

CONSOLIDATED EDISON COMPANY OF NEW YORK

STEAM OPERATIONS PANEL

STEAM

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1 Q. Please state your names, employer and business
2 addresses.

3 A. Victor E. Mullin, 4 Irving Place, New York, NY, 10003,
4 Brian Horton, 1-11 Hudson Avenue, Brooklyn, NY, 11201,
5 and Lois Westfall, 750 East 16th Street, New York, NY,
6 10009. We are employed by Consolidated Edison Company
7 of New York, Inc. ("Con Edison" or the "Company") and
8 are testifying jointly as the Steam Operations Panel.

9 Q. In what capacity are you employed?

10 A. (**Mullin**) I am the Chief Civil/Mechanical Engineer.

11 (**Horton**) I am the Plant Manager of the Hudson Avenue
12 Generating Station ("Hudson Avenue").

13 (**Westfall**) I am the General Manager of Steam
14 Distribution.

15 Q. How long have you been employed by Con Edison and what
16 positions have you held?

17 A. (**Mullin**) I have been with Con Edison for approximately
18 27 years. I was employed by Con Edison in February
19 1982 and have held various engineering and management
20 positions in Central Engineering, Nuclear Power,
21 Substations, and Gas Operations. In April 2005, I was
22 assigned to Gas Operations as the Chief Gas
23 Transmission Engineer. Since December 2008, I have
24 been the Chief Civil/Mechanical Engineer.

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1 **(Horton)** I joined Con Edison in 1984 as a Production
2 Worker in Fossil Power Operations. Since then, I have
3 held various positions of increasing responsibility in
4 the Company, including Control Room Operator, Fossil
5 Power Instructor, Shift Supervisor, Operations Manager,
6 Senior System Operator and Plant Manager of the
7 Waterside Generating Station. In 2008, I assumed my
8 present position as Plant Manager at Hudson Avenue.

9 **(Westfall)** I have been employed by Con Edison since
10 1985. After completing the Company's engineering
11 intern program, I held various management positions of
12 increasing responsibility in Gas Operations, Gas
13 Engineering and Construction Management. In 2007, I
14 assumed my present position as the General Manager of
15 Steam Distribution.

16 Q. Please discuss your educational background.

17 A. **(Mullin)** I received a Bachelors of Nuclear Science
18 Degree from SUNY Maritime College in 1978. I also
19 received a Masters of Management Science from Pace
20 University in 1994 and completed the Public Utility
21 Executive Program in July 1995 at Michigan University.

22 **(Horton)** I graduated from Manhattan College in 1996
23 with a Bachelor of Science degree in Electrical
24 Engineering.

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1 **(Westfall)** I graduated from SUNY at Buffalo in 1985
2 with a Bachelor of Science degree in Mechanical
3 Engineering.

4 Q. What are your current responsibilities?

5 A. **(Mullin)** My primary responsibility is to provide
6 engineering leadership and oversight to ensure the safe
7 and sustained operation and maintenance of specific
8 systems within their design criteria. These systems
9 include: portions of the electric system and
10 transmission operations infrastructure, the steam
11 distribution and transmission systems, and the
12 mechanical and structural systems and equipment that
13 support both the steam and electric generating
14 stations.

15 **(Horton)** I am responsible for the management of all
16 activities required to safely and reliably produce
17 steam and electricity at Hudson Avenue. This includes
18 managing the annual operation and maintenance ("O&M")
19 and capital budgets for Hudson Avenue and developing
20 forecasts for future expenditures required to maintain
21 station performance.

22 **(Westfall)** I am responsible for the management of all
23 activities required to safely and reliably distribute
24 steam in the borough of Manhattan. This includes

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1 developing and managing the O&M and capital programs
2 for the Steam Distribution system.

3 **PURPOSE OF TESTIMONY**

4 Q. Please briefly describe the purpose of the Panel's
5 testimony.

6 A. Our testimony addresses the Company's planned capital
7 and O&M spending for its steam production and steam
8 distribution facilities. For capital, the Company
9 projects to spend approximately \$96.1 million in 2010,
10 \$64.4 million in 2011, \$50.5 million in 2012, \$50.9
11 million in 2013, and \$50.8 million in 2014, excluding
12 the Hudson Avenue Replacement Project ("HARP") and the
13 Natural Gas Addition projects, as discussed below with
14 respect to the Steam Production Capital Plan. For O&M,
15 the Company projects to spend \$94.8 million in the
16 first rate year ending September 30, 2011, which
17 represents an increase of approximately \$3.6 million
18 from the historic year. In the next rate year ending
19 September 30, 2012, the Company expects to maintain
20 this level of O&M expenditures while continuing to
21 provide the same level of safety, service and
22 reliability. In the rate years ending September 30,
23 2013 and 2014, the Company expects that it may be able

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1 to reduce O&M expenses by approximately \$600,000, for
2 total expenses of \$94.2 million.

3 Q. Has the Company considered the magnitude of its steam
4 capital and O&M spending in this rate request?

5 A. Yes. As explained in the testimony of Company witness
6 Shukla, the Company's proposed capital spending is
7 essentially flat as compared to prior years. Moreover,
8 as explained later on, the Company has limited its O&M
9 program change requests to those that are based on
10 necessary operating requirements. The Company is
11 mindful of current economic conditions and has made
12 significant efforts to hold the line on expenditures.

13 Q. Briefly describe the Company's steam system.

14 A. Con Edison operates the largest district-energy steam
15 system in the United States. The steam system provides
16 service to approximately 1,800 customers in Manhattan,
17 from the Battery all the way to 96th Street on the West
18 Side, and 89th Street on the East Side. Steam is used
19 for heating in the winter, air conditioning in the
20 summer, for hot water, for sterilization, and for
21 humidification. Steam energy is environmentally
22 friendly. In the Steam Production side of the system,
23 steam is generated from six Con Edison steam generating
24 plants (four in Manhattan, one in Queens, and one in

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1 Brooklyn). The Company also receives steam under a
2 contract from an independent steam plant located within
3 the confines of the Brooklyn Navy Yard Cogeneration
4 Partners ("BNYCP"). The Steam Distribution System
5 contains approximately 105 miles of mains and service
6 pipes, and approximately 3,000 steam manholes that
7 deliver steam to the customers.

8 Q. How is the Steam System unique?

9 A. Unlike the Electric System that is interconnected to
10 other states and has the capability of receiving
11 electric energy from neighboring regions, the steam
12 system is solely and completely dependent on local
13 steam generating stations (i.e., the six Con Edison
14 stations and the one BNYCP station) to satisfy the
15 steam needs of the Company's customers. External steam
16 capacity is not available to supplement the Company's
17 steam generating plants. Similarly, the efficient
18 operation of the distribution system that is contained
19 within the City is important to minimize customer
20 interruptions. In effect, the steam system is self-
21 sufficient. Thus, the reliability of the Steam
22 Production plants and Steam Distribution infrastructure
23 is critical to meet the needs of the Company's steam
24 customers.

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1 Q. Please describe the importance of the steam system
2 infrastructure to the Company's service territory.

3 A. Con Edison's steam system is interwoven in the fabric
4 of New York City. Steam sustains healthcare,
5 hospitality, transportation, entertainment, housing and
6 commerce. For example, the Company supplies steam to
7 large facilities such as Memorial Sloan Kettering
8 Cancer Center, NYU Medical Center, United States of
9 America Veteran's Administration Hospital, the New York
10 Hilton and Waldorf Astoria Hotels, Lincoln Center for
11 the Performing Arts, New York City Metropolitan Museum
12 of Art and Museum of Modern Art, Grand Central Terminal
13 and the United Nations. Disruption or loss of steam
14 supply would have significant consequences to everyday
15 life conveniences and necessary services in the City.
16 Thus, it is imperative that the reliability of the
17 steam system be maintained in order to generate and
18 deliver steam continuously in a safe, reliable and cost
19 effective manner.

CAPITAL CONSTRUCTION PLANS

STEAM PRODUCTION CONSTRUCTION PLAN

22 Q. Please provide an overview of the Steam Production
23 Construction Plan.

24 A. The Steam Production Construction Plan ("Plan") is the

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1 Company's five-year systematic capital expenditure
2 forecast to implement cost effective projects to
3 maintain structures, systems and components over the
4 long term as conditions warrant and as may be required
5 by governmental regulations. The Company's objective
6 is to sustain safety and reliability in steam
7 generation while minimizing the impact on rates. The
8 Plan is subdivided into a comprehensive set of nine
9 plant functional programs covering: (1) boilers; (2)
10 mechanical equipment; (3) electrical equipment; (4)
11 control systems; (5) structures; (6) waterfront; (7)
12 roofs; (8) security; and (9) Environmental, Health and
13 Safety ("EH&S"). Each of these functional programs
14 includes specific projects necessary for the continued
15 safe, efficient and reliable operation of the Company's
16 steam generating facilities: East River South Steam
17 Station, East River Units 1 and 2, East 74th Street,
18 East 60th Street, West 59th Street, Ravenswood and
19 Hudson Avenue.

20 Q. How is the Plan developed?

21 A. The Plan identifies specific improvement projects based
22 on current information on the condition of each
23 station's structures, systems and equipment and the
24 relative degree such conditions may affect safety,

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1 reliability, environmental protection and regulatory
2 compliance. The projects are planned and prioritized
3 based on long lead time for equipment procurement,
4 construction duration, concurrent projects, and current
5 schedules for equipment and station outages, as
6 applicable.

7 Q. How is the condition of the equipment and structures
8 determined?

9 A. The condition of the equipment and structures is
10 determined on an on-going basis during routine plant
11 operations, inspections, system assessments or when
12 equipment failure or malfunction occurs. Also,
13 upgrades are anticipated based on equipment
14 degradation, discontinued support from Original
15 Equipment Manufacturers ("OEM"), inability to obtain
16 spare parts, industry practice and evolving regulatory
17 requirements.

18 Q. How are the costs projected?

19 A. Cost projections included in the Plan are based on a
20 preliminary scope of the work developed from
21 inspections of existing conditions, evaluations of
22 alternatives, past experience with similar projects and
23 consultations with vendors and contractors. More
24 detailed cost estimates are prepared for each project

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1 as the project implementation process proceeds, e.g.,
2 project scopes are finalized, equipment is selected,
3 and detailed engineering and design is developed.

4 Q. What measures does the Company use to see that these
5 projects are implemented at the lowest, reasonable
6 cost?

7 A. The Company's processes include several controls for
8 the efficient and cost effective implementation of
9 capital and O&M projects. For example, the scope of
10 each project is defined and, when applicable,
11 alternatives are evaluated to develop the most cost
12 effective solution. The Company uses in-house
13 engineering and construction resources depending on
14 availability and technical specialty. In general,
15 outside services and equipment are purchased using a
16 formal competitive bidding process. A bid package that
17 includes the project's technical specification and
18 scope of work is prepared and proposals are solicited
19 from pre-qualified vendors. The Company's engineering,
20 station, purchasing and other personnel, as applicable,
21 hold an information gathering meeting, which includes a
22 field walk with the prospective bidders to review the
23 proposed scope of work. Each vendor proposal is
24 evaluated for compliance with the Company's technical

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- 1 and commercial requirements as specified in the bid
2 documents and other considerations such as experience
3 with similar projects, exceptions or qualifications to
4 Company requirements, etc., and the lowest-cost
5 qualified vendor is selected.
- 6 Additional controls are imposed for construction
7 contracts to obtain the lowest reasonable cost. For
8 example, proposals for fixed-price contracts are
9 typically requested and a separate sealed "bid check"
10 cost estimate is prepared for contracts above a certain
11 amount. This estimate is then used for comparison with
12 the contractors' bids. The Company's Bid Check
13 Estimating section reviews the competitive construction
14 estimates and provides advice to the construction team
15 to insure the best value for our customers. The
16 Company's Construction Management Department oversees
17 the administration of construction contracts to ensure
18 the terms of the contracts are met.
- 19 Q. Has the Panel prepared an exhibit entitled
20 "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. - STEAM
21 PRODUCTION CONSTRUCTION PLAN 2010-2014"?
- 22 A. Yes.
- 23 MARK FOR IDENTIFICATION AS EXHIBIT __ (SOP-1.1)
- 24 Q. Please describe this Exhibit.

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1 A. Page 1 of this Exhibit summarizes Con Edison's
2 projected capital expenditures for nine program
3 categories under the Steam Production Construction Plan
4 for the years 2010, 2011, 2012, 2013 and 2014. The
5 Company proposes to spend approximately \$55.7 million
6 in 2010, \$30.5 million in 2011, \$24.7 million in 2012,
7 \$25.4 million in 2013 and \$25.3 million in 2014 in
8 these categories and to recover the costs associated
9 with these projects in base rates. Page 2 of
10 Exhibit__ (SOP-1.1) shows the Company's proposed
11 spending for three additional projects, the costs for
12 which are not included in the revenue requirements for
13 the Company's one-year or four-year rate plan
14 proposals. These projects are HARP and the
15 installation of natural gas firing capability for the
16 West 59th Street and East 74th Street Stations. As
17 explained below, the Company proposes to recover the
18 costs of these projects through the Fuel Adjustment
19 Clause ("FAC").

20 **HUDSON AVENUE REPLACEMENT PROJECT**

21 Q. What is the Company's current plan regarding HARP?

22 A. The Company's current plan remains as presented in the
23 Steam Resource Plan and in the Steam Planning
24 Proceeding (Case 09-S-0029). That is, the Company

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1 proposes to install up to four new boilers at the
2 Hudson Avenue station in a new facility in the vicinity
3 of the existing maintenance building. The new boilers
4 will have a steam generating capacity of up to 1,600
5 Mlb/hr and will replace the existing boilers at the
6 station. The primary fuel of the new boilers would be
7 natural gas, with ultra low sulfur distillate as
8 backup. The project would be implemented in a "make
9 before break" approach in which the existing facility
10 will continue to operate until the new boilers are
11 placed into service. The current projected cash flow
12 for this project is as follows: \$12.0 million in 2010,
13 \$40.0 million in 2011, \$180.0 million in 2012, \$200.0
14 million in 2013 and \$11.0 million in 2014. The total
15 estimated cost of this project is approximately \$450
16 million. Construction is planned for completion in
17 2013 and commercial operation in early 2014.

18 Q. Please discuss the present status of the Company's
19 proposal.

20 A. Pursuant to the procedures established for Case 09-S-
21 0029, the Company presented its proposal to install up
22 to four steam boilers at Hudson Avenue at a March 31,
23 2009 Technical Conference. An annotated copy of this
24 presentation was filed with the Commission and

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1 distributed to the parties in that proceeding on April
2 28, 2009. On June 17, 2009, the Company, along with
3 the other parties to that proceeding, filed position
4 statements regarding the Company's Hudson Avenue
5 proposal. On July 28, 2009, the parties filed comments
6 in support or opposition to the Company's Hudson Avenue
7 proposal and then, on August 14, parties filed reply
8 comments. We note that the Company also responded to
9 numerous discovery requests and provided Staff and
10 interested parties with a significant amount of
11 information regarding the various technical options
12 that were studied for Hudson Avenue.

13 Q. Since the projected in-service date for this project is
14 2014, why is the Company not proposing to reflect the
15 cost of this project in base rates for the fourth year
16 of the Company's proposed four-year rate plan?

17 A. The Company plans to confirm the amount of additional
18 capacity needed in the 2014 timeframe at the conclusion
19 of the upcoming winter season. Accordingly, the
20 Company concluded that its proposed four-year rate
21 plan, including its proposal for a four-year levelized
22 rate, should not reflect a significant capital project
23 whose cost may be materially lower.

24 Q. Why does the Company now plan to confirm the amount of

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1 capacity needed at this site after the upcoming winter
2 period?

3 A. The Company's recently updated 2009 peak demand
4 forecast is lower than previous forecasts, due
5 primarily to the lower than anticipated demand over the
6 past 2008-2009 winter. Factors contributing to this
7 lower than anticipated peak demand includes negative
8 growth in the economy and the emerging impact of
9 conservation by customers. Accordingly, the Company
10 plans to perform a new peak demand forecast at the
11 conclusion of the coming winter period and reexamine
12 its forecasted peak demand, which is a driving
13 consideration for the current HARP project. In the
14 interim, the Company is continuing the planning and
15 analyses necessary to complete HARP, and meet the
16 current schedule objectives, should the peak demand
17 this winter validate the need for the project as
18 currently structured.

19 Q. Assuming the Company confirms that HARP should proceed
20 as planned, how does the Company propose to recover the
21 costs of this project?

22 A. The Company proposes to recover the carrying charges
23 that would otherwise have been recovered in base rates
24 through the FAC, until the next time base rates are

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1 set, at which time the Company would recover the
2 balance of the HARP costs in the same manner as other
3 capital infrastructure investments.

4 Q. What if the Company determines that the nature and/or
5 timing of HARP should be modified?

6 A. The Company will inform the record in this proceeding
7 once that determination is made. Since, under the
8 Company's recovery proposal, the net plant target for
9 Rate Year 4 does not include HARP costs, no adjustment
10 to the proposed base rates would be required. Rather,
11 the Company would recover the carrying charges
12 associated with the modified HARP project through the
13 FAC, until the next time base rates are set, at which
14 time the Company would recover the balance of the HARP
15 costs in the same manner as other capital
16 infrastructure investments.

17 Q. If the Company modifies HARP, does the Company
18 anticipate incurring any other costs associated with
19 the Hudson Avenue site?

20 A. Should the Company propose to modify the timing of
21 HARP, the Company may incur additional capital and O&M
22 expenses required to maintain the existing boilers.
23 The amount of such expenditures will necessarily depend
24 on the extent and nature of the modifications to the

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1 HARP proposal. The Company proposes that such
2 incremental costs also be recovered temporarily through
3 the FAC, with the balance of such costs to be recovered
4 in base rates the next time base rates are set.

5 **NATURAL GAS ADDITION**

6 Q. What is the Company's plan regarding the projects to
7 install Natural Gas firing capability to the West 59th
8 Street and East 74th Street Stations?

9 A. Currently, the primary fuel at both the West 59th and
10 East 74th Street Stations is #6 fuel oil. At the West
11 59th Street Station, the two Annex boilers use #6 fuel
12 oil. Natural gas is used for the three package boilers
13 and the Annex boilers' igniters. At the East 74th
14 Street Station, all of the boilers (i.e., three high
15 pressure and six package boilers) use #6 fuel oil. The
16 Plan includes projects to install gas supply systems at
17 each station with capacity sufficient to fuel all of
18 the boilers. These projects will convert the stations'
19 primary fuel to natural gas while maintaining the dual-
20 fuel firing capability for all boilers, i.e., each
21 boiler would be capable of using either #6 fuel oil or
22 natural gas.

23 Q. What are the projected costs for these projects?

24 A. The gas addition project at the West 59th Street

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1 station consists of installing a natural gas supply
2 system for the high pressure boilers. Also, the
3 existing natural gas supply to the package boilers will
4 be modified. The preliminary cost estimate of the West
5 59th Street station project is \$29.0 million. The gas
6 addition project at the East 74th Street station
7 consists of the installation of a natural gas supply
8 system for three high pressure boilers and six package
9 boilers; the preliminary estimated cost is \$56.0
10 million.

11 Q. Why is the Company proposing to proceed with these
12 projects now?

13 A. These projects offer significant economic,
14 environmental and other benefits.

15 Q. Please describe the economic benefits.

16 A. Based on the Company's cost/benefit analyses, the West
17 59th Street station project is projected to result in
18 an overall annual cost savings of approximately \$8.7
19 million. The annual cost savings is broken down as
20 follows: (1) the projected price differential between
21 #6 fuel oil and natural gas; (2) reduction in fuel
22 delivery costs; and (3) reduced boiler washes. As to
23 the projected price differential between #6 fuel oil
24 and gas, this project is expected to result in

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1 approximately \$8.2 million in annual fuel savings.
2 Additionally, since the fuel oil is delivered to the
3 station by barge, the Company expects to realize an
4 additional cost savings of \$480,000 annually in avoided
5 barge charter service. These savings would be
6 reflected in lower FAC charges. Other cost savings
7 include approximately \$70,000 in reduced O&M costs due
8 to the reduced number of necessary boiler washes.

9 Q. What are the savings projected for the East 74th Street
10 Station?

11 A. The natural gas addition at the East 74th Street
12 station is projected to result in an overall annual
13 cost savings of approximately \$15.0 million, which
14 includes about \$14.5 million in savings due to the
15 projected differential in fuel costs and \$220,000 in
16 reduced O&M costs due to the reduced number of
17 necessary boiler washes. There are no fuel delivery
18 charge savings at East 74th Street station because
19 normal fuel oil supply is piped into the station from
20 the Ravenswood Station.

21 Q. What is the basis for the projected cost differential
22 between gas and oil prices?

23 A. The cost differential between gas and #6 fuel oil is
24 based on a 5-year forward projection of natural gas and

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1 fuel oil prices. Please see the testimony of Company
2 witness Catuogno and Exhibit__ (JC-2).

3 Q. What are the environmental benefits?

4 A. The use of natural gas rather than #6 fuel oil also
5 benefits the environment because emissions such as
6 Nitric oxide ("NO_x"), Sulfur Dioxide ("SO₂") Carbon
7 Dioxide ("CO₂") and particulate matter are reduced.
8 The estimated annual emission reductions resulting from
9 firing natural gas as the primary fuel at the West 59th
10 Street station are as follows: 131 Tons NO_x, 345 Tons
11 SO₂ and 60,511 Tons CO₂. Similarly, for the East 74th
12 Street station, the annual estimated emissions
13 reductions are 246 Tons NO_x, 610 Tons SO_x and 116,251
14 Tons CO₂.

15 Q. Are there other benefits attributable to these
16 projects?

17 A. Yes. As further discussed below, converting to gas may
18 be necessary in the future to comply with more
19 stringent emissions regulations should they be enacted.
20 Also, dual fuel provides flexibility and significantly
21 enhances reliability in the event that either fuel
22 supply may be disrupted.

23 Q. How is the Company proposing to recover the capital
24 costs associated with adding dual fuel capability to

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1 these two stations?

2 A. The Company is proposing to recover these investments
3 from the resulting fuel cost savings through the FAC.
4 Specifically, the FAC would continue to reflect the
5 costs of fuel as if oil were being burned in these two
6 plants. At the same time, the savings associated with
7 purchasing and burning natural gas at these plants
8 would be retained by the Company to offset the capital
9 costs of installing the natural gas burning equipment.
10 Once the capital costs are fully offset, customers
11 would be billed based on the actual cost of fuel burned
12 at the stations. Based on current projections of gas
13 and fuel oil prices, the Company estimates that it will
14 be able to recoup the capital costs associated with the
15 West 59th Street station over a five to seven year time
16 period. A similar payback period is projected for East
17 74th Street.

18 Q. How will customers benefit from the proposed rate
19 treatment?

20 A. Customers will bear no incremental costs during the
21 period that the Company recovers its capital
22 investment, since customers will pay fuel prices as if
23 the capital investment in gas burning facilities had
24 not been made. Once the investment is recovered,

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1 customers will receive the full economic savings and
2 environmental and other benefits associated with
3 burning natural gas at these facilities instead of oil.

4 Q. Is there precedent for rapid recovery of this type of
5 capital investment from the savings produced by the
6 investment?

7 A. Yes. The Commission has previously approved similar
8 ratemaking mechanisms for the conversion of two oil-
9 fired steam units at the West 59th Street and East
10 River South Steam stations to permit gas burning; and
11 for the temporary restoration of Hudson Avenue 10/100.

12 Q. What does the Company propose should the Commission
13 reject its proposal to recover these costs through the
14 FAC?

15 A. The Company proposes that the steam revenue requirement
16 be adjusted to include recovery of the capital cost
17 associated with both the West 59th Street and East 74th
18 Street Station projects.

19 Q. Do you have any final comments regarding this rapid
20 recovery proposal?

21 A. Yes. If the Commission accepts this proposal, the
22 Company reserves its rights to petition the Commission
23 to recover any unrecovered portion of these projects in
24 base rates, the next time base rates are set, if, based

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1 on actual or forecasted changes in gas and fuel oil
2 prices, it is anticipated that the recovery period for
3 these projects will be greater than seven years.

4 Q. Does the Plan include other noteworthy issue, programs
5 or projects?

6 A. Yes. In response to the New York Department of
7 Environmental Protection's ("NYDEP") intention to
8 change the steam generating station city water supply
9 from the Catskill to the Croton reservoir, the Plan
10 includes several new water treatment systems upgrades
11 in order to comply with the steam quality requirements
12 and to protect piping and plant equipment. These
13 projects have been scheduled based on the NYDEP's
14 recent notification that the estimated in-service date
15 for the Croton filtration plant is the spring of 2012.

16 **IMPACT OF NYDEP'S PLAN TO CHANGE WATER SUPPLY**

17 Q. Please describe the need for additional water treatment
18 system improvement projects due to the NYDEP's planned
19 change in water supply.

20 A. In September 2008, the NYDEP temporarily changed the
21 water supply to the Company's steam generating stations
22 from the Catskill to the Croton reservoir. As further
23 discussed below, this change required several interim
24 projects to meet steam quality requirements. The

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1 Company has recently been notified by the NYDEP that it
2 plans a permanent change of the stations' water supply
3 from Catskill to the Croton reservoir by 2012. Water
4 from the Croton reservoir is lower in quality in that
5 it contains higher levels of impurities, as compared to
6 the water from the Catskill reservoir. This means that
7 the water received from the Croton reservoir requires
8 additional processing in order to meet the Commission's
9 steam quality requirements. In addition, based on
10 detailed analyses of prior failures, proper water
11 treatment is necessary so that the boiler components,
12 plant and steam distribution piping systems are
13 protected from corrosion caused by poor quality or
14 insufficiently treated water. Current water treatment
15 systems at East River South Steam Station and East 74th
16 Street Station are not capable of treating the Croton
17 water to meet the Commission's steam purity
18 requirements and maintaining conditions necessary to
19 protect the Company's steam piping and equipment.

20 Q. Which stations did the NYDEP temporary change to Croton
21 water affect?

22 A. The affected stations are East 74th, East 60th, West 59th
23 and East River South Steam. The existing water
24 treatment systems at these stations are not capable of

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1 processing the Croton water to the degree needed to
2 protect plant equipment and piping and meet the
3 required steam purity quality limits. As a result,
4 projects were implemented at some of these stations on
5 an expedited basis to install the equipment, e.g.,
6 piping, valves and control systems, needed to connect
7 portable water treatment systems capable of processing
8 the Croton water. Portable water treatment systems
9 were installed at East 74th Street, East 60th Street and
10 West 59th Street Stations at an approximate cost of
11 \$2.6 million, \$1.7 million and \$1.4 million,
12 respectively. Similarly, modifications were required
13 at East River at an approximate cost of \$4.0 million.

14 Q. Does the Plan include additional water treatment
15 projects?

16 A. Yes. The additional water treatment projects are
17 described below:

18 **East 74th Street Station Package Boilers** - This project
19 will allow the demineralization system currently being
20 installed at the East 74th Street Station to provide
21 treated water to the package boilers. The project,
22 which consists of the installation of pumps, piping and
23 control systems to supply treated water from the new
24 high pressure boiler demineralization system to the

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1 package boilers, is planned for completion in 2013 at a
2 preliminary cost estimate of \$5.0 million, which
3 equates to \$2.0 million in 2012 and \$3.0 million in
4 2013.

5 **East River Units 10 and 20** - It is expected that, with
6 water supply from the Croton reservoir, there would be
7 an increase in labor and consumable requirements due to
8 a decrease in feed water quality. Consequently, the
9 existing water treatment system will be modified to
10 include additional pre-treatment systems, which will
11 also improve the overall operation and establish a
12 reliable water treatment supply to meet the needs of
13 the station. This project will be implemented over a
14 three year period, from 2010 to 2012 at a total cost of
15 \$15.0 million. Based on preliminary evaluation, the
16 upgrades under consideration would not only avoid the
17 increase in cost due to the Croton supply, but could
18 also result in annual savings of as much as \$2.0
19 million in current O&M costs. These savings would be
20 due to less water usage because of lower backwash
21 frequency, reduced consumable replacements such as
22 filters, reverse osmosis membranes and chemicals,
23 labor, and waste removal. These savings would be
24 reflected in lower FAC charges.

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1 **East River South Steam Station** - This project consists
2 of installing piping, valves, pumps and controls needed
3 to supply treated water from the existing
4 demineralization system to the East River South Steam
5 Station package boilers. This project is planned for
6 2010 at an estimated cost of \$1.5 million.

7 **West 59th Street Demineralization projects** - In 2010,
8 the Company plans to spend \$11.2 million to complete
9 the installation of a new demineralization water
10 treatment system at the West 59th Street station for
11 which construction began in 2009. Other related
12 projects planned for completion at this station and
13 included in the cash flow for 2010 include the
14 reconfiguration of the raw water system a (\$1.9
15 million), and the installation of the re-
16 alkaline/phosphate injection system (\$200,000).

17 **Ravenswood Service Water Enhancement** - This project
18 consists of installing piping connections, valves,
19 pumps and control systems to provide the capability of
20 connecting portable demineralization trailers. This
21 approach is being used due to space limitations at the
22 station. This system is needed to improve the
23 feedwater treatment and protect station equipment and
24 distribution piping from damage due to corrosion. This

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1 project is planned for 2013 at a projected cost of \$1.9
2 million.

