allocation approaches consider non-fuel
19 items?

20 A. No, Staff only refers to fuel cost allocation.
21 However, when Con Edison was a combination utility, the
22 overwhelming majority of plant in-service was paid for
23 by electric customers. Therefore, this is an
24 incomplete comparison to ERRP because, as noted in the

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1 ERRP Study, Steam pays for approximately one-third of
2 the fixed charges associated with the plant. Electric
3 pays for the other two-thirds while receiving 100% of
4 offsetting capacity revenues.

5 Q. What concerns do you have regarding Staff's Economic
6 Allocation Method?

7 A. We calculate that Staff's approach may result in an
8 increase in overall Steam Rates from a low of 15% to a
9 high of 55%, as shown in Exhibit ___ (ERRP AP-5).

10 MARK FOR IDENTIFICATION AS EXHIBIT ___ (ERRP AP-5).

11 This extremely wide variation and overall impact both
12 on the low and high end of its range are not useful on
13 a practical level for several reasons. Staff's
14 determination of the so-called "floor" price for
15 electric is inappropriate because it is based on their
16 calculation of "market heat rate," which is based on
17 electric and gas "spot market" prices. Staff calculates
18 this to be 9,284 btu/kWh. In addition, Staff's use of
19 a heat rate of a 9,284 btu/kWh heat rate is
20 inappropriate because it misses some key elements of a
21 generator's fuel cost such as the gas fuel tax and the
22 premium for firm gas transportation to the city gate.
23 Moreover, beyond the issues noted above on the
24 appropriateness of market heat rate as a proxy electric

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1 plant, the market heat rate changes as volatile gas and
2 electric markets change. Thus, it is inappropriate to
3 allocate ERRP costs based on a market heat rate.

4 Q. Looking at Staff's Exhibit __ (SEAP-2), are the
5 benefits to Electric Ratepayers from this potential
6 change commensurate with the additional costs that
7 would be borne by both Steam and Electric customers?

8 A. No. The benefits to Electric customers from the
9 proposed cost shifts are de minimus in the short term
10 and detrimental in the longer term. In the short run,
11 proposed shifts, such as that considered by County of
12 Westchester, calling for phase-in above so-called
13 "above market" costs, would have a short run reduction
14 in electric rates of well under 1% while increasing
15 steam rates by at least 10%, and in one instance by as
16 much as 34%. In addition, the Commission has recognized
17 that, beyond any change in ERRP allocation, there are
18 several factors likely to force Steam Rates to rise in
19 the near future, such as Ravenswood A-House
20 replacement, Steam Transmission and Distribution System
21 upgrades, Station Gas Conversions, and the Hudson
22 Avenue Replacement. The resulting risk to the Steam
23 Customer base is readily apparent. Given that there is
24 at least reasonable basis for the assertion that

ERRP Allocation Panel Rebuttal - Steam

- 1 Electric Customers benefit from the existence of the
2 Steam System and ERRP, and that any dispute is limited
3 to the quantification of such benefits, the Company
4 recommends that no change be made to the ERRP
5 allocation. In any event, steam customers should not
6 now bear a greater share of ERRP costs just because
7 market conditions in the past few years did not produce
8 the benefits that some may have anticipated.
- 9 Q. Does this conclude your testimony?
- 10 A. Yes, it does.

Total Efficiency

Exhibit __ (ERRP AP-2)

Year	Steam & Electric Fuel Input MMBtu	Steam & Electric Production MMBtu	Total Efficiency
2006	23,755,542	18,014,239	76%
2007	24,864,137	18,792,463	76%
2008	24,347,760	18,255,214	75%

Case #1

Benefits to the Electric System

Analysis: Calculate avoided capital infrastructure costs to electric system from 350 MW of steam A/C

• **Inputs:**

- 20-year planning horizon (2009-2028)
- January 6, 2009 peak load forecast
- Electric "base case" T&D capital budget requirements
- Steam A/C load in 36 Manhattan networks
- 350 MW of steam A/C converted to electric
 - Time frame for conversion: 2011-2013

• **Impacts:**

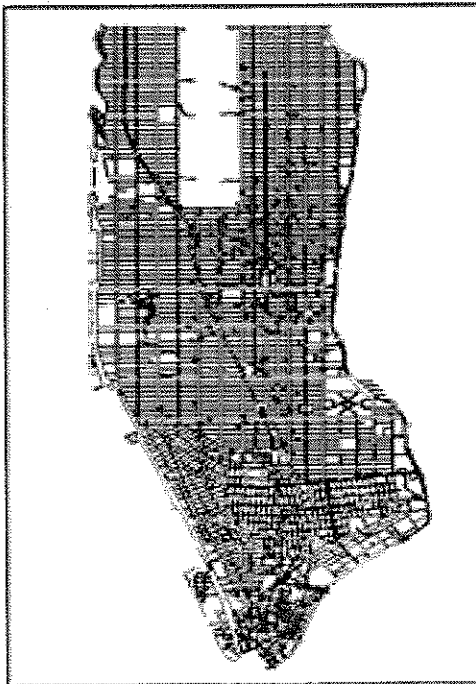
- Electric supply requirements
- T&D system in Manhattan networks
 - Assuming no steam A/C customers