3 Q. Has the Panel prepared an exhibit entitled
4 "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. - STEAM
5 PRODUCTION PROGRAMS AND PROJECTS 2010-2013"?

6 A. Yes.

7 MARK FOR IDENTIFICATION AS EXHIBIT __ (SOP-1.2)

8 Q. What does Exhibit__(SOP-1.2) show?

9 A. Exhibit__(SOP-1.2) lists the planned programs and
10 projects along with their estimated cost and the annual
11 cash flow forecast. Our testimony will briefly discuss
12 major programs and projects. For further information
13 please refer to the write-ups included in
14 Exhibit__(SOP-1.2), which provide more detailed
15 information about each project within the functional
16 programs.

17 **BOILERS**

18 Q. Please summarize the costs associated with the Boilers
19 functional program projected capital expenditures
20 listed in Exhibit__(SOP-1.2).

21 A. Projects in the Boiler program are needed to maintain
22 the capacity and reliability of the boilers and related
23 equipment. The station boilers are the central
24 equipment at each station because they convert the

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1 water into the steam that is supplied to the customers.

2 Capital expenditures for this program are as follows:

3 \$3.7 million in 2010, \$500,000 in 2011, \$2.0 million in
4 2012, \$585,000 in 2013 and \$13.3 million in 2014.

5 Q. Please describe each of the boiler projects.

6 A.. The following major Boiler projects are included in the
7 Plan:

8 **Package boiler ("PB") preheaters** - The preheaters allow
9 the use of waste heat in the boiler flue to heat the
10 combustion air prior to entering the boiler, making the
11 unit more efficient, i.e., less fuel is needed to heat
12 the combustion air. At the East 60th Street Station,
13 there are six preheaters, one for each PB that will be
14 refurbished over a three-year period (2010 - 2012) at a
15 total estimated cost of \$1.5 million. The upgraded
16 units may result an efficiency improvement of up to 1
17 percent. Based on a preliminary cost/benefit analysis,
18 this project may result in annual fuel savings of as
19 much as \$420,000 once completed, depending on how the
20 units are dispatched. Preheater upgrade projects are
21 scheduled for the West 59th Street station package
22 boilers over a two-year period (2012 - 2013) at an
23 estimated cost of \$720,000, and Annex boiler 114 in
24 2012 at an estimated cost of \$565,000.

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Isolation Dampers East 60th Street - Isolation dampers will allow operators to isolate a package boiler for maintenance while other boilers are in-service. The East 60th Street Station PB flue discharge ducts are physically inter-connected and discharge to the stack. Thus, to perform routine or corrective maintenance in any one boiler, all boilers need to be shutdown. This project consists of installing isolation dampers for two PB each year in 2010 and 2013 at a total estimated cost of \$450,000. The installation of similar dampers for the remaining two boilers will be scheduled at a later date. Two maintenance outages are scheduled every year. This project will improve overall station reliability and availability because rather than waiting until maintenance is complete on all the PBs, each boiler may be returned to service as maintenance on it is completed. Also, in the event that a PB has to be taken off-line for repairs due to malfunction, the remainder of the boilers will continue to operate. A similar project is planned for the East 74th Street Station starting in 2014 at an estimated cost of \$200,000.

Tube Repairs Ravenswood Boiler #1 - The Ravenswood station has four boilers. Based on inspections

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1 conducted in 2005 and 2007 of boiler #1, it has been
2 determined that damaged tubes need to be replaced to
3 maintain the reliability and availability of this unit.
4 Currently, boiler #1 has several damaged tubes plugged
5 and, based on the corrosion rate calculated from the
6 inspection data, a large number of additional tubes may
7 need to be plugged. Tube damage generally occurs due
8 to corrosion which results in tube wall thinning. Due
9 to the high pressure in the boiler, damaged tubes may
10 rupture and pose a safety hazard. This project is
11 planned for 2010 at an estimated cost of approximately
12 \$2.8 million. Similar projects are planned for East
13 74th Street package boiler #1, which requires a partial
14 tube replacement at an estimated cost of \$210,000 in
15 2010, and the replacement of the superheater in the
16 high pressure boiler 122 at an estimated cost of
17 \$500,000 in 2012.

18 **East River Unit 10 HRSG Superheater Replacement** - This
19 project will replace the superheater in Unit 10 heat
20 recovery steam generator ("HRSG"). The superheater
21 heats and dries the steam before it is sent to the
22 distribution system. Weld failures which have resulted
23 in forced outages have occurred in the superheater due
24 to thermal cycling and water hammer. To ensure the

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1 reliability of the system and to arrest the risk of
2 additional failures, the superheater in this unit will
3 be replaced in 2014 at an estimated cost of \$8.5
4 million.

5 **West 59th Street Annex Boilers Generating Bank**

6 **Replacement** - The generating bank transfers heat from
7 the flue gas, that otherwise would be wasted, to the
8 water. It is typical for the tubes in the generating
9 bank develop leaks due to prolonged cyclic operation.
10 Tubes that develop leaks are plugged to ensure proper
11 operation of the boilers. As tubes are plugged, the
12 efficiency and reliability of the units suffer. Based
13 on the current evaluations and the number of tubes
14 plugged in each boiler, the generating banks are
15 planned are planned for replacement in 2014 at an
16 estimated cost of \$4.0 million.

17 **MECHANICAL, ELECTRICAL AND CONTROLS**

18 Q. Please describe the requirements for the Mechanical
19 Equipment Replacement, Electrical Equipment, and
20 Control Systems Functional Programs.

21 A. These programs include projects to replace equipment
22 and systems in three key functional areas of the
23 station. Systematic planned equipment replacements are
24 required to maintain reliability due to degradation,

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1 lack of OEM support and spare parts, malfunction, and
2 failures that affect the safe and reliable operation of
3 the station and may cause forced outages. Some of
4 these components have long lead procurement time. This
5 means that a failure could cause prolonged forced
6 outages and unit derates, e.g., in the event of a
7 failure or malfunction, the affected boiler may be kept
8 off-line or at limited capacity until the replacement
9 parts are procured and installed. In such an event,
10 additional costs would be incurred to install interim
11 repairs to maintain operations until new equipment is
12 purchased and installed. In addition, because the
13 Company will be replacing older and, in many instances,
14 degraded equipment with new equipment, these projects
15 have the additional benefit of introducing equipment
16 into the system that is by default more efficient and
17 more technologically capable. These programs include
18 projects to upgrade equipment and systems by
19 application of new technologies. New technologies
20 expand the capability and efficiency of plant systems,
21 improve response time, and maintain the reliability of
22 the steam supply to the customers, particularly during
23 potentially abnormal conditions. Thus, operators will
24 have additional information regarding plant status and

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1 will be able to have more control over plant equipment
2 than they currently do which will enable the operators
3 to respond more quickly and efficiently to abnormal
4 conditions. This will help minimize the likelihood,
5 and mitigate the impact of, forced outages.

6 **MECHANICAL EQUIPMENT**

7 Q. What are the planned expenditures for the Mechanical
8 Equipment Replacement program?

9 A. This program includes the replacement and improvement
10 of mechanical equipment, such as pumps, valves, heat
11 exchangers, air compressors, tanks, fire protection,
12 heating and air conditioning systems. The capital
13 expenditures projected for the Mechanical Equipment
14 Replacement program are approximately \$32.8 million in
15 2010, \$12.0 million in 2011, \$8.7 million in 2012,
16 \$14.0 million in 2013 and \$600,000 in 2014. Major
17 Mechanical Equipment projects planned are: (1) Water
18 Treatment, which are also discussed above; (2) the
19 replacement of the Selective Catalytic Reactors
20 ("SCRs") and carbon monoxide ("CO") catalysts at East
21 River 10 and 20; (3) the installation of HRSG blow down
22 energy recovery systems at East River 10 and 20; (4)
23 the replacement of the air compressors at East 60th
24 Street; and (5) the installation of a light oil system

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1 at East 60th Street.

2 Q Please explain the replacement of the SCR and CO
3 catalysts at East River 10 and 20.

4 A. The typical life expectancy of an SCR and catalyst is
5 four to six years dependent on usage. Testing has
6 indicated that these units have sufficiently degraded
7 such that future replacement is necessary. Timely
8 replacement of these components is necessary to meet
9 the units' emissions design basis and regulatory
10 compliance requirements. The SCRs long lead equipment
11 will be purchased in 2010 and installed in 2011 at an
12 estimated cost of \$4.7 million. The CO catalysts long
13 lead equipment will be purchased in 2012, and
14 installation is planned in 2013. The estimated cost of
15 this project is \$4.0 million.

16 Q. Please describe the installation of the HRSG blow down
17 energy recovery systems.

18 A. This project will recover the wasted heat from the
19 HRSGs continuous blow down system. To maintain proper
20 water chemistry and remove the buildup of impurities in
21 the equipment, some of the water in the HRSGs is
22 drained or is "blow down" during normal operation.
23 This hot water is quenched with river water and the
24 heat content wasted. These projects will recover the

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1 wasted heat from Units 10 and 20 blow down. The
2 installation of these systems is planned in 2010 at an
3 estimated cost of approximately \$7.4 million. Based on
4 preliminary analysis, the annual fuel cost savings per
5 unit is estimated at approximately \$1.4 million. These
6 savings would be reflected in lower FAC charges.

7 Q. Please describe the East 60th Street Station project to
8 replace the air compressors and fix the air supply
9 system.

10 A. This project is planned for 2011 at an estimated cost
11 of \$1.2 million. The station air system provides
12 compressed air for critical instrumentation, valves,
13 and other components in the station. Failure of a
14 major component of this system, such as the compressor,
15 would result in a plant forced outage. This project
16 consists of replacing the station compressors that have
17 been in service for more than 20 years in order to
18 reliably maintain the package boilers.

19 Q. Please describe the installation of a light oil system
20 to provide dual fuel capability to the East 60th Street
21 stations' package boilers.

22 A. Installation of a light oil system will provide dual
23 fuel capability to the East 60th Street stations'
24 package boilers. The station's six package boilers use

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1 natural gas only. The Station's primary fuel will
2 continue to be natural gas due to the economic and
3 environmental benefits summarized above. However, dual
4 fuel capability will provide the station the safeguard
5 of using the most cost effective fuel and provide
6 additional reliability in the event either fuel supply
7 is disrupted. The station's gas supply is
8 interruptible, meaning that at any time during the
9 winter, if gas demand peaks, the supply to the station
10 may be curtailed. To secure uninterruptible gas
11 supply, the Company would be required to pay a
12 surcharge. Dual fuel firing capability would allow the
13 station the flexibility of firing light oil during the
14 short natural gas peak periods or secure
15 uninterruptible gas supply, whichever is most cost
16 effective. This project is planned for 2013 at an
17 estimated cost of \$1.9 million.

ELECTRICAL EQUIPMENT

18
19 Q. Please describe the Electrical Equipment Program
20 projects.

21 A. The capital expenditures for the Electrical Equipment
22 Program are approximately \$745,000 in 2010, \$850,000 in
23 2011, \$500,000 in 2012, \$1.9 million in 2013 and \$1.9
24 million in 2014. This Program typically includes the

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1 replacement of electrical equipment such as switchgear,
2 transformers, batteries, uninterruptible power
3 supplies, inverters, breakers, motors, cables and
4 backup generators. As is the case with many
5 replacements, the newer equipment is by default more
6 efficient. Some of the electrical projects include:
7 (1) lighting upgrades at West 59th Street which is
8 necessary for safety reasons but which will also result
9 in energy savings; (2) direct current ("DC") systems
10 upgrades; and (3) replacement of electric supply
11 equipment, e.g., feeders, transformers and switchgear
12 for the dock and the induced and forced draft fans at
13 the East 74th Street Station.

14 Q. Please describe the installation of new lighting at the
15 East River station Units 10 and 20.

16 A. This project is planned for 2011 at an estimated cost
17 of \$360,000. This project will install appropriate
18 emergency lighting, exit signs and directional signs
19 with 90 minute battery back-up, which is required to
20 meet Occupational Safety and Health Administration
21 ("OSHA") and Company requirements for personnel egress
22 path identification and illumination. The additional
23 equipment will enable plant personnel to exit the
24 station safely in the event of failure of the normal

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1 lighting system. A similar project is planned for the
2 West 59th Street Station in 2014 at an estimated cost
3 of \$1.4 million. This project will replace the
4 existing lighting system in the turbine floor, which is
5 over 30 years old and inefficient, with a new high
6 efficient lighting system.

7 Q. Please describe the electric supply equipment upgrades
8 at the East 74th Street Station.

9 A. Two projects to replace obsolete electrical equipment
10 are planned for this station namely, (1) 480v dock
11 supply and (2) replacement of the High Pressure Boilers
12 Induced and Forced draft fans switchgear. A new 480v
13 supply will be installed to power the dock equipment.
14 This new supply would isolate the dock loads from the
15 station loads and improve reliability. The new supply
16 will replace existing equipment that is located on the
17 dock, is susceptible to weather and flooding, and would
18 trip a station breaker that supplies other station
19 loads. This project is planned for 2013 at an
20 estimated cost of \$350,000. The switchgear that
21 supplies the high pressure boilers is obsolete and
22 spare parts are not readily available. In addition
23 the control cables contain asbestos. One of four
24 switchgears was previously replaced. A new switchgear

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1 will be installed in 2013 at an estimated cost of
2 \$300,000. The remaining switchgears will be scheduled
3 for replacement at a later date.

4 Q. Please describe the upgrade of the DC system.

5 A. DC systems upgrades include batteries, changers,
6 inverters, and uninterruptible power supplies ("UPS").
7 These systems provide electrical power to critical
8 station protection, control, valves, indication and
9 alarm circuits that require this type of supply. DC
10 systems also provide backup necessary for reliable
11 plant operation during normal and emergency conditions.
12 Upgrade of the UPS DC is planned at the West 59th
13 station in 2013 at an estimated cost of \$420,000.

14 Q. Is the Company planning to undertake any other
15 electrical equipment projects?

16 A. Yes. Other projects similar in scope, such as the
17 replacement of switchgear and feeders that power
18 auxiliary station equipment (i.e., fans, valves and
19 pumps) are planned for the East 60th Street and East
20 74th street stations. These projects are listed and
21 described in Exhibit__(SOP-1.2).

22 CONTROL SYSTEMS

23 Q. Please describe the Control Systems Program.

24 A. This program includes the replacement of control and

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1 information technology systems throughout the stations,
2 such as computers, computer networks, software,
3 transmitters, distributed control systems, control
4 panels and terminals, monitoring instrumentation, and
5 wiring. Controls and instrumentation are replaced with
6 currently available equipment that is often more
7 complex than existing hardware and require significant
8 upgrades to control rooms, conduits and cables and
9 power systems. As a result, these projects are labor
10 intensive, costly and a challenge to schedule and
11 implement due to extensive equipment and station outage
12 requirements, and lengthy startup functional testing
13 needs. These control system upgrades provide new
14 capabilities not previously available with the old
15 technology, such as automatic operation of critical
16 components, monitoring of many more parameters to aid
17 plant and system operators, and faster response times.
18 These projects will ultimately improve the operation of
19 each station, and the steam system as a whole,
20 especially during critical periods such as times of
21 peak steam load demands and abnormal conditions.

22 Q. How much does the Company plan to spend on control
23 system projects?

24 A. The Control System functional program expenditure is

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1 projected at approximately \$10.7 million in 2010, \$7.6
2 million in 2011, \$4.7 million in 2012, \$2.7 million in
3 2013 and \$3.0 million in 2014.

4 Q. Please describe the control system project at the West
5 59th Street Station.

6 A. The West 59th Street plant control equipment will be
7 changed over the three-year period 2010 - 2012 at an
8 estimated cost of \$7.0 million. This project will
9 change the station's plant systems to a common
10 Distributed Control System ("DCS") platform.
11 Currently, the plant is controlled by a hybrid of
12 control systems developed as new systems were added
13 over the years. Further, some of this equipment is no
14 longer supported by the OEM and spare parts are not
15 readily available. The existing equipment has limited
16 functionality and flexibility, which affects the
17 integration of new projects and processes such as NOx
18 optimization and opacity mitigation. These systems
19 will be further affected when the new water treatment
20 system and the gas conversion projects are installed,
21 both of which will have newer controls systems. A
22 common platform will facilitate operator training and
23 improve overall operations.

24 Q. Please describe the replacement of the Gas Turbines

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1 control system at East River Units 10 and 20.

2 A. The Plan includes capital expenditures of \$100,000 in
3 2010 to procure long lead equipment and \$1.6 million in
4 2011 to replace the East River Units 10 and 20 Gas
5 Turbines ("GT") Control System. This system is
6 obsolete, and there is limited availability of spare
7 parts, e.g., obtaining spare parts is time consuming
8 because they are usually procured from third party
9 vendors - not the OEM - and are often refurbished.
10 Also, this system has malfunctioned, resulting in two
11 forced outages. The new system will provide more
12 powerful processors, faster communication speed and
13 redundancy which will minimize forced outages and
14 sustain the station's reliability. Also, the new
15 system will allow operators to adjust the units based
16 on the type and quality of the natural gas supplied to
17 the station that may vary frequently depending on the
18 source.

19 Q. Please describe the installation of chemical monitoring
20 systems at the East 74th Street station.

21 A. Installation of chemical monitoring systems at the East
22 74th Street station is planned for 2010 and 2011 at an
23 estimated cost of \$1.9 million. This project is
24 required to change the protocol of collecting and

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1 analyzing steam chemistry parameters. The proposed new
2 instrumentation will provide real time continuous data
3 monitoring, rather than the current method of manual
4 samples. While the manual method is acceptable, it is
5 impractical when information is needed quickly to
6 adjust parameters for the proper operation of the
7 station. With manual samples there is a delay between
8 the collection and analysis of the manually collected
9 sample, increasing the risk of un-detecting an off-
10 limit condition. The new instrumentation is more
11 accurate and will provide real time information
12 locally, e.g., at the location where the parameter is
13 being measured, and in the control room.

14 Q. Is a similar system being planned for East River South
15 Steam Station?

16 A. Yes. A similar system is planned for installation at
17 the East River South Steam Station in 2010 at an
18 estimated cost of \$2.5 million.

19 Q. Please describe the replacement of the East River South
20 Steam Station Central Control Room.

21 A. The replacement of the East River South Steam Station
22 Central Control Room is planned for 2010 at an
23 estimated cost of \$2.3 million. This project will
24 provide remote control and monitoring for balance of

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1 plant ("BOP") systems, such as the city water, raw
2 water, condensate recovery and fuel systems that were
3 not previously migrated to the new control system. The
4 control room will be provided with additional work
5 stations to control these systems. The BOP systems are
6 currently controlled either locally or through panel
7 mounted instruments with minimal information available
8 to the operator and no storage of historical of data.
9 The installation of new instrumentation, control valves
10 and control valve positioners will provide more
11 reliable operation of the BOP systems.

12 Q. Please describe the project to replace input/output
13 cards at East River.

14 A. Replacement of outdated input/output cards compatible
15 with the newer control systems recently installed at
16 the East River South Steam Station is planned for 2010
17 at an estimated cost of \$1.2 million. This project
18 consists of replacing input/output cards that are not
19 fully supported by the OEM, are controlled with a non-
20 Windows operating system, and have had a number of
21 reported failures. With the replacement of these
22 components, the East River South Steam Station will
23 have a common controls platform which will facilitate
24 operations and maintain the reliability of the station.

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1 Q. Please describe the replacement of opacity and carbon
2 monoxide monitors at East River.

3 A. The East River South Steam Station opacity and carbon
4 monoxide monitors will be replaced in 2010 at an
5 estimated cost of \$1.0 million. These monitors are not
6 functioning correctly, and repeated visits by the
7 equipment vendor have not corrected the problem.
8 Accordingly, the existing instrumentation will be
9 replaced with new equipment.

10 Q. Please describe Information Technology ("IT") Programs
11 that the Company is planning to undertake.

12 A. Various IT projects are planned at a cost of
13 approximately \$1.0 million in 2010, and \$750,000 in
14 2011, 1.0 million in 2012, \$1.5 million in 2013 and
15 \$2.0 million in 2014. IT projects will make operating
16 data more readily available for analysis, allowing the
17 Company to plan, schedule and track various work
18 functions more effectively and efficiently, as well as
19 upgrade software and replace equipment that are
20 technologically obsolete. For a more detailed
21 description of the IT projects, please see the write-up
22 in Exhibit__(SOP-1.2).

23 **STRUCTURES, WATERFRONT AND ROOFS**

24 Q. Please describe what is included in the construction

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- 1 program under Structures, Waterfront and Roofs
2 Functional Programs.
- 3 A. Projects for general improvements to the stations'
4 structures, such as steel and concrete, facades,
5 foundations, walls, floors, stacks, driveways, bridges,
6 and tunnels, are included in the Structural program.
7 The Waterfront program specifically addresses
8 improvements to piers, docks, and related facilities
9 and systems. Similarly, the Roofs functional program
10 includes projects to replace and refurbish roofs and
11 roof drains.
- 12 Q. How are these projects selected?
- 13 A. The stations' structures experience degradation due to
14 normal wear and tear, age and weather that, if left
15 unaddressed, could create unsafe conditions to plant
16 staff, result in restricted access to plant areas,
17 cause potential damage to plant equipment, and risk the
18 structural integrity of the facilities. Also, some of
19 these conditions, if not addressed, may lead to non-
20 compliance with applicable regulatory requirements,
21 such as local building codes and OSHA requirements.
22 The Company periodically inspects structures, such as
23 building roofs, facades, stacks, and docks, to assess
24 the condition of these facilities and determine the

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1 areas in need of refurbishment. Based on the degree of
2 degradation, facility refurbishment projects are
3 planned to provide for the safety of employees and the
4 public, protection of our assets, comply with
5 applicable regulations, and sustain safe and reliable
6 operation of our steam generation system.

7 **STRUCTURES**

8 Q. How much does the Company plan to spend on Structures
9 projects?

10 A. The Company plans to spend \$1.6 million in 2010, \$3.7
11 million in 2011, \$5.1 million in 2012 and \$1.0 million
12 in 2013 on required structures upgrade projects. Some
13 of these projects are: (1) structural steel and
14 concrete refurbishments; (2) modification of the West
15 59th Street station exit and egress pathways; and (3)
16 stack repairs.

17 Q. Please describe the structural steel and concrete
18 refurbishment projects.

19 A. Structural steel and concrete refurbishment projects
20 are planned at the East 74th Street Station in 2011 and
21 2012 at an estimated cost of \$1.0 million and \$3.0
22 million, respectively. Similar projects are planned at
23 the East 60th Street Station in 2011 at an estimated
24 cost of \$200,000. Examples of structures refurbishment

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1 projects are the replacement of deteriorated metal
2 decks and concrete slabs, replacement of steel framing,
3 and the resurfacing of spalled and cracked concrete
4 surfaces. The scopes of these projects are based on
5 inspections that identify the conditions of the
6 structures that need to be corrected.

7 Q. Please describe the project to enhance West 59th Street
8 Station exit and egress pathways.

9 A. The West 59th Street station personnel are currently
10 housed in the southeastern corner of the boiler room.
11 Based on an evaluation of this area, it has been
12 concluded that the exit and egress paths are inadequate
13 from the standpoint of personnel safety in the event of
14 an emergency. To correct this condition, new offices
15 and locker rooms will be constructed on the first floor
16 on the north side of the building to relocate plant
17 personnel. The project will be completed over the two
18 year period of 2010 - 2011 at an estimated cost of
19 approximately \$1.5 million in 2010 and \$2.5 million in
20 2011, for a total cost of \$4 million.

21 Q. Please describe the stack repair projects.

22 A. Stack repairs are planned for East 60th street in 2013
23 at an estimated cost of \$1.0 million, East 74th Street
24 in 2012 at an estimated cost of \$1.14 million and West

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1 59th Street in 2012 at an estimated cost of \$300,000.
2 Some repair work is also planned at Ravenswood in 2010
3 at an estimated cost of \$95,000. The stacks are
4 inspected periodically, and the results of these
5 inspections determine the need for refurbishment.
6 These structures degrade over time due to weather and
7 normal use.

8 **WATERFRONT**

9 Q. Please described the Waterfront projects.
10 A. There are two waterfront projects planned, namely the
11 replacement of the dock at the East 74th Street and the
12 construction of a wall at Hudson Avenue due to the
13 demolition of obsolete structures.
14 **East 74th Street Dock** - Inspections of the dock
15 concluded that the structure is in disrepair and needs
16 to be replaced and cannot be repaired. The Company
17 leases the dock from the City of New York and is
18 required to upgrade and repair the structure as part of
19 the lease agreement. The dock also enables delivery of
20 fuel oil by barge as a contingency to the normal supply
21 which is piped from the Ravenswood station. This
22 project is scheduled to be completed over a two-year
23 period at an estimated cost of \$5.8 million or \$1.0
24 million in 2010 and \$4.8 million in 2011.

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1 **Hudson Avenue** - The installation of a sheet pile wall
2 at Hudson Avenue will be constructed in 2011 at an
3 estimated cost of \$560,000. This wall is required due
4 to the demolition of structures that are no longer used
5 and are deteriorated at the east end of the Hudson
6 Avenue wharf.

7 **ROOFS**

8 Q. Are there any Roof replacement projects?

9 A. Yes. Roof replacement projects are scheduled for the
10 Hudson Avenue station in 2011 at an estimated cost of
11 \$2.3 million and at the West 59th Street station in
12 2013 at an estimated cost of \$3.75 million and \$5.0
13 million in 2014. The Company's roof inspection program
14 is based on industry practice of five-year cycles. The
15 projects identified are a result of inspections that
16 typically cover roof replacement, drainage upgrades and
17 concrete slab repair/replacement. This program allows
18 the systematic replacement of roofs as age and
19 conditions warrant.

20 **SECURITY**

21 Q. Please describe the Security program.

22 A. This program includes projects to install security
23 systems, such as perimeter fencing and lighting, closed
24 circuit TV cameras, card access systems and guard

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1 booths at each station.

2 Q. Please describe the Security Projects.

3 A. In 2010 the Company plans security projects at East
4 74th Street (\$450,000), Hudson Avenue (\$525,000) and
5 West 59th Street (\$250,000) to implement the Maritime
6 Transportation Security Act ("MTSA") Transportation
7 Worker Identification Credential ("TWIC") program. The
8 TWIC program requires tamper-resistant biometric
9 credentials be provided to each worker requiring
10 unescorted access to secure areas of the facilities
11 regulated by the MTSA. Additional security measures,
12 such as access control, card readers, fencing and
13 cameras, will be installed at each station to provide
14 surveillance and stricter access to secure areas.
15 Also, the Company plans to spend an estimated \$560,000
16 in 2010 to install these systems at the West 59th
17 Street Station to enhance the security in the
18 waterfront and dock area and accommodate the changes
19 needed to implement TWIC. The existing security
20 features around Pier 98, e.g., guard booth, fencing,
21 communication and lighting, are inadequate to provide
22 sufficient security and restrict unauthorized access to
23 the pier. Accordingly, these systems need to be
24 upgraded in order to ensure the security of the

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1 stations and be in compliance with MTSA requirements.

2 **ENVIRONMENTAL, HEALTH AND SAFETY ("EH&S")**

3 Q. Please describe what is covered under the EH&S
4 functional program.

5 A. There are two general types of projects covered under
6 this category. First, implementation of the Company's
7 continuous commitment to personnel safety and
8 environmental protection requires capital expenditures
9 to address and correct plant conditions that may pose
10 EH&S risks. To address these conditions, usually
11 identified during routine plant operations, capital
12 projects are identified and planned for implementation
13 in the EH&S functional program. Second, this
14 functional program includes capital improvement
15 projects needed for compliance with applicable
16 regulatory requirements.

17 Q. How much does the Company plan to spend on the EH&S
18 functional program?

19 A. The Company plans to spend \$3.4 million in 2010,
20 \$500,000 in 2011, \$1.45 million in 2012, \$1.54 million
21 in 2013 and \$500,000 in 2014 on the following projects:
22 **City water supply back flow prevention** - According to
23 Part 5 Section 5-1.31 of the State Sanitary Code and
24 Title 15, Chapter 20 of the Rules of New York City,

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1 certain plant water systems that are connected to the
2 City water supply are required to be retrofitted with
3 a device that will prevent water from flowing in the
4 reverse direction and potentially contaminate the
5 City's water supply. These devices are specially
6 designed reduced pressure zone ("RPZ") valves approved
7 by the New York City Department of Environmental
8 Protection ("NYCDEP") that allow flow in one direction
9 only (i.e., the water would only flow into the
10 station). Installation of RPZ valves are planned in
11 2010 at East River South Steam Station at an estimated
12 cost of \$140,000, East 74th Street station at an
13 estimated cost of \$1.0 million, East 60th Street at an
14 estimated cost of \$680,000, and at the West 59th Street
15 Station at an estimated cost of \$940,000.

16 **West 59th St. Station Nitrogen Oxides ("NOx")** - The
17 Company plans to install an Induced Flue Gas
18 Recirculation ("IFGR") system on the West 59th Street
19 Station's package boilers 116 and 117 in 2012 and
20 2013, respectively, at an estimated cost of \$950,000
21 per unit. Installation of the IFGR system is a cost
22 effective method of reducing the NOx emissions at the
23 station. In addition to the environmental benefits of
24 reducing the air emissions from these boilers, this

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1 project is necessary to comply with the more stringent
2 regulation further discussed below. This system was
3 previously installed in package boiler 118 and has
4 shown very favorable results.

5 Q. Are there instances when the Company implements
6 unplanned projects?

7 A. Yes. As more fully discussed below, unplanned or
8 emergent projects are often necessary to address
9 changing and unforeseen plant conditions that may
10 affect safety and the environment or are required to
11 comply with evolving regulatory requirements. These
12 projects cannot be specified at this time, but can be
13 reasonably anticipated to occur during the rate year
14 based upon historical experience. Examples of recent
15 unplanned projects are discussed below.

16 Q. How does the Company address emergent projects due to
17 changing plant conditions?

18 A. As previously noted, the Plan's objective is to sustain
19 reliable steam service to the Company's customers while
20 minimizing the impact on rates. The Plan includes
21 annual expenditure forecasts to address known
22 conditions that, if not addressed within a reasonable
23 time period, could affect the reliability of the
24 stations. However, despite these ongoing programs,

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1 areas that need improvement are dynamic, and changing
2 plant conditions often require reallocation of
3 resources. The Company reassesses the Plan, and
4 projects are rescheduled as needed to address emergent
5 plant conditions, such as equipment malfunction or
6 failures and evolving regulatory requirements, or plant
7 conditions that require prompt attention, while
8 maintaining the forecasted expenditure levels. In
9 addition, the Plan includes some funding for emergent
10 projects within the EH&S, Electrical Equipment,
11 Mechanical Equipment and Control System Programs. If
12 unforeseeable conditions occur, this funding is used
13 and/or the Plan is adjusted, and projects are
14 rescheduled to allocate capital expenditures where it
15 is most needed to sustain the immediate operation of
16 the stations safely and reliably. Simply put, the
17 timing of the projects and corresponding capital
18 expenditures are rescheduled to address unforeseen
19 conditions that result in unplanned projects, but with
20 the exception of extraordinary events, the Company
21 seeks to maintain its projected level of capital
22 expenditures.

23 Q. Please describe some of the recent emergent projects
24 that required adjustments to planned expenditures.

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1 A. In February and March 2009, East River Units 10 and 20
2 experienced forced outages due to tube leaks in the
3 heat recovery steam generator economizer headers. An
4 analysis of this condition determined that the cause of
5 the tube failure was due to a mechanism known as flow
6 accelerated corrosion. As a result, projects were
7 required prior to returning the units to full service
8 to replace the headers and affected tubes with an
9 improved design to prevent additional equipment
10 malfunction and failures. These projects were
11 completed at an approximate cost of \$6.5 million.

12 Q. Please continue.

13 A. Based on an inspection in April 2009, it was determined
14 that Transformer 12 at the East River Station could not
15 be returned to service due to damaged internal
16 components. Abnormal and increasing sounds were
17 emanating from this transformer during service.
18 Transformer 12 provides the normal power supply to
19 Units 1 and 2 loads. Consequently, a project was
20 implemented to install a temporary transformer to
21 supply the affected electrical loads in the interim,
22 and a spare transformer was subsequently installed.
23 The approximate cost of this emergent project was
24 \$500,000.

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1 Q. Are there current issues with particular uncertainty?

2 A. The Company is aware of three potential issues that may
3 arise and result in unplanned projects. First, the New
4 York State Department of Environmental Conservation
5 ("NYSDEC") has raised concerns regarding Con Edison's
6 wastewater discharges under its State Pollutant
7 Discharge Elimination System ("SPDES") permits for the
8 West 59th, East 60th, East 74th and Hudson Avenue
9 stations. As a result, the Company may be required to
10 install additional wastewater treatment systems.
11 Second, the NYSDEC recently adopted environmental
12 regulations (Title 6 Parts 200, 201 and 231) under the
13 New Source Review ("NSR") program of the Clean Air Act.
14 These regulatory requirements may result in additional
15 capital projects or increased costs of existing
16 projects.
17 Third, the NYSDEC is evaluating changes to air emission
18 regulations known as NOx RACT ("6 NYCRR Subpart 227-2
19 Reasonably Available Control Technology (RACT) For
20 Oxides of Nitrogen (NOx)") and Clean Air Act, Section
21 185. The proposed regulatory requirements would
22 significantly reduce the current air emission limits.
23 If enacted, major capital expenditures will be needed
24 to install additional emission control equipment and

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1 systems at each station to meet the new limits.
2 Currently, it is not possible to determine the scope
3 and cost of these projects (with the exception of
4 converting the West 59th and East 74th Street Station
5 to fire natural gas as further discussed above) because
6 the new air emission limits have not yet been
7 established.

8 Q. Will you provide updated information to reflect
9 additional capital expenditures to address these
10 issues?

11 A. Yes. The Company will provide additional information
12 if it becomes available during the course of this
13 proceeding.

14 **STEAM DISTRIBUTION CONSTRUCTION PLAN**

15 Q. Turning now to the Steam Distribution Construction
16 Plan, have you supervised the preparation of a schedule
17 entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK,
18 INC., STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
19 Estimated 2010-2014", set forth as Exhibit __ (SOP-2)?

20 A. Yes.

21 MARK FOR IDENTIFICATION AS EXHIBIT __ (SOP-2)

22 Q. How is the Steam Distribution Construction Plan
23 different from Steam Planning?

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1 A. These are two different programs. The Steam
2 Distribution Construction Plan addresses the physical
3 installation of new assets, replacement of existing
4 assets and reinforcing the distribution system to
5 maintain reliable steam service to customers. Steam
6 Planning, which is covered in the Steam Planning
7 Proceeding, focuses on the economics of producing steam
8 and on improving steam variance through reduction of
9 thermal losses. It is strictly investigatory in
10 nature.

11 Q. What does Exhibit__(SOP-2) show?

12 A. This exhibit shows Con Edison's Steam Distribution
13 Construction Plan expenditures for 2010 through 2014,
14 by major program category: New Business; Interference;
15 System Reinforcement; Meter Installations; and Meter
16 Purchases.

17 Q. Please describe the New Business Program.

18 A. The New Business Program involves the installation of
19 steam service connections to accommodate new steam
20 customers and/or additional steam load for existing
21 customers. Currently, there are eleven new services
22 slated for 2010, and the Company expects to spend \$2.01
23 million for connecting these new steam services. For
24 2011, the Company expects to spend \$2.03 million under

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1 this program. For 2012 to 2014, the Company expects to
2 spend \$2.50 million in each year.

3 Q. Please describe the Interference Program.

4 A. The Interference Program involves the relocation of
5 underground steam facilities that are in the vicinity
6 of the City's roadway reconstruction and public
7 improvement projects north of Canal Street. This
8 program will cover projects not associated with Lower
9 Manhattan projects south of Canal Street that are
10 covered by the Municipal Infrastructure Support Panel.
11 Based on an historical average, the Company projects an
12 annual expenditure of \$1 million annually for this
13 program for the period 2010 - 2014. The cost of this
14 Interference Program is separate and distinct from the
15 interference costs discussed by the Municipal
16 Infrastructure Support Panel.

17 Q. Please describe the System Reinforcement Program.

18 A. The System Reinforcement Program is designed to
19 maintain the steam distribution and transmission system
20 in order to provide safe and reliable service to steam
21 customers. In 2010, the Company plans to spend
22 approximately \$32.47 million. For 2011, 2012, 2013,
23 and 2014, the Company plans to spend approximately
24 \$26.2 million, \$18.11 million, \$17.76 million and

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1 \$17.76 million, respectively. The System Reinforcement
2 Program includes the: (1) Steam Leak Repair Program;
3 (2) Expansion Joint Replacement Program; (3) Flange
4 Removal Program; (4) Manhole Rebuild Program; (5) Pump
5 Manhole Electrical Upgrade Program; (6) Cooling Chamber
6 Replacement Program; (7) Steam Pipeline Integrity
7 Program; 8) Various Other Projects; 9) IT Projects
8 Program; and 10) Steam Incident Action Plan Programs.

9 Q. Please describe the Steam Leak Repair Program.

10 A. Steam leak repair activity includes repairs to
11 services, valves, slip joints, and mains. Under this
12 program, the Company plans to spend \$3.0 million in
13 2010 and \$2.85 million in 2011. From 2012 to 2014, the
14 Company plans to spend \$2.8 million each year.

15 Q. Please describe the Expansion Joint Replacement
16 Program.

17 A. The Expansion Joint Replacement Program was initiated
18 in 2003 and is designed to systematically remove
19 internally pressurized expansion joints from the steam
20 system in order to reduce the likelihood and
21 consequences of expansion joint failure. This program
22 also includes the replacement of leaking expansion
23 joints. For 2010 to 2014, \$2.0 million has been
24 allocated for this program for each year. There are

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1 approximately 250 internally pressurized expansion
2 joints remaining on the system.

3 Q. Please describe the Flange Removal Program.

4 A. The Flange Removal Program is designed to replace
5 flanges with welded straight pipe. Flanges were
6 installed in the steam system prior to the commercial
7 use of electric arc welding and, over time, the flange
8 gaskets deteriorate. This program was originally
9 designed to remove flanges in areas where the City is
10 performing roadway reconstruction in order to avoid
11 future excavations after the roadways are repaved. The
12 program now also includes removal of leaking flanges
13 and the opportunistic removal of flanges in close
14 proximity to where work is being performed in the steam
15 system. The Company plans to spend \$3.0 million in
16 2010. A total of \$2.5 million has been estimated for
17 each year from 2011 to 2014.

18 Q. Please describe the Manhole Rebuild Program.

19 A. The Manhole Rebuild Program is designed to evaluate and
20 rebuild deteriorated steam manholes. Deterioration of
21 the manhole structure occurs over time and can place
22 distribution equipment at risk of damage if not
23 maintained. Deterioration of the manhole structure may
24 be hazardous to roadway and pedestrian traffic and to

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1 employees working in the structure, including
2 performing mandatory inspections. In response to the
3 Commission's Order in Case 07-S-0984, the Company
4 modified its existing manhole inspection procedure and
5 included more detailed information regarding assessment
6 of the manhole condition. The Company also has an
7 engineer inspect any manhole indentified to be in poor
8 condition and determine corrective actions necessary.
9 An average of 25 manholes were replaced or rebuilt each
10 year over the period of 2008 - 2009. From 2010 to
11 2014, \$2.0 million has been projected for this program
12 for each year.

13 Q. Please describe the Main Valve Replacement Program.

14 A. The Main Valve Replacement Program is designed to
15 replace main valves that are leaking, or inoperable.
16 Main valves in the steam system are installed in
17 manholes to serve as isolation valves. Main valves,
18 which are located in manhole structures, are routinely
19 exposed to heat and the high moisture content of the
20 atmosphere inside the manholes, which promotes external
21 corrosion of the valve bonnet, body and stem of the
22 valves. This can sometimes lead to seizure of the
23 valve stem, rendering the valve inoperable. In
24 addition, the flow of a mixture of steam and condensate

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1 in the steam system through the valve causes the
2 sealing surfaces of the valve gate and seat to become
3 worn, eventually to the point where they leak through.
4 Inoperable valves are valves that are either broken or
5 leaking and that allow steam to escape into the air
6 even though the valves are closed. Accordingly, these
7 valves do not provide proper isolation of the steam
8 flowing through the pipes from the surrounding
9 environment. This lack of isolation impacts the
10 quality of welds performed during maintenance activity
11 on the system. In 2010, \$0.2 million is estimated to
12 be spent on this program. For 2011, the Company plans
13 to spend \$0.7 million. From 2012 to 2014, \$1.0 million
14 is estimated to be spent on this program each year.

15 Q. Please describe the Pump Manhole Electrical Upgrade
16 Program.

17 A. The Pump Manhole Electrical Upgrade Program is designed
18 to install new high temperature pumps and various
19 electrical components. Pumps are installed to prevent
20 underground water from impinging on the steam mains.
21 They are installed adjacent to steam mains and, as a
22 result, they are exposed to the harsh environment of
23 the steam system. The harsh environment causes the
24 electrical wiring and the conduit to degrade. In

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1 addition, degraded electrical wiring could endanger the
2 safety of Company personnel entering the manholes and
3 also the public since there is a potential for stray
4 voltage. A total of \$1.0 million has been estimated
5 for 2010 to support this program. From 2011 to 2014,
6 \$0.5 million will be spent each year.

7 Q. Please describe the Cooling Chamber Replacement
8 Program.

9 A. The Cooling Chamber Replacement Program is designed to
10 replace cooling chambers that are leaking or
11 deteriorated. Cooling chambers, like all other
12 equipment, deteriorate over time, and once they start
13 to leak, they need to be replaced. These chambers are
14 installed after traps for cooling the condensate before
15 it is discharged into the sewer. Cooling chambers are
16 buried and are exposed to flashing steam. Over time
17 they deteriorate and leak due to thermal stresses and
18 cathodic reaction from adjoining pipe with dissimilar
19 material. The design has been improved to mitigate the
20 thermal stress failures and dissimilar metal corrosion.
21 Additionally in some cases, the piping from the traps
22 to the cooling chamber is being upgraded to 2" diameter
23 to allow for installation of higher capacity traps.
24 For 2010, the Company has allocated \$1.5 million for

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1 this program. From 2011 to 2014, it is estimated that
2 \$1.0 million will be spent per year to replace cooling
3 chambers. Currently there are 826 cooling chambers
4 throughout the Steam Distribution system.

5 Q. Please describe the Steam Pipeline Integrity Program.

6 A. The Steam Pipeline Integrity Program will
7 systematically manage the safety and integrity of the
8 piping on the Steam Distribution System by identifying
9 and prioritizing for replacement areas with advanced
10 internal corrosion that could pose a possible risk for
11 further leakage. Since 2003 the Company has been
12 tracking leaks due to internal corrosion at the bottom
13 of the pipe. In 2011, a total of \$0.5 million is
14 estimated to be spent on this program. From 2012 to
15 2014, the Company plans to spend \$1.0 million each
16 year.

17 Q. Please describe the other projects that are included in
18 the Steam System Reinforcement Program.

19 A. A total of approximately \$2.35 million is projected to
20 be spent in 2010 for various other reinforcement
21 programs as follows: a) replacing manhole covers with
22 new hybrid composite covers; b) installing telemetry to
23 monitor the temperature and pressure in the steam
24 distribution system; c) replacing anchors that have

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1 deteriorated over time due to exposure to heat and
2 humidity; and d) designing and implementing a
3 simulation model consisting of software and hardware
4 that incorporate real time field data to predict
5 locations that have a high probability of a water
6 hammer event. The manhole cover replacement program is
7 a one-year project and will not be carried into 2011.
8 For 2011, the Company plans to spend \$1.3 million for
9 the remaining various system reinforcement programs.
10 In 2012 to 2014, the Company plans to add four
11 additional programs bringing the total cost to \$4.76
12 million for each of those years. These additional
13 programs are: a) thermal efficiency improvement,
14 whereby existing steam mains with known insulation
15 deficiency will be reinsulated; b) customer valve
16 replacement/modification, which will address customer
17 service valves, inside service valves and metering
18 regulator valves; c) trap combination replacement; and
19 d) Phase II of the Remote Monitoring Project.

20 Q. Please describe the Company's IT projects.

21 A. The IT Projects Program will enhance overall system
22 operations. The Company plans to spend \$1.92 million
23 in 2010, \$1.18 million in 2011, \$0.55 million in 2012
24 and \$0.2 million in each of the years 2013 and 2014.

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1 IT projects planned include: a one-year program to
2 implement a mobile office; upgrade of the steam mapping
3 technology and integration into a common system with
4 Electric and Gas and the New York City base map; an
5 integrated steam dispatching system that will combine
6 the street job and steam distribution inside customer
7 premises job tracking systems into a common
8 application; operations interface for remote metering
9 that will allow monitoring of pressures and flows from
10 the remote metering system over a steam system map;
11 creating a collection of steam meter room piping
12 drawings and an equipment database to automate the
13 process for generating Turn-Off/Turn-on instructions;
14 and a program to implement a GPS system for tracking of
15 steam assets and equipment.

16 Q. Does the Company have an update for those System
17 Reinforcement capital initiatives resulting from the
18 July 2007 Steam Incident?

19 A. Yes. As a result of the July 18, 2007 East 41st Street
20 and Lexington Avenue steam incident, four Action Plan
21 Programs were initiated in 2008 based on the
22 Commission's recommendations to improve and promote
23 safe operation of the steam system. These four Action
24 Plan Programs are expected to be completed in 2011.

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1 These programs fall under System Reinforcement, and the
2 costs are included in the overall System Reinforcement
3 costs as stated above. A total of approximately \$15.5
4 million is projected for 2010 and \$11.675 million is
5 projected for 2011 for the four Steam Action Plan
6 Programs, which include: (1) the High Capacity Trap
7 Program; (2) the Trap Station Improvement Program; (3)
8 the Remote Monitoring Program; and (4) the
9 Infrastructure Conditioning Program.

10 Q. Please describe the High Capacity Trap Program.

11 A. The High Capacity Trap Program is for the installation
12 of higher capacity trap assemblies at locations prone
13 to water infiltration or in tidal areas to rapidly
14 discharge condensate when necessary for safe
15 operations of the system. These traps are different
16 than the ones in the cooling chamber program due to
17 the higher capacity to take on more condensate load in
18 these flood prone areas of the system. The design of
19 the assemblies has been enhanced to include 2" inlet
20 and outlet headers and, with the higher capacity
21 traps, these assemblies have twice as much discharge
22 capacity than traditional assemblies. The improved
23 discharge capability allows for handling of much
24 higher condensate rates in the event of external

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1 cooling of the main under cases of water main breaks,
2 sewer type issues or other type of flooding. This
3 also helps to prevent water hammer conditions from
4 developing in the system, which can create pressure
5 pulses inside the steam main that can rupture the pipe
6 causing an uncontrolled release of steam. A total of
7 \$0.8 million is allocated in 2010 and \$0.64 million in
8 2011 for the High Capacity Trap program.

9 Q. Please describe the Trap Station Improvement Program.

10 A. The Trap Station Improvement Program is designed to
11 replace all of the 826 trap stations in the steam
12 system with a new design that has improved debris
13 removal capability. The new design includes strainers
14 and a 2" inlet and outlet header with a drip leg
15 upstream of the traps to capture and collect debris.
16 It reduces the amount and the size of debris that flows
17 to the traps. This will reduce the likelihood of
18 debris causing a clogged trap which could potentially
19 lead to a steam main rupture. Approximately 230
20 stations have been replaced to date with this new
21 design. An enhanced design with even greater debris
22 removal capability is currently under evaluation. The
23 enhanced design will have a larger strainer in a 3"
24 inlet header that will provide approximately 50 times

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1 greater flow area over conventional strainers to
2 capture debris. For 2010, \$3.2 million is allocated to
3 this program and approximately \$2.04 million has been
4 allocated for 2011.

5 Q. Please describe the Remote Monitoring Program.

6 A. The Remote Monitoring Program is designed to install
7 instrumentation in steam manholes to remotely monitor
8 real-time trap operation and water infiltration for
9 flooding conditions. The instrumentation includes
10 floats to detect water levels in structures and
11 thermocouples upstream and downstream of traps to
12 detect fluid temperatures for determining the status
13 of the traps. The signals from these devices are
14 transferred wirelessly from a Remote Terminal Unit in
15 the field to a computer system in the Dispatch Room.
16 In 2010, a total of \$10.0 million has been allocated
17 to this program and \$7.5 million is allocated for
18 2011.

19 Q. Please describe the Infrastructure Conditions Projects
20 that are part of this program.

21 A. The Infrastructure Conditions Projects will improve the
22 steam system infrastructure to prevent water
23 infiltration for system safety. In the event of high
24 ground water or tidal areas, the program will address

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1 water infiltration conditions to prevent water
2 accumulation in structures and potential contact with
3 the steam main by incorporating proper drainage in the
4 designs of the structures. For 2010 and 2011, \$1.5
5 million is allocated each year to this project.

6 Q. Please describe the Meter Installation Program.

7 A. The Meter Installation Program involves the
8 installation of steam meters and associated metering
9 equipment, projected to cost approximately \$3.2 million
10 in each year from 2010 to 2011, and \$2.65 million in
11 each year from 2012 to 2014. The major elements of the
12 Meter Installation Program include: (1) the
13 continuation of the Meter Conversion Program; (2) the M
14 Valve Conversion Program; (3) the Customer Trap Remote
15 Monitoring Program; (4) the Limitorque Angle Valve
16 Replacement Program; and (5) the New Meter Installation
17 due to Upgrade Program.

18 Q. Please describe the Meter Conversion Program.

19 A. Pursuant to the Commission's Order Establishing Rate
20 Plan in Case 07-S-1315, issued on September 22, 2008
21 ("September 22 Order"), the Company installed demand
22 meters at locations for approximately 450 of its
23 largest steam customers (i.e., customers with annual
24 consumption exceeding 14,000 mlbs). In this rate

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1 filing, the Company proposes to continue installing
2 state-of-the-art steam meters utilizing vortex
3 technology. For 2010, \$2.45 million has been allocated
4 for this program to convert approximately 69 locations
5 to the new meters and with remote monitoring
6 capability. In 2011, the Company plans to spend \$1.95
7 million to convert approximately 55 locations. For
8 2012 to 2014, \$1.3 million has been allocated for each
9 year to convert approximately 36 locations each. The
10 new meters are more accurate and, with the proper
11 computer equipment, are able to provide customer load
12 info to the building management systems which provides
13 real-time digital display of steam usage. These
14 features allow for more efficient building management.
15 Approximately 900 customers in the system still require
16 this conversion.

17 Q. Please describe the M Valve Conversion Program.

18 A. This program is designed to replace improperly
19 functioning meter regulating valves ("M" valves) with
20 the more reliable motor-operated ball valves. For 2010
21 to 2014, \$0.5 million has been allocated for each year
22 under this program.

23 Q. Please describe the Customer Trap Remote Monitoring
24 Program.

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1 A. This new program is intended to develop a system to
2 remotely monitor Company-owned traps at customer
3 premises to detect unfavorable conditions such as
4 blowing or clogged traps in real time. This program
5 differs from the Remote Monitoring program under System
6 Reinforcement because this program is solely for traps
7 at customer premises while the program under System
8 Reinforcement is only for street traps. In 2011, \$0.5
9 million has been allocated for this program and \$0.6
10 million has been allocated for each of the years from
11 2012 to 2014.

12 Q. Please describe the Limitorque Angle Valve Replacement
13 Program.

14 A. This program is designed to replace defective or failed
15 Limitorque actuator operated angle globe meter
16 regulating valves with new valve assemblies to provide
17 remote control capability in the future. From 2010 to
18 2014, the Company plans to spend \$100,000 in each year.

19 Q. Please describe the New Meter Installation due to
20 Upgrade Program.

21 A. This program is designed to upgrade/change meters for
22 customers who are modifying their load, e.g., adding
23 tenants. This program addresses customer-initiated

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1 changes. From 2010 to 2014, the Company plans to spend
2 \$150,000 in each of the years.

3 Q. Please describe the Meter Purchase Program.

4 A. The Meter Purchase Program involves the purchase of
5 vortex steam meters for the New Business Program, Load
6 Changes and the Meter Conversion Program. The
7 estimated program cost for 2010 is approximately \$1.73
8 million. For 2011, the cost is approximately \$1.48
9 million. From 2012 to 2014, the estimated cost is
10 approximately \$1.6 million for each of the three years.

11 **OPERATION AND MAINTENANCE EXPENSES**

12 Q. Did the Panel supervise the preparation of a schedule
13 entitled "CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
14 - STEAM OPERATIONS - SUMMARY OF STEAM OPERATIONS
15 EXPENSES FOR THE RATE YEAR ENDING SEPTEMBER 30, 2011?"

16 A. Yes.

17 MARK FOR IDENTIFICATION AS EXHIBIT____(SOP-3)

18 Q. Please describe this Exhibit.

19 A. Exhibit____(SOP-3) details the rate year steam plant and
20 distribution O&M expense forecast for various elements
21 of expense. Each element is shown at the historic year
22 level with normalizing adjustments and program changes.
23 In total, the Company projects to spend approximately
24 \$94.8 million in the first rate year ending September

STEAM OPERATIONS PANEL - STEAM

1 30, 2011, an increase of approximately \$3.6 million
2 from the historic year. We would note that this
3 Exhibit does not reflect any escalation to calculate
4 the total rate year forecasts for each item. The
5 escalation is calculated by the Accounting Panel in
6 Exhibit ____ (AP-6), Schedule 1.

7 Q. What opportunities has the Company undertaken to limit
8 the level of steam production and distribution O&M
9 funding requested in this rate filing?

10 A. In this filing, the Company has limited the O&M program
11 change requests to those that are based on operating
12 requirements (the change in methodology to recover
13 Company labor costs related to fuel oil handling and
14 storage, and the cost of electricity needed to operate
15 auxiliary equipment at the steam generating stations).
16 The Company is mindful of current economic conditions
17 and the magnitude of the rate increase. As a result,
18 we have made significant efforts to hold the line on
19 expenditures. Moreover, the Company continually
20 examines potential modifications to operations to
21 reduce O&M expenses. For example, the Company has
22 improved the steam distribution crew dispatch protocol
23 to reduce costs and has trained a number of generating
24 station employees as welders to reduce the number of

STEAM OPERATIONS PANEL - STEAM

1 welding contractors to be hired by the Company. To
2 reduce overtime expense, the Company has implemented a
3 change in work schedule for some employees in steam
4 distribution. Furthermore, when available, the Company
5 looks for improved technology to reduce costs, such as
6 an improved stationary pump design for the steam
7 distribution system and improved control systems for
8 various operating systems at the generating stations.

9 Q. Please explain the program change of \$2,129,000 for
10 Company Labor.

11 A. While this request is technically a program change in
12 that it reflects an increase in O&M expense included in
13 base rates as compared to the historic year, there is
14 an offsetting reduction to costs currently recovered
15 through the FAC, thereby effectively resulting in no
16 cost impact to customers.

17 These labor costs represent the costs associated with
18 fuel oil storage and handling efforts at the steam
19 generating stations. The amount of the program change
20 is based on a three-year average (2006 - 2008) of the
21 actual costs incurred by the Company for these efforts.
22 These labor costs are currently recovered through the
23 FAC; however, pursuant to the Commission's September 22
24 Order, the Company proposes that these labor costs be

STEAM OPERATIONS PANEL - STEAM

1 recovered in base rates beginning in the rate year
2 effective October 1, 2010. Accordingly, this program
3 change simply provides an alternate means for
4 recovering these expenses. This issue is further
5 discussed by Company witness Catuogno.

6 Q. Please discuss the \$1,515,000 increase for Electricity
7 and Gas Used.

8 A. The Commission's Uniform System of Accounts provides
9 that, in a combination utility, each service department
10 be charged for the energy that it receives from another
11 Company department. This element of expense accounts
12 for the electricity used by the steam-only generating
13 stations in order to operate auxiliary equipment. The
14 Company's Accounting Department develops the rate
15 annually on a per kwhr basis.

16 This increase is based on the most recent calculation
17 of the Company's electricity used rate that will become
18 effective January 2010 in addition to an estimated
19 increase in electric usage at the steam-only stations
20 compared with the historic year.

21 **STEAM INCIDENT ACTION PLAN PROGRAM EXPENSES**

22 Q. Please discuss the Company's Steam Incident Action Plan
23 program expenses resulting from the July 2007 steam
24 incident.

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1 A. Subsequent to the July 2007 steam incident, the Company
2 implemented various O&M and capital programs in
3 response to the incident. Pursuant to the 2007 Steam
4 Rate Order, the Company was obligated to submit to the
5 Director of Electric, Gas and Water and all parties to
6 Case 07-S-1315 a report that identified all costs
7 incurred during the preceding calendar year that are
8 incremental to the costs for programs already funded in
9 rates. The Company submitted that report on February
10 26, 2008.

11 The September 22 Order established rates that reflect
12 \$3.0 million of steam incident-related O&M expenses for
13 Rate Years 1 and 2. Additionally, steam rates also
14 reflect for Rate Years 1 and 2 an average net plant
15 balance of \$5.885 million and \$10.693 million,
16 respectively, for steam incident-related capital
17 programs. Please see the discussion of these capital
18 programs included in the Steam Distribution
19 Construction Plan above.

20 Q. What has the Company spent for these programs in Rate
21 Year 1 of the current rate plan (i.e., period ending
22 September 30, 2009)?

23 A. For Rate Year 1, ended September 30, 2009, the Company
24 expended approximately \$2.8 million of incremental O&M

STEAM OPERATIONS PANEL - STEAM

1 expense for steam incident-related programs compared
2 with the \$3.0 million in rates noted above. The most
3 significant portion of these costs was related to the
4 Company's response to rain events. Additionally, as of
5 September 30, 2009, the net plant balance for the
6 capital programs was \$5.093 million compared with the
7 net plant balance of \$5.885 million in rates for Rate
8 Year 1. For the capital programs, the most significant
9 expenditures were related to the Remote Monitoring and
10 the Improved Trap Station initiatives.