slide 19

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Steam A/C Customers



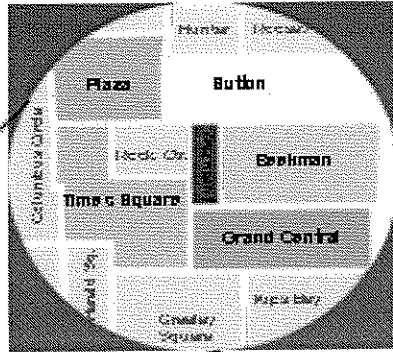
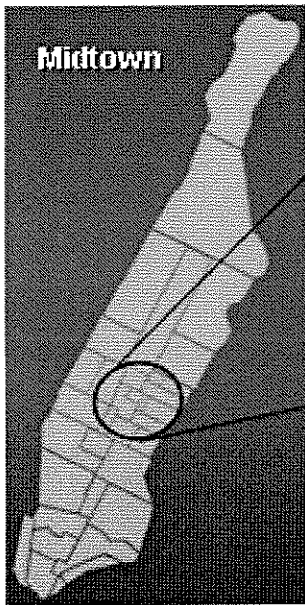
Steam A/C Customers

- 580,000 tons
- Equivalent to 350 MW

slide 21

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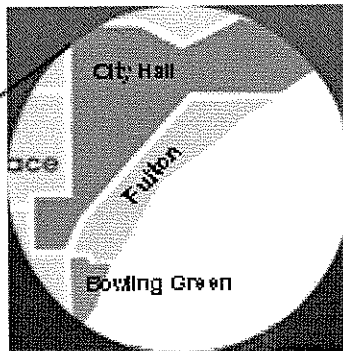
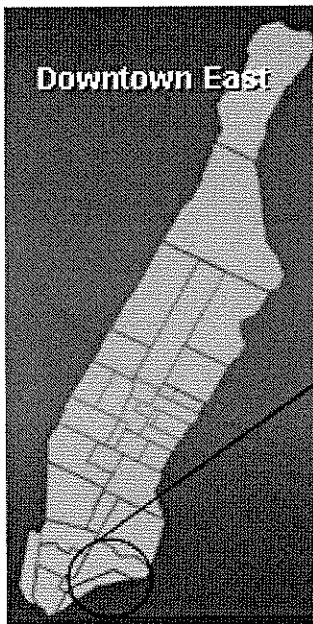
Manhattan Networks Avoided Electric from Steam A/C



	Steam A/C
Grand Central	33 MW
Plaza	32 MW
Times Square	28 MW
Sutton	23 MW
Turtle Bay	19 MW
Beekman	16 MW
Other	46 MW
	197 MW

14

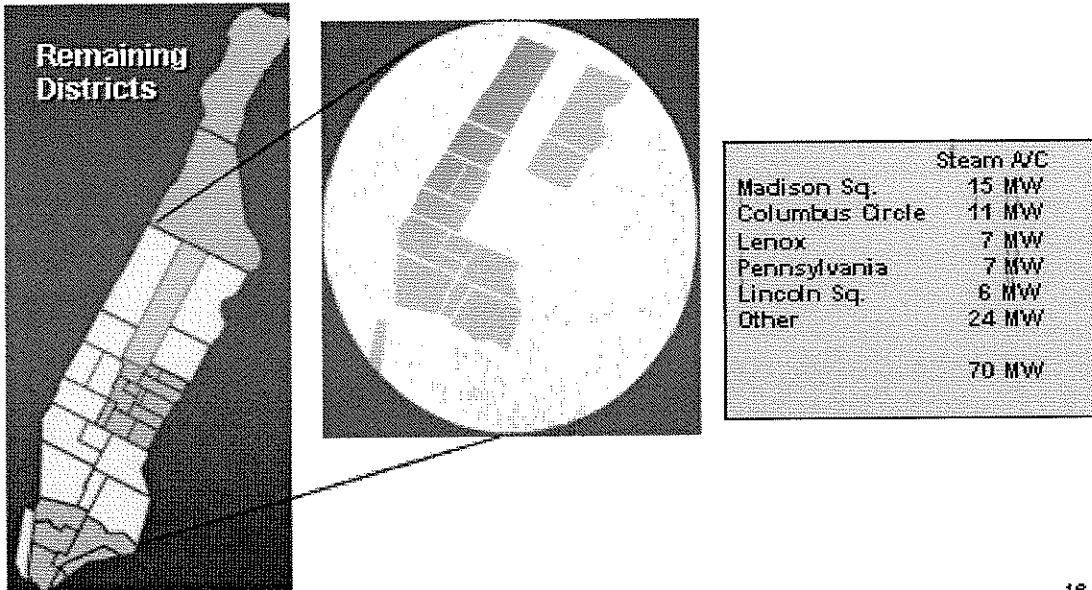
Manhattan Networks Avoided Electric from Steam A/C