11 Q. Does the Company have a proposal for these O&M and
12 capital programs in this filing?

13 A. Yes. For the O&M programs, the Company estimates that
14 the costs of these initiatives will remain at the \$3.0
15 million level annually for the rate years ending
16 September 30, 2011 and 2012. For the rate years ending
17 September 30, 2013 and 2014, the Company expects that
18 it may be able to reduce these O&M expenses to
19 approximately \$2.4 million based on the results of the
20 success of the Remote Monitoring program and potential
21 amendments to Company procedures and PSC mandated
22 inspections related to these initiatives. For the
23 capital initiatives, while the net plant expenses in
24 Rate Year 1 were a bit lower than originally

STEAM OPERATIONS PANEL - STEAM

1 anticipated, due principally to a delay in the
2 selection of a contractor for the Remote Monitoring
3 program, the Company estimates that the costs for these
4 programs will remain at the level projected in Case 07-
5 S-1315. For 2010 and 2011, the Company estimates that
6 the capital costs related to the Steam Action Plan
7 initiatives will total \$15.5 million and \$11.7 million,
8 respectively, as discussed in the Steam Distribution
9 Construction Plan above. The Accounting Panel
10 addresses the reconciliation provision from the current
11 rate plan for the Steam Action Plan O&M and capital
12 initiatives in its testimony.

13 Q. Has the Company realized any savings or efficiencies by
14 implementing these steam action plan initiatives?

15 A. Not at this time. While the Company has been
16 undertaking initiatives such as the Remote Monitoring
17 program, the new equipment has been installed in a
18 limited number of locations. Any potential savings
19 from reduced manual inspection costs attributable to
20 this program may materialize after the level of
21 installations and testing of the new equipment enable
22 the Company to take the steps necessary obtain
23 approvals for amending existing procedures and request
24 that the Commission review mandates that currently

STEAM OPERATIONS PANEL - STEAM

1 require certain manual inspections since Remote
2 Monitoring should be able to reduce or eliminate these
3 manual inspections. However, there may be associated
4 increased costs to inspect and maintain the equipment
5 and to address conditions associated with Remote
6 Monitoring as the system grows.

7 Q. Does the Company have an estimate of the magnitude of
8 these potential savings?

9 A. As stated above, it is too early in the program to have
10 definitive estimates. If, however, the full
11 implementation of Remote Monitoring is successful, and
12 if there is a change in procedures and mandates, the
13 Company could achieve about \$600,000 in annual savings,
14 net of additional expenses to inspect, maintain and
15 respond to the Remote Monitoring system. These savings
16 are anticipated to be achieved in 2013 after the Remote
17 Monitoring system has been in place a full year.
18 However, as stated above, these potential savings will
19 only be realized if the PSC modifies the mandates
20 related to these initiatives.

21 Q. Please describe how these savings could be achieved.

22 A. When the Remote Monitoring system is fully implemented,
23 the system will identify locations where water has
24 infiltrated into our manholes. This will eliminate the

STEAM OPERATIONS PANEL - STEAM

1 need to perform manual inspections at known water prone
2 locations during periods of heavy rain. In addition,
3 the Company currently performs inspections of its traps
4 a minimum of six times per year in accordance with PSC
5 Code part 420. The Company also replaces the traps
6 annually in accordance with the Commission's Order in
7 Case 07-S-0984 and performs a visual inspection of the
8 traps by removing the caps once each year in accordance
9 with Company procedure S11952. The new trap assembly
10 design, in conjunction with Remote Monitoring of traps
11 that can identify when they are fully clogged, are
12 improvements that the Company expects will reduce the
13 frequency to perform these replacements and
14 inspections.

15 Q. Are there any potential savings before 2013?

16 A. Yes. Potentially there could be partial savings before
17 then. For example, if the Company is confident in the
18 reliability of the system, it may seek changes to
19 existing procedures and PSC mandates for manually
20 inspecting manholes during periods of heavy at known
21 water prone structures and only inspect when the system
22 identifies an alarm condition for water infiltration.

23 Q. Does this complete the Panel's testimony?

24 A. Yes, it does.

Consolidated Edison Company of New York
Steam Production Construction Plan
Expenditure Forecast 2010 - 2014 (\$1,000)

Programs	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	Total 2010 - 2014 FORECAST (\$1000)
Boilers	3,715	500	1,975	585	13,320	20,095
Mechanical Equipment	32,758	12,000	8,655	13,950	600	67,963
Electrical Equipment	745	850	500	1,870	1,920	5,885
Control Systems	10,660	7,615	4,700	2,700	3,015	28,690
Structures	1,595	3,700	5,100	1,000	-	11,395
Waterfront	1,000	5,360	-	-	-	6,360
Roofs		-	2,300	3,750	5,975	12,025
Security	1,785	-	-	-	-	1,785
EHS	3,395	500	1,450	1,540	500	7,385
Total	55,653	30,525	24,680	25,395	25,330	161,583

Consolidated Edison Company of New York
 Steam Production Construction Plan
 Expenditure Forecast 2010 - 2014 (\$1,000)

Proposed Cost Recovery Through the FAC

Projects	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	Total 2010 - 2014 FORECAST (\$1000)
Hudson Avenue Replacement	12,000	40,000	180,000	200,000	11,000	443,000
W59th Street Gas Addition	4,000	25,000	0	0	0	29,000
E74th Street Gas Addition	0	0	25,000	31,000	0	56,000
Total	16,000	65,000	205,000	231,000	11,000	528,000

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

EXHIBIT (SOP-1.2)
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RATE CASE SUBMISSION (\$1,000)									
Page	Project Number	STA	2010 - 2013 PROJECT DESCRIPTIONS	2010	2011	2012	2013	2014	Total
BOILERS									
3	21536-05	E60	Package Boiler Air Preheater Refurbishment	450	500	550			1,500
4	22512-07	E60	Package Boiler Ductwork Isolation Dampers	225			225		450
5	21315-04	E74	B122 Water Wall and Tie Back Work					600	600
6	22513-07	E74	Package Boiler Ductwork Isolation Dampers					200	200
7	23492-09	E74	Replace Superheater - Boiler 122			500			500
8	21766-05	E74	Package Boiler 1 Partial Retube	210					210
9	23309-09	ER12	HRSG Superheater Replacement					8,520	8,520
10	22482-07	RAV	Tube Repairs Boiler #1	2,830					2,830
11	23130-08	W59	PB Upgrade - Air Preheaters			360	360		720
12	23191-08	W59	114 Pre-heater baskets			565			565
13	213475-09	W59	Replace 114 Gen Bank					2,000	2,000
15	23476-09	W59	Replace 115 Gen Bank					2,000	2,000
			SUB-TOTAL BOILERS	3,715	500	1,975	585	13,320	20,095
MECHANICAL EQUIPMENT									
16	22798-08	E60	Air Compressor Replacement		1,200				1,200
17	23181-08	E60	Waste Neutralization CO2 System, Tank, Piping, etc.			500			500
18	23493-09	E74	Package Boiler Demineralization Plant			2,000	3,000		5,000
20	22723-08	E74	Replacement of CCW Tank				300		300
21	23610-09	E74	Emergency Diesel Fuel Oil Line Upgrade				200		200
22	23429-09	ER12	U10/20 Water Treatment upgrade	5,000	6,000	4,000			15,000
23	23134-08	ER12	HRSG SCR Catalyst Replacement	500	4,200				4,700
24	23135-08	ER12	HRSG 10/20 CO Catalyst Replacement			600	3,400		4,000
25	23418-09	ER12	Unit 20 HRSG bottom blowdown system	3,790					3,790
26	21938-06	ER12	Unit 10 HRSG bottom blowdown system	3,620					3,620
27	23262-09	ER12	Filter Press Installation	750					750
28	22773-08	ER12	Units 1&2 GT Install Plenum Window to inspect Bellmouth	100					100
29	23495-09	ERSSS	Demin Plant Supply	1,500					1,500
31	23180-08	ERSSS	City Water and Treated Water Tank Liner	635					635
32	22183-06	ERSSS	Improve Dearator Oxygen Removal			500			500
33	22781-08	RAV	Service Water Enhancements - Water Treatment	0			1,900		1,900
34	22146-06	RAV	Mud Drum Heating Coils Installation	0			850		850
35	18356-02	W59	Surge Tank 3 Replacement	2,500					2,500
36	21696-05	W59	Permanent Demin Plant	11,163					11,163
38	22536-07	W59	Raw Water & Desup Sys Mod	1,900					1,900
39	23253-09	W59	Consolidation and Replacement of Surge Tanks 7 & 8				1,700		1,700
40	21303-04	W59	Oil Moat Fire Protection			520			520
41	23152-08	W59	Steam Sendout Enhancements phase III	500					500
42	22947-08	W59	Light Oil Firing				1,900		1,900
43	22485-07	W59	Install New Re-Alk/Phosphate Systems	200					200
		VAR	Emergent Work Mechanical Equipment	600	600	535	700	600	3,035
			SUB-TOTAL MECHANICAL EQUIPMENT	32,758	12,000	8,855	13,950	600	67,963
ELECTRICAL EQUIPMENT									
44	23484-09	E60	60th St Replace PB-48-MCC1 and PB-48-MCC3				200		200
45	23662-09	E74	74 - 480v Dock Supply		0	0	350		350
46	23663-09	E74	74 - 2.4 kV HP ID & FD Fan Feed Upgrade			0	300		300
47	23478-09	E74	Battery Upgrades	100					100
48	22154-06	ER12	Lighting Upgrades		350				350
49	21794-05	W59	Replace PB UPS				420		420
50	22694-07	W59	Lighting Upgrades					1,420	1,420
		VAR	Emergent Work Electrical Equipment	645	500	500	600	500	2,745
			TOTAL ELECTRICAL EQUIPMENT	745	850	500	1,870	1,920	5,885

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

EXHIBIT __ (SOP-1.2)
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RATE CASE SUBMISSION (\$1,000)									
Page	Project Number	STA	2010 - 2013 PROJECT DESCRIPTIONS	2010	2011	2012	2013	2014	Total
CONTROL SYSTEMS									
51	21615-05	E74	Chemical System Monitoring	1,000	870				1,870
52	20764-03	E74	Smoke detectors 9th & 10th Floor				400		400
53	23324-09	ER12	CTG Control System Upgrade	100	1,600				1,700
54	22510-07	ER12	Unit 10/20 Steam Sendout Redundant flow transmitters	390					390
55	23063-08	ER12	Install Gas Chromatograph		200				200
56	21619-05	ERSSS	Chemical Monitoring	2,500					2,500
57	18169-01	ERSSS	CCR Upgrade	2,300					2,300
58	23330-09	ERSSS	DCS I/O Cards Replacement	1,150					1,150
59	23386-09	ERSSS	Replace Opacity and CO Analyzers	1,000					1,000
60	23328-09	ERSSS	Simulator for Operator Training					215	215
61	23207-09	W59	DCS Upgrades	500	3,500	3,000			7,000
62	Various	VAR	IT Initiatives	1,000	750	1,000	1,500	2,000	6,250
		VAR	Emergent Work Control Systems	720	695	700	800	800	3,715
TOTAL CONTROL SYSTEMS				10,660	7,615	4,700	2,700	3,015	28,690
STRUCTURES									
67	22738-08	E60	Stack Repairs				1,000		1,000
68	23217-09	E60	Structural Steel and Concrete		200				200
69	21538-05	E74	Structural Steel and Concrete		1,000	3,000			4,000
70	22774-08	E74	Stack #1 Repairs/Upgrade			1,140			1,140
71	23156-08	ER12	Miscellaneous Indoor Hoisting Equipment	0	0	660			660
72	22768-08	RAV	Stack 2 Repairs	95					95
73	21699-05	W59	Master Plan Office Relocation / OSHA Evacuation East Side	1,500	2,500				4,000
74	22741-08	W59	Stack Inspection and Upgrade			300			300
TOTAL STRUCTURES				1,595	3,700	5,100	1,000	0	11,395
WATERFRONT									
75	18344-02	E74	Dock Replacement	1,000	4,800				5,800
76	22776-08	HA	Waterfront Structure Removals	0	560				560
TOTAL WATERFRONT				1,000	5,360	-	-	-	6,360
ROOFS									
77	22696-07	E60	Roof Replacement and Repairs					975	975
78	22762-08	HA	Roof Replacement and Repairs			2,300			2,300
79	22057-06	W59	Repair/ Replace Station Roofs - Roof R5	0			3,750	5,000	8,750
TOTAL ROOFS				0	0	2,300	3,750	5,975	12,025
SECURITY									
80	22841-08	E74	Implement TWIC	450					450
81	22843-08	HA	Implement TWIC	525					525
82	23046-08	W59	Security Enhancements (Dock)	560					560
83	22842-08	W59	Implement TWIC	250					250
TOTAL SECURITY				1,785	0	0	0	0	1,785
ENVIRONMENTAL HEALTH AND SAFETY									
894	22788-08	E60	60TH ST - Steam Station Backflow Prevention	680					680
85	22782-08	E74	74TH ST - Steam Station Backflow Prevention	1,035					1,035
86	22784-08	ERSSS	ERSSS - Backflow Prevention	140					140
87	23131-08	W59	NOx Projects (IFGR for boilers 116, 117)		0	950	950		1,900
88	22787-08	W59	59TH ST - Steam Station Backflow Prevention	940					940
		VAR	Emergent Work EH&S Risk Assessment Blanket	600	500	500	590	500	2,690
SUB-TOTAL EH&S				3,395	500	1,450	1,540	500	7,385

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

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Project Title	Package Boiler Air Preheater Refurbishment
Project Number	21536-05
Program Title	Boilers
Station	East 60 th
Estimated In- Service Date	12/2010, 12/2011 & 12/2012

Work Description:

The six (6) Air Preheaters will be refurbished by replacing all damaged and deteriorated equipment with original equipment manufacturer (OEM) supplied parts and material. Any hidden damage, i.e. insulation, lagging, piping, etc. will be repaired or replaced as required. Upon completion of the installation of the baskets and new seals, all OEM specified clearances and tolerances will be set.

Justification:

Replacement of critical Air Preheater components is required to improve Air Preheater performance, reliability, and maintain proper exit gas temperatures. Repair of these components is not practical due to the extent of the deterioration.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
450	500	550			\$1,500

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

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Project Title	Package Boiler Ductwork Isolation Dampers
Project Number	22512-07
Program Title	Boilers
Station	East 60 th Street
Estimated In- Service Date	12/31 of scheduled year

Work Description:

Replace existing ID Fan flow control dampers with unitized positive seal flow control and isolation dampers.

Justification:

At the present time, the six Package Boilers at this station discharge to a common breeching which connects to a single stack. Without positive isolation of each boiler for maintenance purposes, all six boilers have to be out of service in order to work on an individual unit.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
225			225		\$450

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

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Project Title	B122 Water Wall and Tie Back Work
Project Number	21315-04
Program Title	Boiler
Station	East 74 th Street
Estimated In- Service Date	12/2013

Work Description:

The purpose of this project is to upgrade the furnace wall support system by adding an additional elevation/row of tiebacks. This additional elevation of tieback supports is to be added to the tubes on all four walls of the furnace in the burner zone area

Justification:

A number of waterwall tubes are bowing into the furnace by varying degrees. This is mainly occurring in the burner area (high heat zone) of the furnace. The issues of the tubes bowing verses the deterioration of the shoe-guides and the BRILC have created a cause and effect relationship that self propagates and exacerbates the problem for one another. The resulting casing damage from these issues posses a potential hazard and increased air in leakage. Air in leakage limits the ID fan and thus the boiler load. Tubes that are bowed into the furnace are also more prone to failure as they absorb more heat than other tubes (both sides instead of one). Greater absorption increases the potential for departure from nucleate boiling in the tube which can lead to increased tube deposits resulting in localized overheating, blistering, under deposit corrosion and failures.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2013	Forecast Total 2010-2014
				600	\$600

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Package Boiler Ductwork Isolation Dampers
Project Number	22513-07
Program Title	Boilers
Station	East 74 th Street
Estimated In- Service Date	12/2014

Work Description:

Replace existing ID Fan flow control damper in each boiler with unitized positive seal flow control and isolation damper.

Justification:

At the present time, the six Package Boilers at this station discharge to a common breeching which connects to a single stack. Without positive isolation of each boiler for maintenance purposes, all six boilers have to be out of service in order to work on an individual unit.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
				200	\$200

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

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Project Title	Replace Superheater Boiler 122
Project Number	23492-09
Program Title	Boilers
Station	East 74 th Street
Estimated In- Service Date	12/2012

Work Description:

This project requires the removal and replacement of the superheater assemblies from the steam drum to the outlet header.

Justification:

Several condition assessments have indicated there is a need to replace the superheaters in the 2012 time frame. Replacement of the superheaters at this time would avoid a potential steep increase in boiler unavailability due to large quantities of successive tube failures.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		500			\$ 500

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__ (SOP-1.2)

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Project Title	Package Boiler 1 Partial Retube
Project Number	21766-05
Program Title	Boilers
Station	East 74 th Street
Estimated In- Service Date	12/2010

Work Description:

The Convection Pass Outside Wall will be replaced to maintain the reliability of this unit. To perform this task, the insulation, lagging and casing in this area will be removed and replaced. Each of the ninety nine (99) tubes will be removed from their drum connections and re-installed at the same connections. Each tube will be rolled in the drum connection then seal welded inside the drum if required.

Justification:

Nine (9) convection pass outside wall tubes failed during 2005. All of the failures have been circumferential cracks located just outside the steam drum exterior, adjacent to the seal welds. The failures are being attributed to corrosion fatigue stress cracking. That combined with cyclic stresses from the frequent/daily cycling of the unit due to load following, e.g., daily load variation, has contributed to this type of cracking and failure of the tubes.

Once the damage exists the only way to correct it is to replace the damaged tubes. The tubes will be replaced, rolled / expanded into both drums and only seal welded internally if absolutely necessary. The convection pass outside wall has a total of ninety-nine (99), 2" outside diameter tubes made of SA-178A material.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
210					\$ 210

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

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Project Title	Unit 10 HRSG Superheater Replacement
Project Number	23309-09
Program Title	Boiler
Station	East River Unit 10
Estimated In- Service Date	12/2014

Work Description:

The superheater replacement in East River 10 requires the removal and installation of two superheater harps from the two inlet nozzles of the inlet header to the four outlet nozzles of the outlet header. To perform this replacement, a section of roof above the transition duct will be removed, the front wall of the transition duct will be removed, and a temporary monorail system will be installed. Removing the harps from the powerhouse requires the mobilization of a crane capable of lifting the harps above the roof opening from 15th Street.

Justification:

The original harp fabrication included a stainless steel alignment bar that was welded directly to every third carbon steel tube above and below the bar. Cyclic operation and excessive differential expansion failed several of the dissimilar metal attachment welds which have led to irreversible tube damage. This damage is expected to lead to a high frequency of failures.

The superheater is necessary to ensure dry steam is supplied to the steam system. Repair of a failure in the superheater requires the HRSG and the combustion turbine to be removed from service resulting in a loss of 700,000 lb/hr to 1,700,000 lb/hr of steam generation and 140 MW of electric generation. Reliability of this unit is crucial to the steam system reliability because of its location, the steam temperature provided and the steam production ratio. Replacement of this superheater will maintain or increase the unit's present reliability.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Total 2010-2014
				8,520	\$8,520

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

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Project Title	Tube Repairs Boiler # 1
Project Number	22482-07
Program Title	Boilers
Station	Ravenswood
Estimated In- Service Date	12/2010

Work Description:

The principle work effort in the refurbishment of this unit is associated with the replacement of damaged tubes in the Floor, Generating Bank, Convection Pass Sidewalls, and Convection Pass Rear wall sections of the boiler (551 tubes) along with associated BRILC work.

Justification:

The near drum NDE inspections in 2005 and 2007 showed numerous tubes with varying levels of wall loss. There are currently 79 plugged tubes (6%) in the boiler (several were plugged as a result of these inspections). An additional 87 tubes are within 30 thousandths of the ASME calculated minimum tube wall thickness. Projections of the corrosion rate calculated from the inspection data estimate that more than 10% of the tubes will be below minimum wall thickness by 2012. Sustaining the reliability and availability of the unit will be in jeopardy if the project is not completed. There is also some safety concern regarding potential failure of floor tubes.

Status:

In development

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
2,830					\$2,830

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Project Title	PB Upgrade - Air Preheater
Project Number	23130-08
Program Title	Boilers
Station	West 59 th Street
Estimated In- Service Date	12/2012 and 12/2013

Work Description:

The air preheaters on boilers 117 and 118 require the replacement of all hot end and cold end baskets, the replacement of all radial and axial seals and the replacement of both hot end and cold end bearings.

Justification:

The deterioration of the air preheater baskets has is affecting the unit's performance, e.g., the unit is less efficient. The reduction in performance is evidenced by elevated exit gas temperatures and visual inspections. The replacement is necessary due to the current condition of the equipment and to improve the performance of the unit which will result in fuel savings.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		360	360		\$ 720

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Project Title	114 Air Heater Baskets
Project Number	23191-08
Program Title	Boilers
Station	West 59 th Street
Estimated In- Service Date	12/2012

Work Description:

The air heaters on 59th Street's boiler 114 requires the replacement of all hot end and cold end baskets, the replacement of all radial and axial seals and some repair of the gearbox and support bearing housing.

Justification:

The deterioration of the air preheater baskets has is affecting the unit's performance, e.g., the unit is less efficient. The reduction in performance is evidenced by elevated exit gas temperatures and visual inspections. The replacement is necessary due to the current condition of the equipment and to improve the performance of the unit which will result in fuel savings.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		565			\$ 565

Project Title	114 Generating Bank Replacement
Project Number	23475-09
Program Title	Boiler
Station	West 59 th Street
Estimated In- Service Date	12/2014

Work Description:

Replacement of the generating bank in the 59th Street's Boiler 114 requires the removal of 1274 2.5" x 0.135" SA178-A generating bank tubes and 36 3" x 0.180" SA178-A finned convection pass side wall tubes. Partial removal of the furnace rear wall or the convective pass rear wall, partial removal side wall insulation and casing, and the full removal of the two gas baffles are required for access. Each generating bank tube and generating bank side wall tube will be cut and removed from each drum penetration. The tubing removed for access will be cut at two elevations and dutchmen will be welded in to close the access.

Justification:

The generating bank transfers heat from the flue gas, that otherwise would be wasted, to the water. Also, the generating bank forms the support for the steam drum and provides cooling for both drums. The number of tubes, the tube sizing and the tube spacing are set by these structural and thermal demands as well as fluid flow and circulation requirements. When the number of plugged tubes in the generating bank increases, the greater the dead loads are on each tube, heat transfer is reduced, the cooling for each drum decreases and the fluid circulation is adversely effected. There are two criteria to determine the time for generating bank replacement; 1) 10% of the tubes are plugged; and 2) 10 tubes plugged in a six by five tube area. In this case, the OEM, has provided support for operating with up to 14% of the generating bank tubes plugged, but there is concern about operating with more than ten tubes plugged in a thirty tube area. As of October 2009 less than 1% of the generating bank is plugged. During the last inspection many tubes were indentified with damage similar to that in Boiler 115. It is expected that Boiler 114 will experience failures rates similar to rates in Boiler 115.

Some causes of the tube damage have been mitigated through water treatment and operational adjustments. Because of the condition of Boiler 115, similarities in water treatment, and similarities in operation, the generating bank in Boiler 114 is expected to be approaching the point of replacement by 2014. Replacement will be necessary to continue operating Boiler 114.

Status:

Planning

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Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Total 2010-2014
				2,000	\$2,000

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Project Title	115 Generating Bank Replacement
Project Number	23476-09
Program Title	Boiler
Station	West 59 th Street
Estimated In- Service Date	12/2014

Work Description:

Replacement of the generating bank in 59th Street's Boiler 115 requires the removal of 1274 2.5" x 0.135" SA178-A generating bank tubes and 36 3" x 0.180" SA178-A finned convection pass side wall tubes. Partial removal of the furnace rear wall or the convective pass rear wall, partial removal side wall insulation and casing, and the full removal of the two gas baffles are required for access. Each generating bank tube and generating bank side wall tube will be cut and removed from each drum penetration. The tubing removed for access will be cut at two elevations and dutchmen will be welded in to close the access.

Justification:

The generating bank transfers heat from the flue gas, that otherwise would be wasted, to the water. Also, the generating bank forms the support for the steam drum and provides cooling for both drums. The number of tubes, the tube sizing and the tube spacing are set by these structural and thermal demands as well as fluid flow and circulation requirements. When the number of plugged tubes in the generating bank increases, the greater the dead loads are on each tube, heat transfer is reduced, the cooling for each drum decreases and the fluid circulation is adversely effected. There are two criteria to determine the time for generating bank replacement; 1) 10% of the tubes are plugged; and 2) 10 tubes plugged in a six by five tube area. In this case, the OEM, has provided support for operating with up to 14% of the generating bank tubes plugged, but there is concern about operating with more than ten tubes plugged in a thirty tube area. As of October 2009 approximately 7% of the generating bank is plugged with two areas that have ten tubes plugged in a thirty tube area. During the last inspection approximately ninety (7%) other tubes were identified as being moderately or severely damaged.

Some causes of the tube damage have been mitigated through water treatment and operational adjustments. Because the damage is present and each unplugged tube is loaded incrementally higher, replacement of the generating bank will be required by 2014 to continue unit operation.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Total 2010-2014
				2,000	\$2,000

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Project Title	Air Compressor Replacement
Project Number	22798-08
Program Title	Mechanical Equipment
Station	East 60th
Estimated In- Service Date	June 2011

Work Description:

This project will replace the existing two air compressors, two air dryers, a receiver, and associated piping and valves with two new rotary screw air compressors, two air dryers and two receivers and associated valves and piping. A second air receiver will provide additional capacity to meet the plant's air needs. The new system components will be equipped with remote control and monitoring that will enhance the diagnostic capability of system during operation.

Justification:

The existing air compressors and dryers at 60th street steam station were installed between 1988 and 1990. Both compressors and dryers are rated for 100 % capacity to meet the normal demand of wet and dry air of the station. However, the second air compressor is needed during the peak demand which requires both compressors to be operable. Unavailability of one of these components compromises the supply of air. The existing air compressors are becoming a high maintenance item and approaching the end of their useful life. Spare parts are not readily available which adds further delays to maintenance activities and lengthens the unavailability of the compressed air system during repairs. The existing single air receiver needs to be replaced with a larger capacity unit to match the new air compressor and station air demands.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast 2010-2013
-	1200				\$1,200

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Project Title	Waste Neutralization System Upgrade
Project Number	23181-08
Program Title	Mechanical Equipment
Station	East 60th Street
Estimated In- Service Date	12/2012

Work Description:

- Install new pressurized solution feed (PSF) system to improve CO2 and water mixing and inject the resulting solution into the cooled boiler blowdown water.
- Install a new PSF control panel, valves and diffuser; modify/add piping to route the boiler blowdown flow from the existing heat exchanger to the flow equalization tank (FET).
- Install new flow meter and pH prove on the discharge of the blowdown heat exchanger.
- Replace thermal insulation on the existing vaporizer.
- Reuse existing CO2 storage system, recirculation pumps, blowdown heat exchanger (BHE) and FET.

Justification:

Installation of this system upgrade is needed to improve the control of the pH of the blowdown flow and ensure compliance with the SPDES permit limit. The option of re-routing the oil water separator effluent pipe was evaluated, but was not approved by the DEC.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		500			\$ 500

Project Title	Package Boiler Demineralization Plant
Program Title	Mechanical Equipment
Station	E 74 th St. Station
Project Number	23493-09
Estimated In- Service Date	12/2013

Work Description:

Additional demineralization equipment will be installed to supply the package boilers (PB) for the purpose of reducing steam conductivity to acceptable levels when on Croton water supply. The new system will include three treated water transfer pumps; larger diameter high pressure (HP) boiler demineralization system stainless steel (316SS) piping headers; 316SS transfer piping to the PB treated water tank; new level control valve station (LCV); replacement of treated water piping from the treated water tank to the realkalization injection point with 316 SS piping; reconnection of trailer piping and LCV station, realkalization feed skids and chemical storage tanks, phosphate feed skids and chemical storage tanks; and blowdown control valve replacement. All associated power supplies and control equipment will be required for this as well as civil modifications for equipment pedestals, and containment moats.

Justification:

Updated continuous chemical monitoring has shown that the package boilers are currently unable to produce steam with conductivity below the PSC limit for the full load range of the units when on Croton water supply to the softening treatment system. The high conductivity in the steam results from the increased carbonate levels in the Croton supply as compared to the Catskill water supply. This was demonstrated in the Fall of 2008 when the NYCDEP put the Croton supply system into service for a short period of time. At that time, demineralization trailers were brought in to provide additional make-up water to help meet the steam purity limits for conductivity. When the Croton system is put into service in 2012, we will require a permanent supply of demineralized water for the package boilers to ensure that steam purity limits are met. A change to full demineralized water supply will also require that piping modifications be made to transfer processed water from the HP boiler demineralization system to the package boiler system. Demineralized water is aggressive so treated water piping in the package boiler system will need to be changed to stainless steel for corrosion protection. Re-alkalization and phosphate chemical feed systems will be installed to provide high energy boiler feed piping protection and internal boiler chemical treatment. The blowdown valves will be replaced to accommodate the much lower continuous blowdown flows required for demineralized water operation (on the order of 1-2%).