	Steam A/C
City Hall	32 MW
Bowling Green	21 MW
Fulton	11 MW
Other	19 MW
	83 MW

15

Manhattan Networks Avoided Electric from Steam A/C



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Case #1

Avoided Costs to Electric T&D

Substations and Sub-Transmission

- * 27 major load relief projects accelerated
 - Trade Center No. 1
 - Murray Hill
 - W. 49th Street
 - West Side Switching Station
 - Hudson Yards No. 1 Area Substation
- * 2 new area substations shift into 20-year timeframe
 - Trade Center No. 2
 - Hudson Yards No. 2

slide 25

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Case #1

**Summary of Avoided Capital Costs
to Electric T&D of 350 MW Steam A/C**

\$Million (2009 dollars, NPV, 7% discount rate)

	Capital Cost	Annual Carrying Charges
Substations and Sub-Transmission	\$630	\$100
Distribution Load Transfers	40	5
Distribution Reinforcements	430	75
Total	\$1,100	\$180

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INFORMATION REQUEST TO COUNTY OF WESTCHESTER ("COW")

From: Consolidated Edison Company of New York, Inc. Set 1

Case Description: Con Edison Steam Planning Proceeding

Case No. 09-S-0029

Date of Response: August 5, 2009

Responding Witness: Frank Radigan

10. The following questions pertain to the testimony on page 19, lines 6 to 12.
- a. Please explain how the phrase "Con Edison schedules the electric output of ERRP" means that ERRP is bid as "a price taker."

Consistent with commitments Con Edison made as part of its Application for Certification of a Major Electric Generation Facility under Article X of the New York State Public Service Law (Case no. 99-F-1314) to construct East River Repowering Project, the Company bids its electric output into the electric market at its "to-go" cost. Specifically, the Order approving the East River Repowering Project Article X application states "Since the Project's operation is dictated by steam system demand, the examiners found that the applicable "to-go" cost for electric generation is likely to be zero at most times." (ERRP Study page 52)

- d. Does COW agree that the NYISO's Market Administration and Control Area Services Tariff ("Services Tariff") allows Con Edison to bid the electric output of ERRP into the NYISO's day-ahead energy market as a price taker?

Yes

Analysis of Staff Economic Allocation Method

Exhibit __ (ERRP AP-5)

Current Method

Steam	Electric	Total
430,206	23,917,559	24,347,765
	MMBTU	

Steam	Electric
9,690,615	2,168,686
	MWh

Steam	Electric	Total
\$4,916	\$269,649	\$274,565
\$0.51	\$124.34	
	\$/MWh	

Economic Method

"Ceiling" Allocation to electric Stand alone BTUs to produce electric

Electric	heat rate	MMBTU
2,168,686	9,284	20,134,081

"Ceiling" Allocation to steam Stand alone BTUs to produce steam

Steam	heat rate	MMBTU
9,690,615	1,500	14,537,307

Total
MMBTU 34,671,388

"Floor" Allocation to steam

incremental btus to produce steam after electric
4,213,684
17%

"Floor" Allocation to electric

incremental btus to produce electric after steam
9,810,458
40%

14,024,142

"Common" costs to be allocated

remainder btus to be allocated: 10,323,623
percentage btus to be allocated: 42%

% increase
over current
method

\$47,517 \$4.90 \$/Mlb
\$110,631 \$51.01 \$/MWh
\$116,417

Floor Cost to ERRP Steam (\$1000)
Floor Cost to ERRP Electric (\$1000)
Common ERRP Cost to be Allocated (\$1000)

\$289,330 \$12.22 \$/Mlb
\$4,916 \$0.51 \$/Mlb
\$284,414 \$20.33 \$/Mlb
\$331,931 \$14.02 \$/Mlb
\$448,348 \$18.93 \$/Mlb

Year 2008 Total Cost of Steam (\$1000)
Year 2008 ERRP Cost of Steam (\$1000)
Year 2008 Net Cost of Steam (\$1000)
Year 2008 Cost of Steam including "floor" price of ERRP (\$1000)
Year 2008 Cost of Steam including "floor & common" price of ERRP (\$1000)

Comments:

- (1) Floor price of ERRP steam (not accounting for common costs) represent over a 900% increase in \$/Mlb over current method.
- (2) Floor price of ERRP electric (not accounting for common costs) represents an approximate drop of 60% in \$/MWh of current method.
- (3) Including floor price of ERRP steam (not accounting for common costs) represents a 15% increase in \$/Mlb total steam costs (year 2008).
- (4) Including floor and total common price of ERRP steam represents a 55% increase in \$/Mlb total steam costs (year 2008).