Status: Planning

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Funding: (\$000)

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		2,000	3,000		\$5,000

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Project Title	Replacement of CCW Tank
Project Number	22723-08
Program Title	Mechanical Equipment
Station	East 74 th Street
Estimated In- Service Date	12/2013

Work Description:

- Remove internal coating to bare metal.
- Replace internal tank structure pertaining to cover plate support.
- Remove and dispose of the pump support structure, as non required.
- Repair internal shell as required.
- Provide corrosion protective coating.
- Note: new CCW pumps and supports were installed (PN 22045-06). Tank repairs to be determined by Ultrasonic (UT) inspection.

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Justification:

The tank is the collection point for the CCW system, sending water to the roof tank that feeds cooling water to the users.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Total 2011-2013
			300		\$300

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Project Title	Fuel System Upgrades for the EDG
Project Number	23610-09
Program Title	Mechanical Equipment
Station	E74th Street Station
Estimated In- Service Date	09/2013

Work Description:

- Remove ½" copper tubing fuel supply lines connecting the fuel oil pump to the day tanks for the four (4) diesel generators
- Replace fuel supply lines with heavy wall carbon steel piping.
- Install remote control and pressure relief valve on each day tank's fuel supply line.
- Install return pipes between the pressure relief valves and the main fuel storage tank.
- Install controls for automatic pump start and stop linked to each day tank's fuel level, in lieu of fuel return lines, which are difficult to install due to the day tank locations.
- Prepare permits for approval by the NYC Fire Department and Building Department; work shall be done by a NYC Licensed FO installer.

Justification:

The current manual filling of the day tanks does not comply with the requirements of NYC FD Regulation and with Paragraph 27-829(b)(2) of the NYC Building Code (lack of overflow prevention and proper fuel supply piping design).

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			200		\$ 200

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Project Title	Units 10/20 - Water Treatment Upgrade
Project Number	23429-09
Program Title	Mechanical Equipment
Station	East River Units 10 and 20
Estimated In- Service Date	12/2012

Work Description:

An initial engineering evaluation to assess Units 10/20 RO/EDI water treatment system at the East River Generating Station, has determined the need to install an ultra-filtration system.

Justification:

The existing system will not have the capability to properly process water supplied from the Croton reservoir to meet PSC steam quality requirements. In addition, operation of the current system has resulted in higher operating and maintenance costs than expected, is labor intensive, and it processes less water than its design throughput. A contributing cause of these problems appears to be excessive and irrecoverable fouling of the reverse osmosis (RO) membranes. These conditions will be exacerbated when the Station's water supply is changed from the Catskill to the Croton reservoir. It is expected that this project will result of annual cost saving of up to approximately \$2.0 million.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
5,000	6,000	4,000			\$15,000

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Project Title	HRSG SCR Catalyst Replacement
Project Number	23134-08
Program Title	Mechanical Equipment
Station	East River Units 10 and 20
Estimated In- Service Date	12/2011

Work Description:

It is necessary to perform an in kind replacement of the SCR catalyst in the HRSG of both East River 10 and 20. The catalyst replacement requires temporary access through the duct wall at the SCR, removal and disposal of the existing catalyst and installation of new catalyst.

Justification:

The expected life of the SCR catalyst is 4 to 6 years. Testing shows the activity of the catalyst has degraded as expected. If the catalyst is not replaced at the appropriate time the SCR will not maintain necessary NOx reduction rates.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
500	4,200				\$4,700

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Project Title	Replacement of CO Catalyst in ER 10 and 20
Project Number	23135-08
Program Title	Mechanical Equipment
Station	East River Units 10 and 20
Estimated In- Service Date	12/2014

Work Description:

It is necessary to perform an in kind replacement of the CO oxidation catalyst in the HRSGs of both East River 10 and 20. The catalyst replacement requires temporary access through the duct wall at the catalyst assemble, removal and disposal of the existing catalyst and installation of new catalyst.

Justification:

The expected life of the CO oxidation catalyst is 4 to 6 years. Testing of removed samples shows the activity of the catalyst has degraded as expected. If the catalyst is not replaced the appropriate time unit will not maintain necessary CO reduction rates.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		600	3,400		\$4,000

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Project Title	HRSG 20 Bottom Blowdown System
Project Number	23418-09
Program Title	Mechanical Equipment
Station	East River Units 1 &2
Estimated In- Service Date	12/2010

Work Description:

This project will capture the wasted BTUs from the Continuous Blow down (CBD). In order to capture the waste heat the following is proposed: Install a new energy recovery system for HRSG #20 that will recover the wasted energy from the CBD and pre-heat the make-up water to the HRSG's deaerators. The new CBD energy recovery system will be sized to handle 1% -5% of the maximum steam generating rate of the HRSG # 20. The energy recovery system will consist of dual phase heat exchangers, valves, piping, control valve, and controls that will pre-heat the make-up water from 80° F to 102° F. The CBD energy recovery system shall be designed and installed for 100 % redundancy to insure reliability.

Justification:

The evaluation performed by central engineering shows that the installation of a HRSG 20 blow-down energy recovery system reduces the fuel cost to operate the HRSGs and also eliminates the damage to the drain system caused by the quenching river water required for the HRSG 20 blow-down. The estimated fuel reduction per year resulting from the installation of the CBD energy recovery systems for HRSG 20 for a 5% CBD is estimated to be approximately \$1.3 million/year.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
3,790					\$3,790

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Project Title	HRSG 10 Bottom Blowdown System
Project Number	21938-06
Program Title	Mechanical Equipment
Station	East River Units 1 &2
Estimated In- Service Date	12/2010

Work Description:

This project will capture the wasted BTUs from the Continuous Blow down (CBD). In order to capture the waste heat the following is proposed: Install a new energy recovery system for HRSG #10 that will recover the wasted energy from the CBD and pre-heat the make-up water to the HRSG's deaerators. The new CBD energy recovery system will be sized to handle 1% -5% of the maximum steam generating rate of the HRSG # 10. The energy recovery system will consist of dual phase heat exchangers, valves, piping, control valve, and controls that will pre-heat the make-up water from 80° F to 102° F. The CBD energy recovery system shall be designed and installed for 100 % redundancy to insure reliability.

Justification:

The evaluation performed by central engineering shows that the installation of a HRSG 10 blow-down energy recovery system reduces the fuel cost to operate the HRSGs and also eliminates the damage to the drain system caused by the quenching river water required for the HRSG 10 blow-down. The estimated fuel reduction per year resulting from the installation of the CBD energy recovery systems for HRSG 10 for a 5% CBD is estimated to be approximately \$1.3 million/year

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
3,620					\$3,620

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Project Title	Filter Press Installation
Project Number	23262-09
Program Title	Mechanical Equipment
Station	East River Units 1 &2
Estimated In- Service Date	12/2010

Work Description:

This project will permanently install the existing filter press located in the turbine room floor to the elevation 24'8" next to the sludge tank. The existing filter press was temporally installed on the turbine room floor with flexible hoses to the sludge tank and filtrate pump. The Filter Press is enclosed in a temporary plywood enclosure

Justification:

Permanent installation of the filter press is required to ensure proper design and operation of the system, remove the temporary plywood enclosure and unsafe condition caused by temporary houses and connections. The proposed location will allow the installation of a chute to handle the solid waste caked material from the bottom of the filter press to a collection bin directly below the unit at elevation 10' 6" in ash alley. This design will significantly improve waste handing and removal. Also, the equipment will be relocated to an optimum location and vacate prime turbine floor space. Proper design and installation will ensure efficient operation of the unit and reduction in waste disposal costs.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
750					\$ 750

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Project Title	Units 1 & 2 – GT Install Plenum Windows to Inspect Bellmouth
Project Number	22773-08
Program Title	Mechanical Equipment
Station	East River
Estimated In- Service Date	12/2010

Work Description:

This project involves installation of two (2) plenum observation windows for each unit (1 and 2). The plenum observation windows come equipped with 150-watt window assembly lamp. The lamp requires supply power of 110V and is fitted with a toggle switch. One (1) new 20A breaker will be installed in lighting panel no. 3 and no. 4 located near the inlet plenums. A new disconnect switch will also be installed at each window. New conduits and wires will be installed.

Justification:

This project will facilitate maintenance by providing an observation window (viewport) for routine visual maintenance and inspection. The current configuration of the inlet plenum access hatch necessitates shutting down the unit in order to visually inspect the bellmouth area, inlet guide vanes (IGV), and spray pattern during water washing. While the unit is off-line an employee would physically have to unbolt the plenum access hatch to enter the designated area for the inspection. The required plant outage to perform these inspections increases the unavailability of the unit and increases the labor costs for a routine visual maintenance and inspection.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
100					\$ 100

Project Title	Demin Water Supply
Project Number	23495-09
Program Title	Mechanical Equipment
Station	East River South Steam Station
Estimated In- Service Date	12/2010

Work Description:

The purpose of this project is to supply demineralized water to the ERSSS package boilers. To achieve this, this project will install transfer pumps and stainless steel piping (316 SS) to supply water from the existing LA Plant to the ERSSS treated water tank (TWT). Similarly transfer pumps and stainless steel piping will also connect the unit 10/20 reverse osmosis (RO) plant to the ERSSS TWT. In addition to this transfer system, other work include installation of a new tank level control valve station and replacement of treated water piping from the ERSSS TWT to the realkalization injection point with stainless steel piping. The existing demineralized water rental trailer hook-up outside the building will also be upgraded. The associated power supplies and control equipment as well as civil modifications for equipment pedestals, and containment moats will be installed as needed.

Re-alkalization and phosphate chemical feed systems will be installed to provide high energy boiler feed piping protection and internal boiler chemical treatment. The blowdown valves will be replaced to accommodate the much lower continuous blowdown flows required for demineralized water operation (on the order of 1-2%).

Justification:

The supply of demineralized water is required to reduce steam conductivity to acceptable levels when the Station water supply is changed from the Catskill to the Croton reservoir. Updated continuous chemical monitoring has shown that the package boilers are currently unable to produce steam with conductivity below the PSC limit for the full load range of the units when on Croton water supply to the existing softening treatment system. The high conductivity in the steam is a result of the increased carbonate levels in the Croton supply as compared to the Catskill supply. This was demonstrated in the Fall of 2008 when the NYCDEP put the Croton supply system into service for a short period of time. At that time, demineralization trailers were brought in to provide additional make-up water to meet the steam purity limits for conductivity. When the Croton system is put into service in 2012, a permanent supply of demineralized water for the package boilers will be required to ensure that steam purity limits are met.

Status:

Planning

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Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,500					\$1,500

Project Title	City Water and Treated Water Tank Liner
Project Number	23180-08
Program Title	Mechanical Equipment
Station	East River South Steam Station
Estimated In- Service Date	12/2010

Work Description:

Install liners for the ERSSS Treated Water Tank and City Water Tank.

Justification:

The protective coating inside the Treated Water Tank has deteriorated to the point where approximately two thirds of the tank's metal surface is exposed. The lack of protective coating has resulted in severe surface pitting and oxidation byproducts being generated. Consequently corrosion products are migrating through the feedwater system downstream of this tank and settling inside the treated water and feedwater piping, the Deaerator extended surface, Economizers tubes and eventually inside the Package Boilers.

The City Water Tank coating has severe surface damage, discontinuities and excessive cracks in the epoxy coating. Some of the surface metal is exposed and there are signs of corrosion build-up under the epoxy coating. The exterior of tank has soft patches at various locations where the coating has lifted and moisture accumulates.

In addition to tank damage potentially leading to leaks, it has been determined that the migration of the corrosion products has contributed to previous package boiler force outages.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
635					\$ 635

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Project Title	Improve Deaerator Oxygen Removal
Project Number	22183-06
Program Title	Mechanical Equipment
Station	East River South Steam Station
Estimated In- Service Date	12/2012

Work Description:

To address the oxygen pitting and corrosion in the South Steams Station feedwater piping and economizers, the following will be implemented:

- Install a small spray valve manifold with steam & feed water control valves (for low load conditions).
- Install a recirculation loop consisting of a pump, relief valve and piping from the farthest point on the feedwater line to the deaerator discharge, to circulate during stand-by (including required valves).
- Use the steam control valve from the small spray valve manifold to steam blanket the deaerator when not on line.
- Integrate the controls for the small installed spray manifold, and operation of the recirculation system into the existing control system.
- Modify the controls to turn on the deaerator whenever any water enters the deaerator.

Justification:

Maintaining a proper dissolved oxygen level in the feedwater will prolong the life of the boiler internals, reduce maintenance costs and provide a higher level of reliability to the South Steam station.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		500			\$500

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Project Title	Service Water Enhancements – Water Treatment
Project Number	22781-08
Program Title	Mechanical Equipment
Station	Ravenswood "A" House
Estimated In- Service Date	12/2013

Work Description:

The scope of work to install connections for a trailer based water treatment system (demineralization trailers) includes: installing piping connections to water treatment trailers, motor operated control valves inside the station, a booster pump station, and all necessary electrical wiring and conduits. The outdoor water storage pond will still be used for raw water storage. Due to space limitations at the station, a trailer based water treatment plant is the most feasible solution.

Justification:

This project is needed to install a water treatment demineralization system to protect the boiler equipment and distribution piping from corrosion. Poor feedwater quality has caused increased corrosion on the bottom of steam distribution piping and increased the frequency of boiler re-tubes and boiler washes.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			1,900		\$1,900

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Draft

Project Title	Mud Drum Heating Coils Installation
Project Number	22146-06
Program Title	Mechanical Equipment
Station	Ravenswood A-House
Estimated In- Service Date	12/2013

Work Description:

This project consists of installing steam heating coils inside the boilers mud drums. This system will include: heating coils, supply and discharge piping, appropriately sized steam traps (inlet and outlet), piping supports, valves and instrumentation. The supply steam for the drum heaters will come from an existing nearby header which presently feeds the force draft fan turbines and requires minimal piping. The condensate from the heating coils will be discharged to the feedwater supply pond via an existing pipe. This system will be manually placed into service when the boilers are shutdown and turned off when the boilers are returned to service.

Justification:

Currently the gas igniters are fired to keep the boilers pressurized and warm. It is important to keep boilers warm to reduce start up times and to mitigate near-drum corrosion. The gas igniters are a source of emission, require the operation of several auxiliary systems and continued operator oversight and control because the units are essentially in-service. The steam heating coils would operate more efficiently from a plant operations view point and result in some reductions in fuel costs, and emissions.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			850		\$ 850

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Project Title	Surge Tank Replacement
Project Number	18353-02
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

This project will replace the Generating Surge Tank #3 as part of the upgrading of Condensate Recovery system for West 59th Street Station. Water collected in all four tanks is re-circulated to the Raw Water Tank via the condensate recovery system. This project will replace surge tank #3 (option to replace tank 4) and optimize the discharge lines to the four tanks separating clean water (hot) tanks that discharge to the treated water tank (TWT) and untreated water (cold) tanks that discharge to the raw tank (RWT).

Justification:

There are four (4) existing Surge Tanks (#3, #4, #7 and #8) located in the basement. Surge Tank #3's overall integrity is poor and is subject to many leak throughout its roof. These leaks have are a corroding effect on the beams and floor above the tank due to the vapor escaping the tank. Also the existing condensate removal pumps are tripping frequently due to high temperature of the condensate. The pumps will not run if the condensate is over 110 F. Hot water should not be recirculated to the Raw Water tank because it negatively affects the cation treatment of the boiler water. If the hot condensate cannot be sent to the RWT is over boarded into the discharge tunnel rather than reused.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
2,500					\$2,500

Project Title	Permanent Demineralization Plant
Project Number	21696-05
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

This project will install new water treatment equipment to maintain proper water chemistry to prevent metallurgical problems in the steam distribution system and internally within the station. This system will reduce the amount of carbon dioxide in the steam, increase pH, and lower steam conductivity. Equipment to be installed consists of:

- Activated carbon filters
- Ion exchange trains (Cation and Anion exchange vessels, with a booster pump between the vessels in each train),
- Acid and caustic resin regeneration systems (bulk storage tanks, pump skids, water forwarding pumps, and resin maintenance tanks),
- Waste neutralization system (two FRP waste neutralization tanks and a mixing discharge pump skid),
- Filter backwash system (which includes a large backwash tank, booster pump and a small holding tank),
- Coagulant feed system (pumps and storage tank).
- DCS to control the demineralization plant
- Associated piping, instrumentation, valves, control system

Justification:

Engineering, design and procurement for this project started in 2008. Construction began in 2009 and the schedule in-service date is 12/2010. This demineralization system will replace the current water sodium softener treatment system. The existing system does not have the capability to meet the PSC steam purity requirements when the water supply to the station is changed from the Catskill to the Croton reservoir, tentatively scheduled for 2012.

To protect the station equipment, e.g., boiler internals, dearators, piping and the steam distribution piping system from corrosion and sustain the reliability of the steam supply, a full demineralization system is being installed at the station. A similar system is also being installed at the East 74th street with schedule in-service date of 12/2009.

Status:

Ongoing

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Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
11,163	-	-	-	-	11,163

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Project Title	Raw Water & Desup Sys Mod
Project Number	22536-07
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

This project includes the replacement of the existing Raw Water Pumps with new higher capacity pumps (identical pumps with larger impellers). An additional pump will be installed as spare. In addition, the existing desuperheating water supply will be rerouted to be supplied from Deaerator 4. The existing desuperheating water booster pumps will be retired, the piping from the rental trailers currently providing desuperheating the water supply will be disconnected.

Justification:

Engineering, design and procurement for this project was started in 2008 in conjunction with the project to install a new demineralization plant. Construction of this project will be completed in 2010 and the in-service date is 12/2010.

The current raw water system at the West 59th Street Station cannot supply sufficient water to the new demineralization system during peak water demands required to backwash the carbon filters. Therefore, the current pumps will be replaced higher capacity units. An additional pump will be installed to serve as an in-line spare to sustain system reliability in the event one pump fails. The installation of the demineralization plant (PN 21696-05) will provide an alternate source of desuperheating water (from Deaerator 4). This will allow for the removal (and operational cost savings) of the rental desuperheating water supply trailers.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,900					\$1,900

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Project Title	Consolidation & Replacement of Surge Tanks 7 & 8
Project Number	23253-09
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/13

Work Description:

- Disconnect supply piping for ST 7 & 8 and provide re-routing and temporary storage.
- Remove piping no longer in use from tanks and disconnect vent lines.
- Disconnect and remove instrumentation and controls associated with the tanks.
- Demolish existing Surge Tanks (ST) 7 & 8 located in the basement of the plant and field erect new tanks of same dimension and capacity of 18,500 gallons/tank at 250 F.
- Determine condition of existing foundation and impact of tank demo/erection on the status of moats; repair/replace moats, as required.
- Modify piping to provide a common supply header with one penetration per tank; modify vent lines to run common.
- Install tank instrumentation and controls and signal forwarding to control room.
- Inspect, repair and ensure power supply to existing condensate recovery pumps and associated controls.

Justification:

Surge Tanks 7 & 8, as part of the condensate recovery system, collect non-treated cooling water and condensate from various systems in the station. This water is re-circulated to the Raw Water Tank for reuse. Due to the poor condition of these tanks, they need to be replaced to sustain the reliability of the condensate recovery system. Also, in the event these tanks are not available, the waste water discharged from other plant systems could would not be collected and stored for re-circulation and reuse at the station. This water would have to be discharged increasing the fresh water usage of the Station.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			1,700		\$1,700

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Project Title	Oil Moat Fire Protection
Project Number	21303-04
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2012

Work Description:

Install a 2-hour rated fire protective coating on the steel columns, beams and girders inside and within 10 feet of the existing secondary containment moat for the kerosene and #6 fuel oil storage tanks. Columns that butt up against the concrete moat wall will be encased in concrete to achieve the same fire rating.

Justification:

In the event of a catastrophic tank failure, oil will spill into the existing combined moat and could ignite. The unprotected structural steel members within the containment area would be exposed to elevated temperatures that would cause damage and significantly weaken them. This would jeopardize the rest of the building structure above.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		520			\$ 520

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Project Title	Steam Send Out Enhancements Phase 3
Project Number	23152-08
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

This project will replace the existing Yarway Temprow Desuperheaters that are installed on the 59th Street Steam Send out System. The new desuperheaters will contain nozzles evenly spaced around the circumference of the steam main. New temperature control valves (TCVs) will also be installed to supply the spray water to the new desuperheaters. The new design will feature desuperheaters and temperature control valves as separate pieces of equipment. New check valves will also be installed on the desuperheating water line downstream of the new temperature control valves. The existing desuperheating water block valves will be replaced with new block valves to provide good isolation when only one loop is in service.

Justification:

Two split range desuperheaters are installed on both the Upper Loop and the Lower Loop (four total). The existing desuperheaters are producing an uneven spray pattern inside the steam main, creating temperature gradients that cause the main pipe to bow excessively from its normal position when in service. This project will install new desuperheaters that generate a more uniform spray pattern than the existing equipment which will eliminate the temperature gradients around the perimeter of the pipe and the resultant pipe bowing. The existing desuperheater design contains a spray nozzle and control valve in one unit, exposed to the 750°F main steam line while spraying water ranging from 100-200°F. Thermal stresses, thermal shock, and flow induced vibration due to vortex shedding have been attributed to the periodic failure of this type of spray nozzle. The new design will minimize or eliminate the exposure of mechanical control elements to the high temperature steam and minimize flow induced vibration.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
500					\$ 500

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Project Title	Add Light Oil Firing to E60th Street Station
Project Number	22947-08
Program Title	Mechanical Equipment
Station	East 60 th Street
Estimated In- Service Date	10/2013

Work Description:

The purpose of this project is to add light oil firing capability to the six package boilers (PB) at East 60th Street Station. This station was originally equipped with heavy oil firing capability but never used. The existing oil storage system will be utilized for light oil and all of the heavy oil firing equipment will be retired and removed. All new light oil firing equipment will be installed including new pumps, distribution piping, burners and instrumentation and controls. The fire protection for the oil storage room will be upgraded.

Justification:

Currently the six package boilers at this station fire natural gas only. The new light oil fuel system will provide duel firing capability. Duel-fuel firing capability will provide the flexibility of selecting the most cost effective fuel and reliability in the event supply is disrupted.

Status:

Project Scope, Conceptual Package and the Appropriation Estimate have been approved. The Appropriation Request is in progress and preliminary P&ID's and equipment layout dwgs are completed.

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			1,900		\$1,900

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Project Title	Install New Re-Alk/Phosphate System
Project Number	22485-07
Program Title	Mechanical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

This project will install new realkalization and phosphate injection systems at West 59th St. These systems includes: one realkalization skid, two phosphate skids, two phosphate storage tanks, associated valves and instrumentation, piping, and injection points. The realkalization skid will feed diluted caustic into the Annex Boiler common feedwater line and Package Boiler Common feedwater line to raise the pH of the feedwater. The phosphate skids (one skid dedicated for Annex boilers 114 and 115, and one skid dedicated for Package Boilers 116, 117, and 118) will feed diluted phosphate (proprietary blend of di- and tri-sodium phosphates) into each individual boiler drum. New blowdown valves will be installed to reduce the amount of boiler blowdown during operations. Less blowdown is needed due to the installation of the demineralization system. Control will be done with a programmable logic controller, which will interact with the demineralization plant distributed control system (DCS).

Justification:

This project began in 2008 in conjunction with the installation of the demineralization plant. The realkalization system is needed to raise the pH of the feedwater stream to help prevent corrosion on the feedwater piping. The effluent of the demineralization plant will be pH neutral, and would corrode piping rapidly if the pH was not raised. The phosphate system is needed to raise the pH to protect the boiler and precipitate dissolved solids so they can be removed from the boiler steam drum during blowdowns. The increased pH and removal of dissolved solids helps to prevent boiler tube failures. Both systems are needed to prevent corrosion and reduce boiler tube failures.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
200					\$ 200

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Project Title	Replace PB-48-MCC1 and PB-48-MCC3
Project Number	23484-09
Program Title	Electrical Equipment
Station	East 60 Th . Street
Estimated In- Service Date	12/2013

Work Description:

Change 480-volt MCC's 1 & 3 feeder cables from 1/C#4/0 per phase to two sets of 350mcm cables per phase. Add two new 600-volt class switchboards connected to 480-volt Substation PB48S/S-1 and PB48S/S-3 to increase the 480-volt power distribution system capacity. The switchboards will supply power to the excess loads from the substation and MCC's main buses, and have provisions for supply power to future loads.

Justification:

Motor control centers PB48MCC-1 and PB48MCC-3 are rated 600 amps each, and energized through one "1/C #4/0 cable per phase" connection to their respective bus sections PB48S/S-1 and PB48S/S-3. A disconnect link is provided in each bus section to isolate each MCC from the 480 volt buses. The 480-volt main buses of the substations and the MCC are being tapped and connected to additional equipment via cables. This method of expanding the power distribution system is unreliable and may be detrimental to the availability of the 480-volt and 208-volt power distribution system. The connected loads of PB48MCC-1 and PB48MCC-3 are exceeding the 600 amps current rating, and the 4/0 feeder cables for both MCC are undersized. A ground fault on a single cable will cause the tripping of the 480-volt substation supply circuit breaker. This would result in the tripping of three boilers due to loss of control power. In addition, a phase-to-phase fault on these cables may cause damage to the 480-volt substation transformer.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Total 2010-2013
			200		\$ 200

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Project Title	480v Dock Supply
Project Number	23663-09
Program Title	Electrical Equipment
Station	East 74 th Street
Estimated In- Service Date	12/2013

Work Description:

Remove the 13.8 kV feeder and transformer currently on the dock with a 480V supply from a new transformer located inside the main building. The existing 13.8kV system will fail in the event of a hurricane due to its location.

Justification:

This project will help prevent a trip out of the 13kV bus resulting from high water conditions resulting from a hurricane. The purpose is to remove this equipment from the dock where it is susceptible to weather/flooding. If the transformer were to fail, it would take out a D-Bus breaker which supplies other station loads as well

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Total 2011-2013
			350		\$350

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Project Title	2.4 KV HP ID & FD Fan Feed Replacement
Project Number	23663-09
Program Title	Electrical Equipment
Station	East 74 th Street
Estimated In- Service Date	12/2013

Work Description:

This project consists of the replacement of the high pressure boilers induced and forced draft 2.4 kV switchgear numbered A1-2, A2-1 and A2-2. A1-1 was replaced about 7 years ago. All control cables will also be replaced.

Justification:

The existing switchgear is obsolete and spare parts are not readily available; control wiring often develops grounds requiring asbestos decontamination before repairs can be made. Replacement of this equipment is necessary to sustain the reliability of the boilers.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			300		\$ 300

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Project Title	Battery Upgrade
Project Number	23478-09
Program Title	Electrical Equipment
Station	East 74 th Street
Estimated In- Service Date	12/2010

Work Description:

Upgrade station DC system by replacing batteries, battery chargers or instrumentation as they pass their life expectancy. The existing batteries will be inspected and evaluated each year and replaced accordingly.

Justification:

The DC system supplies electrical power to critical station protection, control, indication and alarm circuits. Reliable DC systems are necessary to assure proper operation during normal and emergency conditions.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
100					\$ 100

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Project Title	Lighting Upgrade
Project Number	22154-06
Program Title	Electrical Equipment
Station	East River Units 1 & 2
Estimated In- Service Date	12/2012

Work Description:

This project will install emergency lighting fixtures and illuminated exit and directional signs to mark and illuminate safe egress paths within the Unit 1 & 2 area. The installed fixtures and signs will be equipped with batteries sized to provide 90 minutes of back-up (per OSHA requirements), and be configured for continuous trickle-charge from the normal lighting system power circuits and automatic switchover to the batteries upon loss of the normal power supply. Exit signs and directional signs will be located at all elevations and in stairwells, to clearly delineate the safe egress paths out of the building. Emergency lighting fixtures will be sized and located to provide illumination of the egress paths at levels meeting OSHA and corporate requirements for the required minimum 90 minute duration.

Justification:

This project will provide appropriate emergency lighting, exit signs and directional signs with 90 minute battery back-up, which will meet the OSHA and company requirements for personnel egress path identification and illumination, so that occupants can make their way to safety in the event of failure of the normal lighting system.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
	350				\$ 350

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Project Title	New UPS for package boilers 116,117 &118
Project Number	21794-05
Program Title	Electrical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2013

Work Description:

Install a new 5 kVA UPS to unitize the UPS Distribution Panels for Package Boilers 116,117 & 118. The two (2) existing UPS along with the new UPS will allow each boiler to have a dedicated uninterruptible electric power supplies. Install an additional 1kVA UPS to feed "AC Input 2" of the 24VDC supply to "All Pkg. Blr. Xmtrs". Install another 2 kVA UPS and an associated eight (8) circuit output panel with 2 Amp fuses to feed critical loads to be relocated to it from other panels.

Justification:

Control power for the package boilers 116,117 &118 including the Maxon Valves and the Burner Management Systems, is supplied by two interconnected uninterruptible power supply (UPS) Systems. In the event of failure such as a short circuit, all three package boilers will shutdown because both UPS systems would be affected.

In order to sustain the reliability of the DC power system and the package boilers, a third UPS will be installed to provide uninterruptible electric power to the three package boilers 116,117 & 118. Each of the UPS's will be dedicated to a specific boiler. Two small UPS will supply some common Instrumentation and Control loads.

Status:

Planning

Funding (\$000):

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			420		\$ 420

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Project Title	Lighting Upgrade
Project Number	22694-07
Program Title	Electrical Equipment
Station	West 59 th Street
Estimated In- Service Date	12/2014

Work Description:

Under this project, new, highly efficient, Metal Halide High Bay Lighting System will be installed in safely accessible cantilevered and hinged fixtures mounted on columns at elevation 74'-0" gallery railing level throughout the length of the approximately 800' long by 78' wide by 77' ceiling height turbine hall. The gallery with its railing will provide the platform for easy access to the fixtures while safety in cleaning, bulb replacement, and repair will be realized through the hinge in their support base

Justification:

The existing 1000W High Pressure Sodium Lighting system is very inefficient and is in a very poor state of maintenance due to the mounting locations and lack of access. The lighting produced is inadequate in terms of quantity, distribution and color. These poor lighting conditions pose additional operational and occupational safety hazards for turbine room personnel and equipment.

Status:

Planning

Funding (\$000):

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
				1,420	\$1,420

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Project Title	Chemical Monitoring System
Project Number	21615-05
Program Title	Control Systems
Station	East 74 th Street
Estimated In- Service Date	12/2011

Work Description:

This project will install pH, conductivity, phosphate, sodium, silica and column conductivity instruments on the steam, boiler water and condensate systems on the High Pressure Boilers and Package Boilers. It will provide online monitoring and alarms for the water and steam chemistry.

Justification:

The Public Service Commission (PSC) has established steam purity limits for several chemical parameters in the steam sendout and specified in Company procedures. These chemical parameters are currently monitored using a combination of electronic analyzers and manual samples. Manual samples are prone to delays in obtaining analysis results on certain chemical parameters that need a more efficient means of results indication. Also, accelerated degradation of the steam equipment can occur if certain chemical and pH levels are not properly maintained. This project will provide online data and alarms locally and in the control room to maintain chemistry within the prescribed limits. Providing continuous monitoring and taking timely actions by the operating staff will allow compliance with PSC and Company's steam purity requirements.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,000	870				\$1,870

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Project Title	Smoke detectors 9th & 10th Floor
Project Number	20764-03
Program Title	Control Systems
Station	East 74 th Street
Estimated In- Service Date	12/2013

Work Description:

Provide Fire Detection system, to include installation of smoke detection, pull stations, audible & strobe alarms throughout the 9th and 10th floor switchgear rooms. A Fire Control panel will be installed on the 10th floor and will transmit alarms to the control room and the existing main Fire Alarm panel located in the lobby to the station.

Justification:

The switchgear room areas on the 9th and 10th floors currently do not have a fire detection system. Two previous fires in the switchgear rooms on the 9th and 10th floor have resulted in the shutdown of the 74th Street Plant.

Adding a Fire Detection system will increase safety and reduce equipment damage, by providing alarms in the area and giving early warning of fire or smoke conditions.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			400		\$ 400

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Project Title	CTG Controls System Upgrade
Project Number	23324-09
Program Title	Control Systems
Station	East River Units 1 & 2
Estimated In- Service Date	12/2011

Work Description:

This project will provide an upgrade to the Mark V control system for the two East River Gas Turbines (Units 1&2). The proposed solution is to convert the Mark V control system to the Mark Ve (MKVe) system. The upgrade will improve computing power for new and existing functions and logic support upgrades, improve programming flexibility, upgrade the controller communications from ARCNET Link to a 100MB Ethernet LAN conforming to the current IEEE standards, and eliminate the need to use a separate single processor for communications, which is a single point of failure

Justification:

The MKV Control System, is now considered old technology, functioning on slower processors than currently available, and 10MB coaxial lines. The controller has limited capability during fast response processing and has limited expansion space for digital logic and I/O's, which is a concern because of future logic expansion needs. Likewise, there is limited support for replacement parts. These parts can only be refurbished or supplied from third party vendors. The following two significant incidents were directly attributed to the current MKV system;

- The MKV control system caused a forced outage which occurred on July 10, 2007. A core processor communication error resulted in a master turbine trip. This trip left the system unavailable for more than sixteen (16) hours.
- Another significant incident which left the system unavailable for more than fifteen (15) hours occurred on June 23, 2005 in which a processor became overloaded and locked up. This condition stopped all incoming analog signals. This prevented the system from responding to operator commands and resulted in a unit shutdown.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
100	1,600				\$1,700

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Project Title	Send Out Redundant Flow Transmitters
Project Number	22510-08
Program Title	Control Systems
Station	East River Units 10 & 20
Estimated In- Service Date	12/2010

Work Description:

This project includes the installation of additional flow, pressure, and temperature transmitters in the East River Units 10/20 Ring Header 1 (RH1) interconnections. The additional instrumentation will provide redundancy of critical control signals for the flow control valves for the ring header for the 1st Ave main, 11th St. main, and 400 psig tie interconnection, and provide additional steam send out indication for East River South Steam Station 1st Ave. Main outlet.

Justification:

The original design of the steam send out mains from the East River 10/20 RH1 included individual flow transmitters for the 1st Avenue main outlet, the 11th Street main outlet, and the 400 psig tie to the outlet of Units 6 & 7. The load demand setpoint for Units 10 and 20 Combustion Gas Turbines and HRSG duct burners are dependent on the installed flow orifices for each main and their accompanying flow transmitters. The addition of a second flow transmitter on available taps on the existing flow orifices will provide redundancy for these critical control parameters and flexibility for maintenance and calibration of the equipment. In addition, The 1st Avenue main steam send out source has two supplies, e.g., the East River South Steam Station package boilers and the East River 10/20 RH1 - 1st Avenue steam send out main. Both of these supplies tie into a 20" pipe in the vicinity of the East River Tank Farm. The pressures, flows, and temperature controls for each source are independently controlled and monitored and can be in service independently or concurrently. However the pressure and temperature of the common outlet from these two sources is not presently monitored. Remote pressure and temperature indication for this common outlet to the 1st Avenue main is required to accurately report the pressure and temperature of the steam that is being provided from East River Station to the Steam Distribution System.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
390					\$ 390

Project Title	Install Gas Chromatograph
Project Number	23063-08
Program Title	Control Systems
Station	East River Units 1 & 2
Estimated In- Service Date	12/2011

Work Description:

This project will provide a means of analyzing and quantifying the natural gas that enters the East River Generating Station that supplies Units 1 & 2. A gas chromatograph will be installed on the incoming gas supply and its output signals will be routed to the Station distributed control system for displays for the operators and for inclusion in the stations performance monitoring system. The stations technical group will be able to evaluate parameters such as percent mole composition, BTU values, the Wobb Index, moisture content, and the hydrocarbon dew point, as well as other attributes that characterize the quality of the natural gas. The analyzer also has various user defined functions that can be employed, such as calculating specific averages or accessing certain archived data.

Justification:

East River does not have a means of analyzing the quality and components of the natural gas that enters the station to supply Gas Turbine Units 1 & 2. Engineers and technicians are unaware of the composition and quality of natural gas that is supplied to their GTs. Currently, the only means of acquiring the natural gas composition is to manually request it from the Gas Engineering Department at Con Edison. Because the data is not generated and delivered to East River automatically, they typically request the data after there has been an incident and need the information to investigate the source of a problem.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
	200				\$ 200

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Chemical Monitoring System
Project Number	21619-05
Program Title	Control Systems
Station	East River South Steam Station
Estimated In- Service Date	12/2010

Work Description:

This project will install pH, conductivity, phosphate, sodium, silica and column conductivity instruments on the steam, feedwater and condensate systems for the South Steam boilers and upgrade some instruments on the HRSG units. The signal from the instruments will be wired to the DCS system to provide online monitoring and alarms for the water and steam chemistry parameters.

Justification:

The Public Service Commission (PSC) has established steam purity limits for several chemical parameters in the steam sendout and specified in Company procedures. These chemical parameters are currently monitored using a combination of electronic analyzers and manual samples. Manual samples are prone to delays in obtaining analysis results on certain chemical parameters that need a more efficient means of results indication. Also, accelerated degradation of the steam equipment can occur if certain chemical and pH levels are not properly maintained. This project will provide online data and alarms locally and in the control room to maintain chemistry within the prescribed limits. Providing continuous monitoring and taking timely actions by the operating staff will allow compliance with PSC and Company's steam purity requirements.

The station is currently using the Advantech Chemical Information System (CIS) to collect, display and store data on the steam, boiler feedwater and condensate systems. This system is used for indication only as it does not allow for calibration changes or alarms.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
2,500					\$2,500

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	CCR Upgrade
Project Number	18169-01
Program Title	Control Systems
Station	East River South Steam
Estimated In- Service Date	12/2010

Work Description:

The East River South Steam Station (ERSSS) consists of ten package boilers of which five are operational. The individual package boilers are monitored and controlled with an Emerson Ovation Distributed Control System (DCS). This project will provide remote control and monitoring of the SSS balance of plant (BOP) with the addition of a new drop in the existing Emerson Ovation Network. The control room will be provided with an additional operator workstation with dual monitors and the upgrade of one existing single monitor workstation to a dual monitor station, thus providing the operator with four (4) operator workstations and eight (8) monitors to control and monitor the ERSSS. The BOP instrumentation will be upgraded with new transmitters (4-20mA) with HART technology for pressure, level and temperature where upgrades have not been previously made, as well as replacement of the positioners on valves with HART capable positioners.

Justification:

The BOP consists of common systems such as the City Water System, Treated Water System, Water Softener, Feed water System, Condensate Recovery System, Blowdown System, Fuel Oil System, Ignition and Main Gas System, Steam Send-Out System and the House Fans. The BOP is controlled either locally or through panel mounted instruments with minimal information available to the operator and no historical logging. The installation of new instrumentation, control valves and control valve positioners will provide more reliable operation of the BOP systems. The upgrade of the control consoles will provide Operations with a more comprehensive Human Machine Interface (HMI). Redundant fiber optic cable runs which are currently in the same conduit will be segregated to eliminate single modes of failure.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
2,300					\$2,300

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	DCS I/O Card Replacement
Project Number	23330-09
Program Title	Control Systems
Station	East River South Steam
Estimated In- Service Date	12/2010

Work Description:

This project will replace selected outdated Westinghouse WDPF DCS control system components, including input/output modules, redundant power supplies, and communication cards, with new Emerson Ovation DCS control system components. The project will continue the upgrade process that was started in conjunction with the Gas Conversion installation in 2004 by replacing the balance of the major WDPF components and bringing East River ERSSS controls to a common control platform to sustain reliability and controllability. A replacement of the WDPF Q-line I/O racks with R-line I/O racks will be performed using the standard Emerson Migration Kit. The existing Solaris based workstations and controllers will also be replaced with Windows based workstations and new controllers within the existing cabinets. All control logic and graphics will be converted to the Windows operating system.

Justification:

The East River South Steam Station (ERSSS) Westinghouse Distributed Processing Family (WDPF) Distributed process units (DPU) were converted to Ovation controllers during the Gas Conversion in 2004. The WDPF system was installed in the mid 1990's and the original WDPF input/output (I/O) cards are still in use for significant parts of the station's Distributed Control System (DCS). While Emerson is supporting WDPF I/O cards until 2018, the power supplies for these WDPF I/O cabinets are no longer supported. There have been a number of failures on equivalent equipment on East River Unit 60, requiring the Station to use outside vendors to build custom replacements at significant cost and lead time. Finally, the WDPF I/O cards and Solaris based operating system are outdated and lack Highway Addressable Remote Transducer (HART) or fieldbus and wireless functionality , requiring additional hardware such as gateways, Tri-loops and wiring for valve position feedback and asset management system (AMS) integration, and limiting integration of the latest technologies in distributed control into the system.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,150					\$1,150

Project Title	Replace Opacity and CO Analyzers
Project Number	23386-09
Program Title	Control Systems
Station	East River South Steam
Estimated In- Service Date	12/2010

Work Description:

This project will provide for the installation of new opacity monitors and an extractive CO monitoring system for each package boiler at the East River South Steam Station (ERSSS). Five new individual opacity monitors will replace the existing deteriorating and obsolete opacity monitors to provide indication of each boilers degree of incomplete combustion, mainly while firing # 6 fuel oil. Each opacity monitor will be provided with a blower system to maintain the monitors lens cleanliness as was installed at Hudson Avenue.

Two separate CO analyzer and sample conditioning panels will be provided to accommodate all five boilers. The CO analyzers will provide indication of each boiler degree of incomplete combustion, mainly for use when firing natural gas. Each analyzer panel requires power supplies, purge air, and signal connections. The panels also require air conditioners with their associated power supplies. This system is equivalent to the system installed for the six PBs at the East 60th Street Station. The instrumentation signals from these monitors will be integrated into the ERSSS DCS.

Justification:

The existing opacity meters for boilers 115, 116, 117, 118 and 119 are not able to maintain accurate smoke density readings. These opacity monitors have been declared obsolete by the manufacturer, who is not providing replacement parts for them. In addition, the Station does not have any spare parts on site to support any failure.

Installing CO monitoring on the individual package boilers at the ER SSS will enable a tighter control of the Combustion process, thereby increasing the package boilers efficiency, and also reducing NOx emissions while firing natural gas. By installing a new and dedicated extraction type CO monitoring system for the package boilers, the operator will be able to trim excess oxygen/air for safe and smokeless combustion.

Status: Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,000					\$1,000

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Simulator Operator Training
Project Number	23328-09
Program Title	Control Systems
Station	East River South Steam
Estimated In- Service Date	12/2014

Work Description:

This project involves the purchase and installation of a Tie-back Simulator for ERSSS. The simulator will serve as a method of Operator Training and will provide plant specific functionality with the actual Ovation DCS presently installed at ERSSS. This simulator will also be used as a tool for verifying some simple control system operations under normal and abnormal operating conditions.

Justification:

Proper operator training is essential to the safe and efficient operation of the steam station. The ability to simulate normal and abnormal conditions can only be done through a simulator as recommended.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
				215	\$215

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__ (SOP-1.2)

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Project Title	DCS Upgrades
Project Number	23207-09
Program Title	Control Systems
Station	West 59 th Street
Estimated In- Service Date	Package Boilers 12/2011, Annex boilers 12/2012

Work Description:

The scope of this project is to provide a Distributed Control System (DCS) for the balance of plant equipment at west 59th Street Station. The major equipment affected includes the feed water, condensate, steam send out, fuel supply, and combustion controls of the three package boilers, 116, 117 & 118, and the two high pressure Annex boilers, 114 & 115. Single-Loop Controllers, existing (Human Machine Interfaces) HMIs for the boiler PLC based BMSs, GT, and SSO Monitoring and control, all miscellaneous local and control room control loops (both analog and digital), control room mounted indicators and recorders, and local and control room annunciators will be addressed. Minimal field instrumentation will be replaced unless required to properly interface with the new DCS. Certain hardwired devices will remain in the control room for various reasons; including code requirements, the need for prominent displays, and emergency operation.

Justification:

This upgrade is needed to support the installation natural gas firing and dual fuel capability. The new demineralizer system being installed will be controlled by an Emerson Ovation DCS. The project described above will standardize upon the demineralizer DCS infrastructure, to cover the control and monitoring of the entire station. At the present time the miscellaneous analog control loops are generally controlled from the Central Control Room (CCR) by single loop controllers and monitored via a mix of chartless recorders, annunciators and indicating lights. This equipment is limited in its functionality and flexibility impacting the integration of new projects and process optimization efforts such as; NOx optimization, opacity mitigation, steam send out control and dispatch, dual fuel combustion control flexibility needed to support natural gas firing, and the integration of asset management for miscellaneous station equipment. Existing hybrid control platforms installed between 1966 and the present will be integrated into a standard platform used which is also used at other stations.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
500	3,500	3,000			\$7,000

Project Title	IT Initiatives
Project Number	N/A
Program Title	Control Systems
Station	VARIOUS
Estimated In- Service Date	VARIOUS

Work Description:

SCADA

Implement a new SCADA (Supervisory Control and Data Acquisition) for Steam Operations. Phase 0 of the project will be an evaluation of the requirements for Steam, a review and gap analysis of the SCADA technology currently used for Gas and Electric Operations and a review of other available SCADA technology. Subsequent phases of the project will be the implementation of the technology/platform chosen from the results of Phase 0

MAXIMO

Upgrade Maximo to version 7, the latest Maximo release supported by the vendor (IBM). Maximo is currently used by Substation Operations, Steam Operations, Transmission Operations, Construction Services, the Gas LNG Plant and System Operations. The cost of this project will be shared among the Maximo user departments

Using the latest version of Maximo, perform a Phase 0 analysis to define the functional requirements and cost involved to implement the Maximo (IBM) Asset Management Scheduler and Linear Asset Modules

PI

Provide a common Plant Information System (PI) hardware infrastructure and software platform in each of the steam plants for reliability and maintainability. Enhance corporate views and use of plant operational data by implementing new PI software tools to perform the following:

1. Enhance PI to identify system alarms and station performance issues.
2. Implement PI condition based monitoring to allow engineers to monitor critical attributes of equipment condition using the PI data already being gathered. Use predictive tools to enhance current maintenance programs.
3. Implement EtaPRO or a similar software tool to provide a consistent platform between stations, monitor the health of the steam plant, and increase fuel savings, efficiency, optimization, and performance.
4. When SEMARC is upgraded, enhance the current PI data interface.

Operating Order/Work Permit Re-Write

Use the latest technology to upgrade the existing Operating Order and Work Permit system and interface to the current version of the Maximo (7) - Work Control System. Included will be a mobile solution that provides usage leverage of our existing mobile handheld device to execute and document OO/WP isolation and work authorization functions in the field, at the asset level and location.

Incorporate Procedures and Operating Orders/Work Permits into DataSplice

Perform a Phase 0 analysis to define the functional requirements and cost involved to implement the ability to view operating and maintenance procedures and station/equipment/engineering drawings and to integrate Operating Order and Work Permit (OO/WP) functionality from a Steam Operations mobile hardware device utilizing the DataSplice platform.

Replace AutoLog with the Substation Log used by Substation Operations

Perform a Phase 0 analysis to define the functional requirements and cost involved to enable the Steam Business Unit to use the Substation Log System that has been developed for, and actively used by Substation Operations. Operators are legally required to keep a log of plant activity for their watch and Managers are required to review the log. This project will improve the way logs are written, stored, and accessed. It will also allow Steam to take advantage of the Substation Log system that is currently deployed in Substation Operations and supported by Information Resources.

Maximo Upgrade

Perform a Phase 0 analysis to define the functional requirements and cost involved to upgrade to the latest Maximo version or migrate over to the work management system used by Electric Operations. Maximo is currently used by Substation Operations, Steam Operations, Transmission Operations, Construction Services, the Gas LNG Plant and System Operations.

The cost of this project will be shared among the Maximo user departments.

Justification:

SCADA

Steam Operations requires a state of the art Supervisory Control and Data Acquisition (SCADA) system that primarily supports the Steam transmission, distribution and production activities from the Energy Control Center. The SCADA system will provide the information necessary to control, maintain and ensure Steam system safety and reliability.

A SCADA System will provide the following benefits:

- Customized display graphics enabling improved operator display design and information presentation.
- Advanced alarm management.
- Advanced alarm / event data reporting and alarm / event analysis.
- Ability to extract information from the latest RTU (Remote Terminal Unit) technology being deployed in the field.
- Support and facilitate a robust PI - reporting system
- Support for flexible and on-line configurations supporting primary and hot disaster center SCADA configurations.

MAXIMO

The current scheduling functionality performed through a MS Project interface to Maximo is cumbersome and inefficient whereas the Maximo Scheduler Module is fully integrated supported by IBM. The Scheduler Module creates a schedule to forecast Preventive Maintenance work without creating work orders and allows the business area to see the impact on the availability of Con Edison. At a quick glance, one can see the problem areas and instantly view the impact on the workload as the work orders are dragged and dropped to different areas in the schedule. The module includes a KPI development tool to measure / capture schedule effectiveness data.

The Linear Asset Module allows the management of linear assets (defined as segmented assets such as a pipeline, cable, track, bus etc.) In Steam Operations, assets such as trenches and drains that require regulatory inspections, sampling and maintenance tracking are candidates for this methodology. In addition, all plant systems piping, where applicable, could be designated as linear assets for tracking of preventive / corrective maintenance costs to enable effective pro-active asset management investment decisions.

PI

Each plant maintains its own PI server. The PI software installed varies from plant to plant because the existing servers are obsolete and cannot support the operating system required for the newer releases of the software and tools. It is important to have a standard hardware and software platform throughout the plants to facilitate vendor support, reliability, and enable program changes.

Once the hardware and software platforms have been standardized, the following enhancements will be implemented:

1. PI monitoring tools and alarm management software will be installed to enable station engineers and operators to better understand how the equipment is operating. Tools to be evaluated include alarm notifications via email and handheld devices.

2. New plant data and future system modifications will be added to the PI system using new software and licenses such as PI Data Access Packs, Matrikon Tunneler, and OPC software. Examples of planned system modifications include the following new PI system connections: 74th Street Station's gas turbine programmable logic controllers, East River's new OPC, weather data and revenue metering data.
3. Software tools to gather and analyze PI data for enhancing current maintenance programs and performing predictive maintenance will be evaluated and implemented.
4. EtaPRO software will be evaluated and implemented. This software serves as a "health" monitor in the steam plants by letting engineers and operators know how much power and steam should be generated given the ambient conditions and the amount of fuel being burned. EtaPRO tells plant operators where power and/or steam are lost and where heat rate is increased for different plant equipment. The software provides the tools, by using Standard ASME calculations and real-time field data, to calculate and display, trend, alarm, archive, and diagnose "what-if" scenarios electronically. Information can be automatically generated as desired by the various levels of plant support personnel.

Operating Orders/Work Permits Re-Write

The Operating Orders and Work Permits system (OO/WP) is utilized by Con Edison's steam plants whenever work needs to be performed on a piece of equipment. OO/WP allows plant personnel to define the steps required to isolate a piece of equipment for work, confirm that those steps are taken, track the people working on that equipment, and return the equipment back to service only after work is complete, workers are clear of the equipment, and all the isolation steps have been reversed.

OO/WP is extremely important to the safe performance of work in the plants, but the products used to create it have reached the end of their lifecycle and shortly will no longer be supported. This exposes the application to potential compatibility problems with future operating system upgrades and will mean that, if a problem with the products appears, the manufacturer will not provide any repairs, potentially crippling the application.

By converting the application to utilize current technologies, the future stability and compatibility of the system with its environment can be better assured. The conversion effort also provides an opportunity to re-examine the way OO/WP supports the business and to introduce any warranted improvements. An interface to Maximo will be developed in order to share the Maximo Location Hierarchy as the asset library to ensure that P&ID's, Location Tags and the OO/WP platform utilize the same Location ID's and are fully integrated to allow use of our bar coded equipment nametags to enhance worker safety and prevention of costly Operating Errors.

Incorporate Procedures and Operating Orders/Work Permits into DataSplice

In order to fully leverage the capability of our DataSplice mobile solution currently being implemented in Steam Operations, the need to further enhance and deliver our operating and maintenance procedures, drawings, and integrate our OO/WP program to be assessable directly on our mobile handheld device is business critical. This capability will enhance procedure compliance and improve worker safety and efficiency by providing business information directly on-scene to the operators and mechanics. This added functionality will ensure plant equipment hold-offs and tag outs can utilize the Maximo bar-coded location tags and ensure that operators and mechanics are performing work on the correct equipment / location by scanning the tags on-scene utilizing the handheld device. Warning triggers could be set that would alert the

operators / mechanics / planners that they are at the wrong equipment / location thus reducing operating errors.

Replace AutoLog with the Substation Log used by Substation Operations

The benefits of an electronic log book have been realized with the deployment of AutoLog, an electronic logging system developed by Data Systems & Solutions (DS&S). This system requires the purchase of software licenses and an annual support contract from the vendor. A Con Edison employee is needed to administer the system and train users. AutoLog does not use NT authentication, which can complicate administration when employees transition between positions. The user is required to remember a new password that does not have the same guidelines as the ConEd Network. It also means that ConEd is using two different electronic log systems, the other being the Substation log system developed internally by Information Resources. Incorporating the Steam Business Unit into using the IR supported Substation log system would consolidate systems and assure system support and enhancements going forward.

Maximo Upgrade

Maximo Version 7 IBM software support will be discontinued, based upon the Version release cycle that IBM traditionally follows, sometime in 2014. Maximo is a business critical asset management system that can't tolerate the expiration of a support agreement. Our Work Control Process flows and Conduct of Maintenance Directives are business dependant on our Maximo version being at an IBM supported level.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,000	750	1,000	1,500	2,000	\$6,250

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Stack Repairs
Project Number	22738-08
Program Title	Structures
Station	East 60 th
Estimated In- Service Date	12/2013

Work Description:

Repair work will be based upon the results of an interior and exterior inspection scheduled to be performed in the fall of 2009. Repairs were last performed in 2004 based upon recommendations from an inspection conducted in 2002. These included partial rebuild portions of the brick shell, installation of a new steel chimney cap and lightening protection, repointing of existing brick, replacement of damaged brick, recoating reinforcing bands, partial replacement of safety climb rail system, replacement of a portion of the existing interior gunite lining and flash coating the remaining areas. Additional work to address more recent deterioration may be necessary due to the passage of time

Justification:

Stacks and other station structures degrade over time due to weather and normal wear and tear due to prolong operation. Periodic inspections and repairs of structures such as the stacks are performed to maintain their integrity and functionality, and sustain the safe and reliable operation of the station. For example, repairs to the ladder system and platforms would ensure a safe means of access for inspection and maintenance activities conducted at the various elevations of the stack. Repairs to the gunite liner and brick shell would protect the chimney structure from the corrosive and thermal effects of the flue gases.

Status

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			1,000		\$1,000

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Structural Steel and Concrete
Project Number	23217-09
Program Title	Structures
Station	East 60 th Street
Estimated In- Service Date	12/2011

Work Description:

Repair work will be based upon the results of a structural inspection performed in the summer of 2009 and from the last inspection performed in 2004. Work includes replacing distorted floor plating that presents a tripping hazard, repairing a spalled concrete floor and ceiling and replacing a section of the metal floor deck at one location. Additionally, the recoating of deteriorated steel structures and repair of concrete spalls that could potentially become a safety hazard will be addressed. Additional work will be necessary due to the passage of time.

Justification:

Station structures degrade over time due to weather and normal wear and tear due to prolonged operation. Repairs to the concrete, steel and masonry structures will eliminate the potential safety hazards associated with falling material and tripping hazards and restore and protect operating equipment and the structural integrity of the buildings.

Status:

Planning

Funding (\$000)

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
	200				\$ 200

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Station Steel and Concrete Repairs
Project Number	23196-08
Program Title	Structures
Station	East 74 th Street
Estimated In- Service Date	12/2011 – 12/2012

Work Description:

Repair work will be based upon the results of a structural inspection performed in the summer of 2009 and from the last inspection performed in 2004. Work will include replacement of deteriorated floor slabs and steel framing members, repair spalled and cracked concrete surfaces, recoat rusted steel, and provide permanent floor drainage systems. Protective metal decking will also be installed. This work is within the Boiler House and Turbine Building on various floor elevations.

Justification:

Station structures degrade over time due to weather and normal wear and tear due to prolonged operation. Repairs to the concrete, steel and masonry structures will eliminate the potential safety hazards associated with falling material and tripping hazards and restore and protect operating equipment and the structural integrity of the buildings.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
	1,000	3,000			\$4,000

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__ (SOP-1.2)

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Project Title	Stack Repairs
Project Number	22774-08
Program Title	Structures
Station	East 74 th Street
Estimated In- Service Date	12/2012

Work Description:

The stack repair work will be based upon the results of an interior and exterior inspection in 2010 and from the last inspection performed in 2005. This includes the partial installation of interior gunite layer on exposed steel liner, repair of supports for emission monitoring ports, and the installation of base anchor bolts for the steel liner, new safety gates at three service platforms and new safety climb system on the ladder. Also included is the recoating of service platforms, caged ladder and access doors, and the repair of lightening protection system points and access door hardware.

Justification:

Stacks and other station structures degrade over time due to weather and normal wear and tear due to prolong operation. Periodic inspections and repairs of structures such as the stacks are performed to maintain their integrity and functionality, and sustain the safe and reliable operation of the station. For example, repairs to the ladder system and platforms would ensure a safe means of access for inspection and maintenance activities conducted at the various elevations of the stack. Repairs to the gunite liner and brick shell would protect the chimney structure from the corrosive and thermal effects of the flue gases.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		1,140			\$1,140

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Miscellaneous Indoor Hoisting Equipment
Project Number	23156-08
Program Title	Structures
Station	East River Units 10 and 20
Estimated In- Service Date	12/2012

Work Description:

This project will provide new monorails, hoists and davits to allow for the movement and facilitate maintenance and repairs of large equipment such as pumps and motors in the Unit 10/20 area of the plant. The equipment will include all required accessories such as ropes and chains, and furnished with standard safety provisions by the manufacturer. Hoist functions will be controlled from a floor operated push button pendant type control station

Justification:

Currently, the station moves and lifts equipment by erecting temporary rails and hoists or renting hoists where rails already exist. These activities are time consuming, strenuous, and can potentially cause personal injuries. Consequently, several areas needing steel monorails and hoists identified.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		660			\$ 660

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Stack 2 Repairs – Ladder Safety Enhancement
Project Number	22768-08
Program Title	Structures
Station	Ravenswood
Estimated In- Service Date	12/2010

Work Description:

This project will replace the 125 foot caged ladder with a new galvanized steel ladder with a "Saf-T-Climb" fall protection system. It will also replace two safety gates and install a new back rail on an existing access platform. The scope includes the removal and installation of a new steel stack cap, flash coating the upper portion of interior gunite lining, repairs to the cleanout door and the recoating of the stack exterior.

Justification:

Stacks and other station structures degrade over time due to weather and normal wear and tear due to prolong operation. Periodic inspections and repairs of structures such as the stacks are performed to maintain their integrity and functionality, and sustain the safe and reliable operation of the station. For example, repairs to the ladder system and platforms would ensure a safe means of access for inspection and maintenance activities conducted at the various elevations of the stack. Repairs to the gunite liner and brick shell would protect the chimney structure from the corrosive and thermal effects of the flue gases.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
95					\$ 95

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Master Plan Office Relocation / OSHA Evacuation
Project Number	21699-05
Program Title	Structures
Station	West 59 th Street
Estimated In- Service Date	12/2011

Work Description:

This project will construct new first floor offices and locker rooms on the north side of the building and provide improved means of egress for employees. It will resolve several long standing deficient conditions found in audits and evaluations conducted for the area currently occupied by the employees. Work will include structural and architectural modifications, plumbing, HVAC, fire detection, alarms, emergency lighting, telecommunications, etc. Removal of retired electrical equipment presently located on the first floor is also included.

Justification:

This project will provide offices and personnel areas with the proper means of exit and egress in accordance with OSHA requirements and will ensure the evacuation of station personnel and visitors safely and orderly in the event of an emergency. The existing location was determine to be inadequate.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,500	2,500				\$4,000

CONSOLIDATED EDISON COMPANY OF NEW YORK INC.
STEAM OPERATIONS CAPITAL PROJECTS

Exhibit__(SOP-1.2)

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Project Title	Stack Inspection and Upgrade
Project Number	22741-08
Program Title	Structures
Station	West 59 th Street
Estimated In- Service Date	12/2012

Work Description:

Repair work will be based upon the results of an interior and exterior inspection scheduled to be performed in the fall of 2009. From the last inspection performed in 2003, it was recommended to recoat the ladders and rest platforms, recoat the structural members and handrails of all access platforms, and reconnecting a broken air terminal. Additional work may be necessary due to the passage of time.

Justification:

Stacks and other station structures degrade over time due to weather and normal wear and tear due to prolonged operation. Periodic inspections and repairs of structures such as the stacks are performed to maintain their integrity and functionality, and sustain the safe and reliable operation of the station. For example, repairs to the ladder system and platforms would ensure a safe means of access for inspection and maintenance activities conducted at the various elevations of the stack. Repairs to the gunite liner and brick shell would protect the chimney structure from the corrosive and thermal effects of the flue gases.

Status

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		300			\$ 300

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Project Title	Dock Replacement
Project Number	18344-02
Program Title	Waterfront
Station	East 74 th Street.
Estimated In- Service Date	12/2011

Work Description:

This project will replace the existing deteriorated dock with a new one as recommended from the most recent comprehensive inspection performed in 2007. The new dock will be the same size as the existing and be constructed of steel pipe piles, steel and timber framing and a timber deck. It will meet modern design standards to accommodate the mooring of fuel oil barges.

Justification:

The work will eliminate the potential safety and navigation hazard posed by the existing deteriorated structure. Replacement to good condition will meet the Company's lease obligation with New York City. It will enable delivery of fuel oil by barge as a contingency to the existing supply method via pipeline in the tunnel under the East River.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,000	4,800				\$5,800

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Project Title	Waterfront Structure Removals
Project Number	22776-08
Program Title	Waterfront
Station	Hudson Avenue
Estimated In- Service Date	12/2011

Work Description:

This project will remove the remaining section of the deteriorated east wharf located adjacent to the station's discharge tunnel and the abandoned timber piles next to the Gold Street pier. The wharf was found to be in severe condition during a spring 2009 inspection and its removal, along with the retired submarine cables within, is recommended to eliminate the potential safety hazard it presents. Restoration of the face of the wharf will involve the installation of a small section of steel sheet piling and concrete deck, and a timber and concrete facing.

Justification:

The work will eliminate the current safety hazard and load restriction imposed on this area of the dock. If not removed, it will eventually collapse into the river.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
	560				\$ 560

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Project Title	Roof Replacement and Repairs
Project Number	22696-07
Program Title	Roofs
Station	East 60 th Street
Estimated In- Service Date	12/2014

Work Description:

This project installs a new waterproofing overlay system. The 60th Street Station is a steam station set partially below street elevation. It has concrete and masonry walls with a concrete surfaced roofing system supported by steel framing. The roofs are flat with a slight pitch to direct water to the drains.

Justification:

This project addresses the repairs of deficiencies and upgrades identified for the 60th Street Station's Upper and Lower roofs during the most recent comprehensive roof inspection. The work will eliminate the potential water leaks caused by the aged and damaged roofing components and arrest the ongoing deterioration of the concrete structure. These repairs will also protect any operating equipment located below.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
				975	\$ 975

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Project Title	Roof Replacement and Repairs
Project Number	22762-08
Program Title	Roofs
Station	Hudson Avenue
Estimated In- Service Date	12/2012

Work Description:

This project will replace or repair various roofs at the station based upon a comprehensive inspection performed in 2006. Roofs to be fully replaced include the west half of the Turbine Room, the Frequency Changer building and Annex storage rooms. Repairs will be made to the Switch House base and counter flashing and the masonry parapet. A portion of the Low Pressure Boiler House will receive a roof overlayment.

Justification:

The work will eliminate the current water leaks caused by the aged and damaged roofing components and arrest the ongoing deterioration of the underlying concrete structure. These repairs will also protect any operating equipment located below.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		2,300			\$2,300

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Project Title	Replace Main Boiler House Roofs
Project Number	22057-06
Program Title	Roofs
Station	West 59 th Street
Estimated In- Service Date	12/2013 – 12/2014

Work Description:

This project will replace the upper monitor roof (R5) of the Boiler House at the station based upon comprehensive inspections performed in 2001 and 2006. The existing deteriorated multi-ply asphalt roof system and accessories such as flashing, pitch pockets, expansion joints, etc., will be replaced with new materials. Some of the supporting concrete planks are also damaged and will be replaced. The adjacent lower roofs (R6 and R7) were already replaced under the same project number. Additional roofs will be inspected and replaced.

Justification:

The work will eliminate the current water leaks caused by the aged and damaged roofing components and prevent the deterioration of the underlying concrete and steel structures. These repairs will address the cause of leaks and potential falling material and protect occupants and any operating equipment located below. This program allows the systematic replacement of roofs as age and condition warrant.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
			3,750	5,000	\$8,750

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Project Title	Implement TWIC
Project Number	22841-08
Program Title	Security
Station	East 74 th Street
Estimated In- Service Date	12/2010

Work Description:

This project will consist of installation of surveillance equipment at Con Edison steam generating station docks and piers to ensure that only those individuals who are authorized under the Transportation Worker Identification Credential (TWIC) program are granted unescorted access to these waterfront locations. This will require installation of new biometric card readers to interface with the federally issued TWIC identification cards. In addition, surveillance cameras, proximity card readers, and other access control equipment will be installed to support this program. The TWIC implementation will ensure that only authorized individuals are granted unescorted access to secure areas of the nation's maritime transportation system.

Justification:

TWIC is administered jointly by the Transportation Security Administration and the United States Coast Guard. Implementation of this program is mandated by these federal agencies for waterfront access locations at Con Edison Steam stations. Con Edison steam facilities are capable of berthing maritime vessels primarily for fuel deliveries. These vessels could be used by individuals to threaten national security. The United States Congress has established TWIC through the Maritime Transportation Security Act to correct a deficiency in the security of the nation's maritime transportation system. Con Ed steam stations are also classified as MARSEC (Maritime Security) sites and are required to meet security requirements.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
450					\$ 450

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Project Title	TWIC Implementation
Project Number	22843-08
Program Title	Security
Station	Hudson Avenue
Estimated In- Service Date	12/2010

Work Description:

This project will consist of installation of surveillance equipment at Con Edison steam generating station docks and piers to ensure that only those individuals who are authorized under the Transportation Worker Identification Credential (TWIC) program are granted unescorted access to these waterfront locations. This will require installation of new biometric card readers to interface with the federally issued TWIC identification cards. In addition, surveillance cameras, proximity card readers, and other access control equipment will be installed to support this program. The TWIC implementation will ensure that only authorized individuals are granted unescorted access to secure areas of the nation's maritime transportation system.

Justification:

TWIC is administered jointly by the Transportation Security Administration and the United States Coast Guard. Implementation of this program is mandated by these federal agencies for waterfront access locations at Con Edison Steam stations. Con Edison steam facilities are capable of berthing maritime vessels primarily for fuel deliveries. These vessels could be used by individuals to threaten national security. The United States Congress has established TWIC through the Maritime Transportation Security Act to correct a deficiency in the security of the nation's maritime transportation system. Con Ed steam stations are also classified as MARSEC (Maritime Security) sites and are required to meet security requirements.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
525					\$ 525

Project Title	Security Enhancements (Dock)
Project Number	23046-08
Program Title	Security
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

A new guard booth will be installed at pier 98, replacing the existing guard booth which is too small and incapable of housing the required surveillance equipment to adequately control and monitor pier access. The existing fence on Pier 98 will be replaced with a fine mesh anti-scaling fence and gate. The station intercom system will be upgraded from an analog system to a digitally-based system allowing communication between the pier and facility guards and station visitors. A lighting survey was conducted in the beginning of 2007. The existing lighting around the station and the dock area does not provide adequate illumination levels for station security and dock operations.

Justification:

A new guard booth on Pier 98 will provide the station and enhance pier monitoring and access control. Security fencing on the pier will restrict unauthorized access to the pier. An upgrade to the station's intercom system will provide station security with the ability to communicate with other guards in the station, personnel and visitors. An upgrade to the station's pier and perimeter lighting will ensure security and provide quality lighting to pier operations as well as supporting perimeter video surveillance monitoring capabilities independent of surrounding ambient lighting levels.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
560					\$560

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Project Title	Implement TWIC
Project Number	22842-08
Program Title	Security
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

This project will consist of installation of surveillance equipment at Con Edison steam generating station docks and piers to ensure that only those individuals who are authorized under the Transportation Worker Identification Credential (TWIC) program are granted unescorted access to these waterfront locations. This will require installation of new biometric card readers to interface with the federally issued TWIC identification cards. In addition, surveillance cameras, proximity card readers, and other access control equipment will be installed to support this program. The TWIC implementation will ensure that only authorized individuals are granted unescorted access to secure areas of the nation's maritime transportation system.

Justification:

TWIC is administered jointly by the Transportation Security Administration and the United States Coast Guard. Implementation of this program is mandated by these federal agencies for waterfront access locations at Con Edison Steam stations. Con Edison steam facilities are capable of berthing maritime vessels primarily for fuel deliveries. These vessels could be used by individuals to threaten national security. The United States Congress has established TWIC through the Maritime Transportation Security Act to correct a deficiency in the security of the nation's maritime transportation system. Con Ed steam stations are also classified as MARSEC (Maritime Security) sites and are required to meet security requirements.

This is a mandatory project.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast/Approved Total 2010-2014
250	-	-	-	-	250

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Project Title	Backflow Prevention
Project Number	22788-08
Program Title	EH&S
Station	East 60 th Street
Estimated In- Service Date	8/2010

Work Description:

An evaluation of all existing City water main connections and installations at the East 60th Street Steam Station, back flow prevention devices will be installed at four locations. The project consists of replacing the existing single check valve with a code compliant pressure reducing zone (RPZ) valves and piping modifications to accommodate the new devices at four locations.

Justification:

Results of the East 60th Street evaluation concluded that backflow prevention devices are required in certain locations to replace existing single check valve installations, to comply with the New York Department of Environmental Protection (NYDEP) Code.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
680					\$ 680

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Project Title	Steam Station Backflow Prevention
Project Number	22782-08
Program Title	EH&S
Station	East 74 th Street
Estimated In- Service Date	12/2010

Work Description:

An evaluation of all existing City water main connections and installations at the East 74th Street Steam Station, back flow prevention devices will be installed at four locations. The project consists of replacing the existing single check valve with a code compliant pressure reducing zone (RPZ) valves and piping modifications to accommodate the new devices at several locations. In addition, due to space limitation the scope includes the replacement of the water metering stations.

Justification:

Results of the East 74 Street evaluation concluded that backflow prevention devices are required in certain locations to replace existing single check valve installations, to comply with the New York Department of Environmental Protection (NYDEP) Code.

Status:

Engineering

Current Working Estimate (if applicable): N/A

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
1,035					\$1,035

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Project Title	Backflow Prevention
Project Number	22784-08
Program Title	EH&S
Station	East River South Steam Station
Estimated In- Service Date	12/2010

Work Description:

An evaluation of all existing City water main connections and installations at the East River South Steam Station, back flow prevention devices will be installed at four locations. The project consists of replacing the existing single check valve with a code compliant pressure reducing zone (RPZ) valves and piping modifications to accommodate the new devices at several locations.

Justification:

Results of the East River South Steam Station evaluation concluded that backflow prevention devices are required in certain locations to replace existing single check valve installations, to comply with the New York Department of Environmental Protection (NYDEP) Code.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
140					\$ 140

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Project Title	Installation of IFGR Systems on 59 th St 116 and 117
Project Number	23131-08
Program Title	EH&S
Station	West 59 th Street
Estimated In- Service Date	12/2012 & 12/2013

Work Description:

This project entails the installation of duct work from the Induce Draft (ID) Fan outlet duct work to the combustion air Forced Draft (FD) Fan inlet duct to reduce Nox Emissions. A control damper, wind box O₂ meter, fluegas flow meter and controls will be installed to properly operate and maintain the new system.

Justification:

It is expected that future NOx regulations will require a step reduction in these units. A study performed under the guidance of the Emissions Management Task Force indicated this as being the best option for these units. This system was installed on 118 and has performed well.

Status:

Planning

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
		950	950		\$1,900

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Project Title	Backflow Prevention
Project Number	22787-08
Program Title	EH&S
Station	West 59 th Street
Estimated In- Service Date	12/2010

Work Description:

An evaluation of all existing City water main connections and installations at the West 59th Street Station, back flow prevention devices will be installed at four locations. The project consists of replacing the existing single check valve with a code compliant pressure reducing zone (RPZ) valves and piping modifications to accommodate the new devices at several locations.

Justification:

Results of the West 59th Street Station evaluation concluded that backflow prevention devices are required in certain locations to replace existing single check valve installations, to comply with the New York Department of Environmental Protection (NYDEP) Code.

Status:

Engineering

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
940					\$ 940

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Steam Distribution	2010 FORECAST	2011 FORECAST	2012 FORECAST	2013 FORECAST	2014 FORECAST	Total 2010 - 2014 FORECAST (\$1000)
New Business	2,010	2,030	2,500	2,500	2,500	11,540
Interference	1,000	1,000	1,000	1,000	1,000	5,000
System Reinforcement	32,465	26,205	18,110	17,760	17,760	112,300
Meter Installations	3,200	3,200	2,650	2,650	2,650	14,350
Meter Purchases	1,725	1,475	1,595	1,595	1,595	7,985
Steam Distribution Total	40,400	33,910	25,855	25,505	25,505	151,175

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Project Title	New Business
Project Number	Various
Program Title	New Business
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program includes the installation of piping and equipment to provide steam service to new steam customers.

Justification:

- Alternatives: There is no alternative to this project. If Steam Distribution does not provide steam services to new customers, the new customers will go to alternate energy sources such as gas or oil.
- Summary of Financial Benefits and Costs: This program increases the customer base for the company's Steam Business Unit.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$2,010	\$2,030	\$2,500	\$2,500	\$2,500	\$11,540

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STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
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Project Title	Interference
Project Number	8SD1011
Program Title	Interference
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program consists of steam facility relocation due to interference with City of New York infrastructure projects such as water main installation, sewer main installation, street reconstruction projects, etc. The City has eminent domain of the streets of New York and whenever existing steam facilities will cause an interference issue with proposed City facilities, the company would have to relocate its facilities or pay for accommodations to avoid the interference.

Justification:

- Alternatives: There are no alternatives to this program. Since the City has eminent domain of the streets of New York, the City has the power to order Company facilities out of the way of the lane of the proposed City facilities.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000

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STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
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Project Title	Leaks/Upgrades
Project Number	2SD8091
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to address steam leaks and upgrades of Steam Distribution System components. Steam leak repair activity includes leaks from services, valves, slip joints, trap discharge lines and mains. Leaks can be in a variety of areas including piping, gaskets, packing, and welds. An upgrade of equipment such as valves and piping is done as better equipment is specified by Steam Distribution Engineering.

Justification:

- Alternatives: There is no alternative to repairing or replacing a component that is leaking steam.
- Risk of No Action: Unmitigated steam leaks will worsen over time because the escaping steam will cut and increase the leak opening. Steam leaks will also cause deterioration of the steam housing or manhole structures surround the leaking component. Severe leaks will propagate above ground which will cause a safety hazard to the public.
- Summary of Financial Benefits and Costs: Steam leaks affect the overall efficiency of the Steam System by affecting the Steam Variance.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$3,000	\$2,850	\$2,800	\$2,800	\$2,800	\$14,250

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Project Title	Expansion Joint Replacement
Program Number	9SD1051
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace internally pressurized expansion joints that are installed in the Steam Distribution System with externally pressurized expansion joints. In some cases, expansion joints can be eliminated altogether. Bellows expansion joints are flexible components necessarily installed in the steam piping system to absorb thermal growth. Failure of the bellows on an internally pressurized expansion joint results in an uncontrolled and potentially catastrophic leak, while an externally pressurized joint would mitigate this situation to a controlled leak. This program also includes the replacement of leaking expansions joints.

Justification:

- **Alternatives:** The alternative is to continue using the internally pressurized expansion joints.
- **Risk of No Action:** The uncontrolled and potentially catastrophic leak from internally pressurized expansion joint failures can cause serious damage to adjacent infrastructure and/or severe injuries to the public and company personnel.
- **Summary of Financial Benefits and Costs:** The mitigation of potential risks associated with the catastrophic failure can yield significant cost savings to the company.
- **Project Relationships:** Eliminating and reinforcing existing anchors may allow for the elimination of some expansion joints. Thus, the anchor Replacement/Reinforcement Program may be related to this program in certain cases.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$10,000

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Project Title	Flange Removal
Project Number	23165-08
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to eliminate flange connections on the mains on the Steam Distribution System and to repair flanges that are leaking. Flanges were installed on the steam system prior to the commercial use of welding. The gaskets were Asbestos Containing Material and over time deteriorate due to pipe movements and moisture exposure from condensate in the pipe. When a gasket leaks the leak must be located and excavated. The flange must then be replaced with a straight piece of pipe. Under this program, both leaking and non-leaking flanges are targeted for removal.

Justification:

- **Alternatives:** For non-leaking flanges, the alternative is to leave flanges in place until a leak develops. There is no alternative for leaking flanges. Leaking flanges must be excavated and replaced with a filler pipe.
- **Risk of No Action:** For non-leaking flanges, leaks will eventually develop at these flange connections. This will result in unscheduled excavations and associated leak repair activities which may adversely affect traffic, the public, and steam customers. As compared to planned removal, these unscheduled excavations may occur in peak usage seasons or during holiday and special events.
- **Summary of Financial Benefits and Costs:** Leaks from flanges affect the overall efficiency of the Steam System by affecting the Steam Variance.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$3,000	\$2,500	\$2,500	\$2,500	\$2,500	\$13,000

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Project Title	Manhole Rebuild
Project Number	23167-08
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to rebuild deteriorated manholes or eliminate manholes. Steam manholes have a 10 to 30 year life depending on roadway traffic and subsurface conditions (particularly ground water). Deteriorated manholes must be rebuilt to maintain system integrity and for the safety to employees entering these structures. In addition, manholes must be rebuilt so that mandatory PSC inspections can be performed. A new procedure was developed in response to the PSC order related to the July 2007 steam incident. Based on these manhole inspections for February of 2008 to January of 2009, 249 manholes were determined to be in poor condition. Out of the 249 manholes, 21 of the manholes were deteriorated to the degree that they needed to be rebuilt since they were unsafe to enter. Based on this data, a more accurate approximation for manhole rebuilds in a year's period is 20 to 25 manholes. Hence an increase to in the number of manhole under this program is necessary. Manhole structures that are in deteriorated condition can also allow water infiltration that can cause excessive condensate formation and vapor conditions.

Justification:

- **Alternatives:** The alternative is to leave the manhole in its existing condition.
- **Risk of No Action:** Deteriorated manhole would prevent personnel entry for repair work of the steam piping and components. Structurally compromised manhole would also prevent operating valves necessary for the maintenance of the steam system and could allow water infiltration.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$10,000

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Project Title	Main Valve Replacement
Project Number	7SD1311
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace the relatively large number of Main Valves leaking through in the steam system in addition to the valves that are inoperable and severely corroded. Main valves are installed in manholes and in some cases the work will involve breaking out the manhole to replace the valve and rebuilding it after the work is completed.

Justification:

- **Alternatives:** A valve leaks through because the gate and seat is severely worn or cut by steam. These valves cannot be repaired. Any work on the system that required isolation would have to be done with the leak through which will impact the quality of welds. Otherwise, full isolation could be achieved by dropping back to an adjacent valve but this would impact additional customers.
- **Risk of No Action:** Additional customers will be impacted due to drop backs and in some cases severe leak through could result in cancellation of planned work that required isolation.
- **Summary of Financial Benefits and Costs:** Better functional valves will reduce labor and improve work and weld quality.
- **Non-financial Benefits (if applicable):** Replacement of faulty main valves will allow maintenance to be performed more efficiently and make the system more reliable.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$200	\$700	\$1,000	\$1,000	\$1,000	\$3,900

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Project Title	Pump Manhole Electrical Upgrade
Project Number	7SD1361
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

The steam system has 78 pumps installed in areas where there is groundwater or tidal water infiltration into steam structures. The Pump Manhole Electrical upgrade is to install new high temperature pumps plus various electrical components inside these pump manholes to bring them up to current electrical standards and codes. These pumps are specially designed to withstand the harsh environment of the steam manholes. The program may also include building another structure adjacent to the steam structure to house some of the pumps. Pumps are critical to prevent water accumulation in steam manholes, which can lead to water-hammer. The electrical wiring and conduit in the existing manholes are in a much degraded condition presently. Stray voltage and exposed wiring in manholes endangers mechanics during manhole entry and it can also endanger the public by contributing to stray voltage problems.

Justification:

- Alternatives: The alternative is to leave the current setup which presents a safety hazard for employees and puts the system at risk of a water hammer event.
- Risk of No Action: The risk of an electric shock is increased. In addition to that, a pump failure could contribute to a water hammer event.

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$1,000	\$500	\$500	\$500	\$500	\$3,000

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Project Title	Cooling Chamber Replacement Program
Project Number	23168-08
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace cooling chambers that are leaking or deteriorated. The cooling chambers are used to cool condensate from traps prior to the condensate being discharged into the sewer. These cooling chambers are buried and are exposed to flashing steam. The design of the replacement cooling chambers has been enhanced and in addition the piping from the trap to the cooling chamber is being upgraded to 2" diameter to allow for the installation of high capacity traps in the future.

Justification:

- Alternatives: There are no alternatives to this program. Once the cooling chamber starts leaking, the cooling chamber will need to be replaced.
- Risk of No Action: Unmitigated steam leaks will worsen over time because the escaping steam will cut and increase the leak opening. Severe leaks will propagate above ground which will cause a safety hazard to the public such as pedestrian burns from direct contact or creating an impediment to visibility which affects vehicular and pedestrian traffic.
- Summary of Financial Benefits and Costs: The new cooling chamber design will be longer lasting and more efficient which will reduce maintenance and subsequent replacement costs.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$1,500	\$1,000	\$1,000	\$1,000	\$1,000	\$5,500

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Project Title	Steam Pipeline Integrity Program
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

The purpose of this program is to systematically manage the safety and integrity of the piping on the Steam Distribution System. This program will consist of threat and risk identification, baseline assessment and the remediation and prevention of piping failures. This will include but is not limited to video inspection of the steam piping, examining past failures, replacing piping of certain age that have been known to be laminated piping, and the reconfiguration of steam piping.

Justification:

- Alternatives: An alternative is not to incorporate this program and reactively address issues as they come up.
- Risk of No Action: Addressing issues reactively will result in unscheduled excavations. The associated leak repair activities may adversely affect traffic, the public, and steam customers. As compared to planned removal, these unscheduled excavations may occur in peak usage seasons or during holiday and special.

Status:

Ongoing

Funding (\$000):

Approved 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
---	\$500	\$1,000	\$1,000	\$1,000	\$3,500

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Project Title	Various Enhancement Reinforcements
Project Number	8SD1211
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

Installation of piping reinforcements by:

- 1) Enhancing existing mains from distribution to transmission rating
- 2) Increasing diameter of existing mains
- 3) Installing new mains
- 4) Emergent work to reduce the "bottle-neck" condition in the steam distribution system

The steam system has some existing and future generation capacity that is bottled by not having the ability of getting to the areas where it is needed particularly during peak load days. In addition, higher than desired pressure differentials exist in the steam distribution system due to the sizing and capacity of the existing infrastructure. The steam that is least expensive to generate cannot always get to the lowest pressure areas of the system. This requires steam that is higher in cost to generate being used to supply these areas. The higher than desired pressure drops leads to increased chances of low pressure incidents.

Justification:

- Alternatives: An alternative is not to incorporate this program. This is not recommended due to the bottling of generation capacity and unbalancing of pressures throughout the system that could result particularly on peak days.
- Risk of No Action: Without addressing the system generation capacity issues, the steam system will experience greater risk of low pressure incidents on peak load days and lost of opportunity to provide steam to our customers with lower costs.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$995	\$200	\$200	\$200	\$200	\$1,795

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Project Title	Manhole Cover Replacement Program
Project Number	Z06-9393-M
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	2010

Work Description:

This program is designed to address the potential for burn injuries to the public. Manhole covers provide access to steam structures and also allow for the operation of valves. These steam structures enclose valves, slip-joints, drain stations and traps stations. The original design for manhole covers included construction with cast iron, which has a high thermal conductivity. This program outlines the replacement of the cast iron covers with a hybrid design with a lower thermal conductivity and subsequent lower surface temperature. The funding is to complete the program addressing certain non standard size covers like 12" and 44"

Justification:

- Alternatives: There is no alternative to upgrading the construction material of the manhole covers to provide a safer product for the public.
- Risk of No Action: A system populated with highly conductive manhole covers would be a public hazard. Steam leaks or hot summer temperatures would further exacerbate the burn hazards.
- Summary of Financial Benefits and Costs: Manhole covers constructed with highly conductive materials are a public hazard.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2009-2014
\$250	---	---	---	---	\$250

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Project/Program Title	Telemetry (per ABS Report)
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

Install Remote Telemetry Units (RTU's) on mains and inside customer buildings to measure steam temperatures and steam pressures at various points along the Steam system as recommended in the ABS Report. The RTU's mounted on the mains will be used primarily to measure steam temperatures at the junction points between the 400 and 200 psig steam mains. Pressures are being measured on a test case basis due to the harsh manhole environment that the electronics are exposed to. The inside mounted RTU's will be used solely to measure pressures of the steam coming into a customer facility which would be representative of the pressures out in the steam main. All work related to installing the RTU's requires the installation of electronic cabinets, pressure and temperature sensors, telephone lines, and electric feed. The outside mounted RTU's require more extensive construction work because of trenching, back-filling, and concrete.

Justification:

- **Alternatives:** The alternative is to operate the steam system using existing data points. However, Steam Business Unit is continuously looking for ways to improve the way the distribution system is run, which would lead to reduced costs, safer operations, or both. Any additional information about the Steam System that can be communicated to the control center, will enable the Energy Dispatcher to operate the system in a more efficient and safer manner.
- **Non-financial Benefits (if applicable):** The additional pressure RTU's provide the ED with a more accurate picture of where the steam is flowing within the system. Some of the designated locations also function as backup to existing points in cases where sections of steam mains that are being isolated for maintenance affect the Telemetric point.

Status:

In Development

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$300	\$300	\$300	\$300	\$300	\$1,500

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Project Title	Anchor Replacement Program
Project Number	2310-09
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace anchors that have deteriorated. These anchors are located in the bottom of manholes and are exposed to heat and water conditions that cause these steel anchors (some with concrete bases) to deteriorate over time. New anchors that are installed will be coated and will be placed on a concrete pedestal to increase their life expectancy.

Justification:

- **Alternatives:** The alternative is to leave the anchor in place. However, this can overstress components and the pipe and put the steam system at risk.
- **Risk of No Action:** A compromised anchor can allow the pipe to move beyond the limits of the expansion joints. An over-compression or over-extension of the expansion joint may cause it to leak.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$500	\$500	\$500	\$500	\$500	\$2,500

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Project Title	Water Hammer Prediction Model
Project Number	9SD1111
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is to create a software/hardware system that can detect high risk conditions occurring on the Steam Distribution system which may cause a water hammer. Detection of these high risk conditions ahead of time will allow actions to be taken in order to prevent the water hammer from occurring. The system will take live remote monitoring data from the field and compare with calculated data to determine if any of these conditions exist. Under this program, condensate flow behavior in the steam system must be studied and understood in order to model where the steam condensate is travelling to inside the steam system.

Justification:

- Alternatives: There is currently no existing system that can detect these conditions that are precursor to a water hammer. The alternative of not having this predictor model is to provide constant monitoring and inspection of the steam system which may prevent a water hammer from happening in time.
- Risk of No Action: In the event of a high condensate situation, the system may be overwhelmed. If actions to remediate these conditions are not taken in time, the situation could contribute to a water hammer.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$300	\$300	\$300	\$300	\$300	\$1,500

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Project Title	Thermal Efficiency Improvement (Re-insulation)
Project Number	7SD1301
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

The Con Edison steam system has some mains installed at elevations, which are below sea level. When a steam main is installed, it is surrounded by insulation and encased in a housing, which is meant to reduce thermal losses. Thermal losses increase in areas where there is a breakdown of the original insulation, insufficient original insulation or the insulation comes in contact with groundwater. Tidal conditions and rainfall affect the amount of water concentrated in the soil around our buried steam mains.

Current steam main designs have the main surrounded by housing made of concrete. If the concrete housing becomes compromised there would be water infiltration, which would eventually result in degradation of the insulation and increased thermal losses. In older steam main installations, there are some locations where the main was installed with a prefabricated spiral-weld steel conduit housing, which was then direct buried in the soil. These prefabricated mains require that the insulation be attached prior to installation. But, over time, as the insulation deteriorates and its properties change, replacing it becomes necessary. Because some of this pipe is direct buried in soil in areas that are flood prone and waterlogged, thermal losses are high. The steel housing degrades in this environment and the insulation subsequently becomes degraded and waterlogged.

For these direct buried situations, Steam Distribution plans to use an encapsulation process that is a trench-less technology that forms the clay shell around the pipe by pumping a clay slurry into the annular space between the steam main and the degraded housing. The slurry is a blend of kaolin clay, water and an acrylic polymer. The acrylic polymer helps keep the clay particles in suspension while it is being pumped and acts as a binder while the clay is curing. Heat from the steam main assists the curing process. An outage is not required.

Justification:

- **Alternatives:** At present, there exists no other un-invasive or convenient means for re-insulating an already installed steam main. Therefore the only alternative is to not perform the re-insulation and continue operating the steam system with areas of high heat loss rates and potential hot spots. Water will infiltrate and come into contact with the steam pipe, thus causing the formation of vapor. Furthermore, vapor that permeates onto the street can obstruct traffic, creating hazards for both drivers and pedestrians. The deteriorated housing can also allow heat to escape and cause damage to the street in the form of rolled asphalt.
- **Risk of No Action:** Further deterioration of the steam housing would contribute to the propagation of heat above ground which will cause a safety hazard to the public such as pedestrian burns from direct contact or creating an impediment to visibility which affects vehicular and pedestrian traffic. If water is allowed to continue impinging on the un-insulated main, water can subcool the condensate in the main and create water hammer conditions.

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- Summary of Financial Benefits and Costs: Steam leaks affect the overall efficiency of the Steam System by affecting the Steam Variance.

The safety of customer and company personnel and property will be enhanced.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2012-2014
---	--	\$500	\$500	\$500	\$1,500

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Project Title	Service Valve Replacement Program
Project Number	7SD1321
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace leak through, inoperable and severely corroded Service Valves in the associated with the steam distribution system.

Justification:

- Alternatives: Repairs are not cost effective since street service valves are typically a direct buried valve and thus not assessable without excavating to expose the valve. Therefore, once the excavation has been done to expose the valve it's prudent to replace the old valve rather than repair it.
- Risk of No Action: This will relate to costly steam outages to provide sufficient isolation for customer to perform inside repairs, affect other customers if an MSO must be done to provide effective isolation, and safety concern if customer attempts repair with severe leak through.
- Summary of Financial Benefits and Costs: Cost saving will be realized in labor and lost revenue in trying to control leak through and provide customer isolation when requested.
- Non-financial Benefits (if applicable): This will help provide a safe and reliable steam system that could be properly managed and repairs and system improvements efficiently administered. .

Status:

Forecast

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2012-2014
---	---	\$560	\$560	\$560	\$1,680

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Project Title	Trap Combination Replacement Program
Project Number	5SD1471
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

The purpose of the program is for the subsequent replacement of the trap stations that will be replaced under the Improved Trap Stations program under the Steam Incident Recommendation and Action Plan. Provisions will be taken to ensure that the new trap stations being installed under the Improved Trap Stations program will be functioning properly. Routine inspections will be performed along with remote monitoring of these stations. However, when any of these trap stations are not working properly, replacement will be needed.

Justification:

- Alternatives: There is no alternative to this program.
- Risk of No Action: Steam trap stations are crucial components in the safe operation of the steam distribution system. They prevent the accumulation of condensate in the steam system which in turn mitigates the risks of water hammers. Additionally, proper functioning trap stations improve the efficiency of the system.
- Summary of Financial Benefits and Costs: Proper steam trap operation reduces steam losses and resulting in a more efficient system.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
---	---	\$400	\$400	\$400	\$1,200

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Project Title	Remote Monitoring Phase II
Program Title	System Reinforcement
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to implement future upgrades and system enhancements to the remote monitoring system infrastructure and/or equipment based upon findings and system/equipment performance during the four year Remote Monitoring Program.

Justification:

- Alternatives: The alternative is to monitor manhole conditions locally by performing periodic field inspections.
- Risk of No Action: Responding to a compromised manhole in an untimely manner which could lead to a hazardous water hammer event.
- Summary of Financial Benefits and Costs: Real-time remote monitoring of trap and manhole conditions can potentially reduce costs that result from the labor intensive activities performed during a significant rain storm.
- Non-financial Benefits (if applicable): Real-time remote monitoring of trap and manhole conditions significantly enhances the safety and reliability of the steam distribution system.

Status:

Scheduled to start in 2012

Funding (\$000): Various

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2012-2014
---	---	\$2,000	\$2,000	\$2,000	\$6,000

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Project Title	Installation of High Capacity Traps
Project Number	9SD1111
Program Title	System Reinforcement (Steam Incident Recommendation and Action Plan)
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is part of the Steam Incident Action Plan. The purpose of the installation of high capacity traps is to install trap assemblies with higher discharge capacities than the traditional trap combinations. These higher capacity traps would be able to handle much higher condensate rates in the event of external cooling of a main under cases of a water main break or sewer type issue or other type of flooding. The higher capacity traps would most likely be installed at locations prone to water infiltration or in tidal areas. The trap capacity is estimated to be double that of the current standard trap assembly.

Justification:

- Alternatives: There is no alternative to providing a system with a higher capacity condensate removal mechanism.
- Risk of No Action: In the event of a high condensate situation when the system becomes overwhelmed, the unavailability of these higher capacity traps would create a very hazardous operating situation. This situation could contribute to a water hammer event.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2009-2014
\$800	\$640	---	---	---	\$1,440

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Project Title	Trap Station Improvement Program
Priority Number	8SD1471
Program Title	System Reinforcement (Steam Incident Recommendation and Action Plan)
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is part of the Steam Incident Action Plan. The purpose of the program is to replace all trap stations with a new design that has improved debris removal capability. This program will reduce the amount of debris that gets into the trap by capturing this debris in the drip leg or the strainer that is upstream of the traps. It will help to mitigate the risk of a steam main rupture.

Justification:

- **Alternatives:** There is no alternative to this program.
- **Risk of No Action:** The existing steam trap combination design has not means to prevent debris from clogging the traps. Clogged traps can greatly diminish the trap capacity which can lead to water hammer events and potential pipe rupture.
- **Summary of Financial Benefits and Costs:** Proper steam trap operation reduces steam losses and result in a more efficient steam distribution system.
- **Non-financial Benefits (if applicable):** The new trap combination design will prevent debris from clogging the traps and allow the traps to properly discharge condensate.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$3,200	\$2,035	---	---	---	\$5,235

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Project Title	Remote Monitoring
Project Number	Z08-9085-M
Program Title	System Reinforcement (Steam Incident Recommendation and Action Plan)
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is part of the Steam Incident Action Plan. This program is designed to install instrumentation in steam manholes throughout Manhattan to remotely monitor real-time trap operation and steam manhole water infiltration or flooding conditions. This program includes the installation of water level monitoring in priority structures and pump locations as well as trap monitoring in all 827 trap locations. The field devices are wired to an RTU and the signals from this device are transmitted wirelessly to a computer system. The monitoring of water levels and pumps will allow Steam Operations to prioritize their response during rain events. The monitoring of traps will alert the Steam Troubleshooter Dispatcher if any traps become clogged or if traps are valved out.

Justification:

- Alternatives: The alternative is to monitor manhole conditions locally by performing periodic field inspections.
- Risk of No Action: Responding to a compromised manhole in an untimely manner which could lead to a hazardous water hammer event.
- Summary of Financial Benefits and Costs: Real-time remote monitoring of trap and manhole conditions can potentially reduce costs that result from the labor intensive activities performed during a significant rain storm.
- Non-financial Benefits (if applicable): Real-time remote monitoring of trap and manhole conditions significantly enhances the safety and reliability of the steam distribution system.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$10,000	\$7,500	---	---	---	\$17,500

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Project Title	Infrastructure Condition Projects
Project Number	823252-09
Program Title	System Reinforcement (Steam Incident Recommendation and Action Plan)
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is part of the Steam Incident Action Plan. The purpose of the infrastructure condition project is to make improvements to the steam system infrastructure to prevent water infiltration into the subsurface steam structures. In addition, in the event of high ground water or tidal areas, this project will ensure that water infiltration into steam structures does not lead to accumulation in those structures and potential contact with the steam main. If the water comes in contact with the steam pipe excessive condensate can be produced and this can cause condensate buildup in the main.

Justification:

- **Alternatives:** One alternative is to leave the infrastructure in its existing condition. Water can infiltrate into these infrastructures and comes into contact with steam pipe, thus causing the formation of vapor. Furthermore, vapor that permeates onto the street can obstruct traffic, creating hazards for both drivers and pedestrians. The deteriorated housing can also allow heat to escape and cause damage to the street in the form of rolled asphalt. Another alternative is to just install drains from manholes to sewer to remove water, without performing in-situ insulation or structure improvement related work. However, the drains cannot be installed at all locations because the steam structures may be located at a lower elevation than the sewer.
- **Risk of No Action:** Without structures with sufficient integrity at these areas, water can sub-cool the condensate in the main and create water hammer conditions.
- **Non-financial Benefits (if applicable):** The safety of customer and company personnel and property will be enhanced.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$1,500	\$1,500	---	---	---	\$3,000

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Project/Program Title	CM Mobile Office for Steam
Project Number	8SD1271
Program Title	System Reinforcement (IT Projects)
Station	Steam Distribution
Estimated Service Date	2010

Work Description:

Adopt the Construction Management's Mobile Office Laptop application for use by Steam Construction to track all construction work. This includes the use of the Construction Management Job Tracking application and the Contractor Payment Application (COMPASS).

Justification:

Currently:

- Steam is tracking all construction jobs with an independent Access data base. Data is not shared with the SOMIS System. Update of the construction status to the SOMIS is a manual process.
- The Construction Management's Mobile Office Laptop application will allow us to remotely update our job status and enter required Contractor Field Observation Report and CA&I Daily Log Report directly into our database.
- The Construction Management's Mobile Office Laptop application will link to the Company payment system – COMPASS as well. This includes the opening ticket, cut sheet and T&E sheet which will simplify the payment process.

Status:

New

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$200	---	---	---	---	\$200

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Project/Program Title	Steam Mapping Technology Upgrade - IT
Priority Number	7SD1451
Program Title	System Reinforcement (IT Projects)
Station	Steam Distribution
Estimated Service Date	12/31/2011

Work Description:

This effort will address moving all corporate mapping systems of Electric, Gas, and Steam to a common, current, industry standard platform. It will also migrate their data to the New York City base map. The benefits include reduced maintenance costs for all the mapping systems, but more importantly, the ability to more readily share and use internal and external geo-referenced data in conjunction with our facilities data.

Justification:

Currently all mapping systems across Electric, Gas, and Steam are operating on de-supported software. Even though some of these systems (e.g. Steam Operations Mapping and Information System) can be upgraded, others are limited by non-upgradeable software. Upgrading one system, without being able to upgrade the other, will result in incompatible mapping files. Compatible files are necessary for information sharing and usage across all utilities in the company. In addition, the mapping systems, although built on a one to one scale, are not based on real world coordinates or an accurate land base. As such they cannot interface with external mapping systems, built on actual real world coordinates and precise land bases, to share information.

Status:

In Development

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$500	\$500	---	---	---	\$1,000

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Project/Program Title	SDS and Job Tracking Integration - IT
Project Number	8SD1241
Program Title	System Reinforcement (IT Projects)
Station	Steam Distribution
Estimated Service Date	2011

Work Description:

Re-design and re-develop SDS (Inside Customer Premises) Job Tracking. Re-write in all new .Net technology and web-enable. Create a common front-end interface both the SDS and the Street Job Tracking Applications.

Justification:

The SDS Job Tracking system was written 17 years ago and the design and technology do not lend themselves to enhancements easily. The business requirements are constantly changing the system needs to be re-written in .Net with more flexibility in its design to allow for future growth and modifications. In addition, the job tracking for SDS and Field Operations are separate systems. Dispatching jobs / crews are conducted by separate dispatchers. Combining both systems will allow us to combine dispatching functions and improve efficiency.

Status:

In Development

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$370	\$180	---	---	---	\$550

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Project Title	Operations Interface to Remote Metering
Priority Number	8SD1251
Program Title	System Reinforcement (IT Projects)
Station	Steam Distribution
Estimated Service Date	2011

Work Description:

A system that will display pressures and flows retrieved from the Remote Metering System over a Steam System Map for the Troubleshooter Dispatcher to monitor real time pressures and flows (1 to 5 min intervals). Monitoring must be done with a graphical interface. As operational moves are performed on the distribution system the impact will be assessed based on the resultant pressures and flows in the surrounding area. This will enable us to check proper operations, early detection of errors and improved customer service. This information will also be tied into the Water Hammer Predictor model that will be developed.

Justification:

Currently:

- We currently have 12 pressure district gauges to monitor the system pressure. It does not provide local pressure data during area outages. With the new application to link to customers metering data from the Remote Metering System, the troubleshooter dispatcher will be able to see the resultant pressure during operational moves within the system. This will enable us to check proper operations, early detection of errors and improved customer service.
- The potential to save time and money here is significant. Through early error detection, incidents that could otherwise cripple parts of the steam system can be corrected before they become a problem.
- Early error detection will reduce the number of incidents that negatively impact the efficiency and quality of the steam system, which can lead to a higher customer retention rate.

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$500	\$150	---	---	---	\$650

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Project Title	Steam Meter Room Piping Automation
Project Number	Z09-9105-M
Program Title	System Reinforcement (IT Projects)
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to create a collection of customer meter station drawings, expand the database of meter station equipment installed in the field, and automate the process of generating Turn-Off/Turn-On instructions for maintenance work (similar to the process followed for maintenance work on the distribution system).

Justification:

- Alternatives: The alternative is to continue to operate without meter station drawings and without an automated system of generating operating instructions, however, this method of operation is more susceptible to human error.
- Risk of No Action: If critical piping configurations peculiar to various customers are not recorded in a formalized system such as is proposed, we depend on human memory to recall all safety information particular to any given customer.
- Summary of Financial Benefits and Costs: N/A
- Non-financial Benefits (if applicable): This project provides the opportunity to record the intricacies of a given customer location in a procedure geared specifically to that location, and so enhances the safety of Company personnel and the customer.

Status:

New

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$350	\$350	\$350	---	---	\$1,050

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Project/Program Title	GPS for Steam Distribution
Program Title	System Reinforcement (IT Projects)
Station	Steam Distribution
Service Date	2010

Work Description:

Develop a System to establish GPS coordinates for selected Steam Equipment as well as Vapor Patrol locations. GPS should be tied to each valve on the Steam system. As the wrench is placed on the valve, the system will ID the component. In addition, manholes, castings and valve assets should be tied to GPS. When a manhole inspection is completed, it is logged and tracked in the system. Vapor Patrol locations should be tied to GPS so that when the vapor patrols are conducted, it is logged and updated on a GPS system identifying who and when the patrols were completed

Status:

New Program

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
---	---	\$200	\$200	\$200	\$600

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

Exhibit__(SOP-2)
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Project Title	Demand Meter /Shuntflo Meter Conversion
Project Number	Z08-9084-M
Program Title	Meter Installation
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace an obsolete steam meter used to measure steam consumption for various steam customers. The Shuntflo meters also under registers consumption when flow rates drop below 20% of the design flow. When the Shuntflo meter is installed the capability for demand metering is also available.

Justification:

- Alternatives: The alternative is to continue using the obsolete meter.
- Risk of No Action: The Shuntflo meter manufacturer has been out of business for over 10 years. There are only two vendors supplying replacement parts for this meter. If either of these two were to go out of business, it can be expected that the cost of parts from the other vendor will rise significantly.
- Summary of Financial Benefits and Costs: The Shuntflo meter under-registers steam consumption when the flow rate drops below 20% of the meter's design maximum capacity. The PSC-approved vortex meters used to replace them retain their measuring accuracy to below 10% of the meter design maximum.
- Non-financial Benefits (if applicable): The vortex meters send out an electronic flow signal which is captured and logged by a flow computer/data logger. This capability enables demand billing, some remote troubleshooting, and retransmission of the flow signal to a customer's building management system for efficiency improvements. Also, the vortex meter has no moving parts and so is subject to less mechanical wear and tear.
- Project Relationships (if applicable): Installations to run concurrent with those of the Meter Station Trap Remote Monitoring project.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$2,450	\$1,950	\$1,300	\$1,300	\$1,300	\$8,300

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

Exhibit __ (SOP-2)
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Project Title	M-Valve Conversion
Project Number	Z08-9083-M
Program Title	Meter Installation
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace mechanical meter regulating valves with motor operated ball valves.

Justification:

- **Alternatives:** The alternative is to continue using the mechanical valves.
- **Risk of No Action:** The mechanical meter regulating valves allow a small amount of steam to leak through. This small amount goes unregistered by the meter. In addition, the mechanical meter regulating valves require more maintenance than the ball valves do.
- **Summary of Financial Benefits and Costs:** It is estimated that a leaky valve can pass 423 mlbs/yr of steam that would go undetected by the meter. Also, the mechanical valve requires more maintenance than the ball valve.
- **Project Relationships (if applicable):** A flow computer is required for control of the ball valve, thus the vortex metering system (meter conversion program) is a pre-requisite for this project.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$500	\$500	\$500	\$500	\$500	\$2,500

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

Exhibit__(SOP-2)
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Project Title	Meter Station Trap Remote Monitoring
Program Title	Meter Installation
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to remotely monitor company traps at customer premises to speed up detection of blowing or clogged traps. Installations for this project will run concurrently with installations for the Shuntflo Meter Conversion project.

Justification:

- Alternatives: The alternative is to continue to inspect steam traps once a month during the meter reading cycle.
- Risk of No Action: Late detection or non-detection of non-working company traps or steam loss increases the potential for condensate build-up and water hammer.
- Non-financial Benefits (if applicable): The safety of customer and company personnel and property will be enhanced if Company-owned traps before each steam station are monitored around the clock by an automated system that will alert the 24-hour troubleshooting dispatcher when a problem is detected.

Status:

Proposed

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
---	\$500	\$600	\$600	\$600	\$2,300

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
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Exhibit__(SOP-2)
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Project Title	Limatorque Angle Valve Replacement
Project Number	Z08-9067-M
Program Title	Meter Installation
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace defective or failed Limatorque actuator operated angle globe meter regulating valves with new valve assemblies to provide remote control capability in the future.

Justification:

- Alternatives: The alternative is to continue using the defective valves.

- Risk of No Action: The Limatorques have been in service for approximately 25 years and are beginning to show signs of wear and tear which could lead to inoperable or leaky valves. The valves are installed at major steam customer locations (each bringing in over \$1 million in sales each year); inoperative units run the risk of starving the customer of steam; and leaky units run the risk of revenue loss.

- Summary of Financial Benefits and Costs: A leaky valve can pass 200 lbs/hr of steam that would go undetected by the meter. This adds up to an annual steam loss of 1752 mlbs per valve.

- Non-financial Benefits (if applicable): The new valves will be enabled with remote monitoring and control capability when the new generation of flow computers is installed in the future. This will allow remote determination of valve positions and remote isolation of meter lines in the event of an emergency.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$100	\$100	\$100	\$100	\$100	\$500

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

Exhibit__(SOP-2)
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Project Title	Various Locations - Load Changes/Upgrades/Downsizing
Project Number	8SD1041
Program Title	Meter Installation
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to upgrade/change meters for customers who are modifying their load, e.g., adding tenants. Note that this program addresses customer-initiated changes.

Justification:

- Alternatives: The alternative is to leave the current meters in place. However, this runs the risks of starving the customer of steam, or supplying the steam at a lower pressure which may violate the PSC requirement of 125 psig steam delivery.
- Risk of No Action: Not supplying the customer with enough steam to satisfy the load, or supplying steam at a lower than the required 125 psig pressure.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$150	\$150	\$150	\$150	\$150	\$750

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

Exhibit__(SOP-2)
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Project Title	New Business
Project Number	8SD1061
Program Title	Meter Purchase Program
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program covers the purchase of steam metering equipment for customers new to the steam distribution system.

Justification:

- Alternatives: There are no alternatives to this program.
- Risk of No Action: Lack of service to a new customer.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$375	\$375	\$375	\$375	\$375	\$1,875

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

Exhibit__(SOP-2)
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Project Title	Meter Downsizing Program
Project Number	Z08-9082-M
Program Title	Meter Purchases
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is designed to replace oversized steam meters at various customer locations due to operational changes and efficiency improvements by customers. Note that this program addresses Company-initiated meter station changes.

Justification:

- Alternatives: The alternative is to continue using the oversized meters.
- Risk of No Action: The oversized meters will register lower steam flows at low flow rates thereby causing lost revenue.
- Summary of Financial Benefits and Costs: Downsizing the meters enables more accurate capturing of the lower customer loads resulting from operational changes and efficiency improvements.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$300	\$300	\$300	\$300	\$300	\$1,500

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM DISTRIBUTION CONSTRUCTION PROGRAM,
Estimated 2010-2014

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Project Title	Demand Meter /Shuntflo Meter Conversion
Project Number	Z08-9084-M
Program Title	Meter Purchases
Station	Steam Distribution
Estimated Service Date	Various

Work Description:

This program is for the meters purchases associated with the Demand Metering/ Shuntflo Meter Conversion. The meters installed are Vortex Meters that have better accuracy and not moving parts.

Justification:

- Alternatives: The alternative is to continue using the obsolete meter.
- Risk of No Action: The Shuntflo meter manufacturer has been out of business for over 10 years. There are only two vendors supplying replacement parts for this meter. If either of these two were to go out of business, it can be expected that the cost of parts from the other vendor will rise significantly.
- Summary of Financial Benefits and Costs: The Shuntflo meter under-registers steam consumption when the flow rate drops below 20% of the meter's design maximum capacity. The PSC-approved vortex meters used to replace them retain their measuring accuracy to below 10% of the meter design maximum.
- Non-financial Benefits (if applicable): The vortex meters send out an electronic flow signal which is captured and logged by a flow computer/data logger. This capability enables demand billing, some remote troubleshooting, and retransmission of the flow signal to a customer's building management system for efficiency improvements. Also, the vortex meter has no moving parts and so is subject to less mechanical wear and tear.
- Project Relationships (if applicable): Installations to run concurrent with those of the Meter Station Trap Remote Monitoring project.

Status:

Ongoing

Funding (\$000):

Forecast 2010	Forecast 2011	Forecast 2012	Forecast 2013	Forecast 2014	Forecast Total 2010-2014
\$1,050	\$800	\$920	\$920	\$920	\$4,610

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
STEAM OPERATIONS
SUMMARY OF STEAM OPERATIONS EXPENSES FOR THE RATE YEAR ENDED SEPTEMBER 30, 2011
(\$ in thousands)

Element of Expense	Exhibit Page Reference	12 Months Ended June 30, 2009	Normalizing Adjustments	Program Changes	12 Months Ended September 30, 2011
Company Labor	Pages 2-3 of 5	\$ 42,089	\$ -	\$ 2,129 (A)	\$ 44,218
Manhour Expense		3,240	-	-	3,240
Material & Supplies		1,828	-	-	1,828
Water Treatment		3,861	-	-	3,861
Other (Fossil)		4,297	-	-	4,297
Environmental Programs		1,512	-	-	1,512
Boiler Cleaning		1,399	-	-	1,399
Plant Component Upgrade		136	-	-	136
Steam Leaks		1,066	-	-	1,066
Security		969	-	-	969
Consultants		4	-	-	4
Contract Labor		2	-	-	2
EDP Equipment Rentals and Maintenance		19	-	-	19
Electricity and Gas Used	Pages 4-5 of 5	11,528	-	1,515	13,043
Asbestos Removal and Abatement		506	-	-	506
Corrective Maintenance		6,574	-	-	6,574
Facilities Maintenance		1,968	-	-	1,968
Preventive Maintenance		1,651	-	-	1,651
Ravenswood		5,577	-	-	5,577
Steam Incident Action Plan - Other than Company Labor		1,511	-	-	1,511
Building Service		1,092	-	-	1,092
Communications - Telephone		361	-	-	361
Other		(10)	-	-	(10)
Total Steam Operations Expenses		\$ 91,180	\$ -	\$ 3,644	\$ 94,824

NOTE: These amounts exclude the impact of labor and non-labor escalation.
Both labor and non-labor escalation is calculated and reflected
in Exhibit (AP-6), Schedule 1, Page 3 of 4.

(A) This item will also be discussed in the testimony submitted by John Catuogno.

2010 O&M – Steam Operations

Project/Program Title	Company Labor – FAC Labor to Base Rates
Status	October 1, 2010
Estimated Service Date	October 1, 2010

Work Description:

These labor costs represent the costs associated with fuel handling efforts at the steam generating stations. The amount of the request is based on a three-year average (2006 – 2008) of the actual costs incurred by the Company for these efforts. These labor costs are currently recovered through the Steam FAC. As noted in the Joint Proposal in Case No. 07-S-1315, the Company is proposing to recover these costs in base rates in the rate year effective October 1, 2010.

Justification:

- Summary of Financial Benefits and Costs:**

As noted in the Joint Proposal in Case No. 07-S-1315, the Company is proposing to recover these costs in base rates in the rate year effective October 1, 2010.

Estimated Completion Date:

On-going

Status:

On-going

Funding (\$000):

Actual 2006	Actual 2007	Actual 2008	Budget 2009
-	-	-	-

RYE 2011	RYE 2012	RYE 2013	RYE 2014	Forecast Total 2011-2014
2,129	2,129	2,129	2,129	8,516

Historical elements of expense (EOE's)

EOE	2006	2007	2008	2009
Labor				
M&S				
*A/P				
Other				
Total				

Forecast

EOE	RYE 2011	RYE 2012	RYE 2013	RYE 2014	Total
Labor	2,129	2,129	2,129	2,129	8,516
M&S					
*A/P					
Other					
Total	2,129	2,129	2,129	2,129	8,516

* Note A/P requires further identification such as A/P – Contract Labor, A/P - Equipment Maintenance, A/P - Corrective Maintenance, etc.

2010 O&M – Steam Operations

Project/Program Title	Electricity Used for Steam Stations
Status	On-going
Estimated Service Date	On-going

Work Description:

This project accounts for the cost of electricity used to run steam plant auxiliary equipment at the steam-only generating stations. The PSC Uniform System of Accounts provides that, in a combination utility, each service department will be charged for the energy it receives from another company department. Accounting develops the rate per kwhr annually.

Justification:

- Summary of Financial Benefits and Costs:

The total estimated costs for the rate year ending September 30, 2011 are \$12,214,000. The rate is calculated annually based on the Company's cost to provide the service; however, the estimated costs for the rate years ending September 30, 2012 and 2013 have been kept at the same level due to the fact that the latest calculation available is for the calendar year 2010.

Estimated Completion Date:

On-going

Status:

On-going

Funding (\$000):

Actual 2006	Actual 2007	Actual 2008	Budget 2009
9,512	10,232	10,859	10,329

RYE 2011	RYE 2012	RYE 2013	RYE 2014	Forecast Total 2011-2014
13,043	13,043	13,043	13,043	52,172

Historical elements of expense (EOE's)

EOE	2006	2007	2008	2009
Labor				
M&S				
*A/P				
Other	9,512	10,232	10,859	10,329
Total	9,512	10,232	10,859	10,329

Forecast

EOE	RYE 2011	RYE 2012	RYE 2013	RYE 2014	Total
Labor					
M&S					
*A/P					
Other	13,043	13,043	13,043	13,043	52,172
Total	13,043	13,043	13,043	13,043	52,172

* Note A/P requires further identification such as A/P – Contract Labor, A/P - Equipment Maintenance, A/P - Corrective Maintenance, etc.