

Consolidated Edison Company of New York, Inc.

M29 Transmission Line Project

Appendix B

Pre-Filed Direct Testimony

APPENDIX C: PRE-FILED DIRECT TESTIMONY

Pre-filed direct testimony in support of the Article VII Application for the M-29 Feeder Project is presented by witness panels by subject area, as follows:

<u>Witnesses</u>	<u>Sponsoring</u>
Peter Chan Francesco Elmi	Exhibit 1 (General Information); Exhibit 6 (Economic Effects); Exhibit 8 (Other Pending Filings) Exhibit 9 (Cost of Project); and Exhibit E-4 (Engineering Justification)
James Mooney, Jr. Kenneth Chu	Exhibit 2 (Location of Facilities); Exhibit 3 (Alternatives); Exhibit 5 (Design Drawings) Exhibit E-1 (Description of Proposed Transmission Lines) Exhibit E-2 (Other Facilities); and Exhibit E-3 (Underground Construction)
Craig H. Wolfgang Brian E. Dempsey Raymond Pasquariello Kevin Maher Anthony Agresti	Exhibit 4 (Environmental Studies); Exhibit 6 (Economic Effects); Exhibit 7 (Local Laws) Exhibit E-5 (Effect on Communication); and Exhibit E-6 (Effect on Transportation)
Amitabha Mukhopadhyay	Exhibit 4 –Section 4.9 (Electric and Magnetic Fields)

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

M29 TRANSMISSION LINE PROJECT

Case No. 06-_____

PRE-FILED DIRECT TESTIMONY

of

**PETER K. CHAN
FRANCESCO ELMI**

CONSOLIDATED EDISON COMPANY of NEW YORK, INC.
Pre-Filed Direct Testimony of
Peter Chan
Francesco Elmi

1 **Q. Mr. Chan, please state your full name, employer and business address.**

2 A. My name is Peter K. Chan. I am employed by Consolidated Edison Company of
3 New York, Inc. (“Con Edison” or the “Company”). My business address is 1610 Matthews
4 Avenue, Bronx, New York 10462.

5 **Q. In what capacity are you employed?**

6 A. I am currently a Project Manager for Con Edison's Substation Operations
7 - Planning Department.

8 **Q. Please summarize your education and professional background.**

9 A. I earned a Bachelor’s Degree in Electrical Engineering from the Polytechnic
10 Institute of Brooklyn in 1976, a Master’s Degree in Electrical Engineering from Polytechnic
11 Institute of New York in 1979, and have been a registered Professional Engineer, licensed by the
12 State of New York, since 1983. In 1987, I completed the General Electric Company’s Power
13 System Engineering Course. I was previously employed by American Electric Power Service
14 Corporation and have been employed by Con Edison since 1983. I’ve held a number of
15 positions of increased responsibility in Operations and Planning of the Bulk Power system. In
16 1987, I was promoted to the position of Senior System Operator, in the System Operations
17 Department. In 1994, I joined the Generation Planning Department as Manager of Fuel &
18 Purchase Power, and in 1997 became Manager, Operations Planning. In 1999, Con Edison’s
19 Department of Generation Planning was re-established as Energy Management, and I assumed
20 responsibilities as Manager, Electric Resource Planning. In 2001, I joined the Transmission
21 Planning Department as Manager, Interconnection Services, a position I held until 2005 when I
22 was assigned to my current position as Project Manager in Substation Operations.

CONSOLIDATED EDISON COMPANY of NEW YORK, INC.
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Peter Chan
Francesco Elmi

1 **Q. Please describe your role in the M29 Transmission Line Project.**

2 A. As Project Manager, I am responsible for the construction of the transmission
3 facility. I have overall responsibilities for capital projects, such as this one, to ensure that
4 construction of these major transmission facilities are completed on schedule and within budget.
5 In addition to managing the technical and administrative activities associated with this project, I
6 am responsible for facility permitting and support Public Affairs in project-related outreach.

7 **Q. Mr. Elmi, please state your full name, employer and business address.**

8 A. My name is Francesco Elmi. I am employed by Con Edison. My business
9 address is 4 Irving Place, Room 1450-S, New York, New York 10003.

10 **Q. In what capacity are you employed?**

11 A. My current position is that of a Technical Specialist in Con Edison's
12 Transmission Planning Department.

13 **Q. Please summarize your education and professional background.**

14 A. I received a Bachelor of Science degree in Electrical Engineering from the
15 Polytechnic Institute of New York, in 1980. In addition, I have attended special training courses
16 and programs, such as a Voltage Control and Reactive Power Planning course, a Power System
17 Dynamics course, a two-year comprehensive Power course offered by Power Technologies, Inc.,
18 and a business writing course.

19 My professional experience in electric utility planning spans approximately 26 years, the
20 first six of which I spent with the Long Island Lighting Co., now the Long Island Power
21 Authority. From 1986 to 2001 I was employed by Con Edison as an Engineer in the
22 Transmission Planning Department. In 2001, I was promoted to Senior Engineer in recognition

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Francesco Elmi

1 of work performance and increased responsibilities. Subsequently, in 2002, I was promoted to
2 Section Manager, to supervise a group of eight engineers. Finally, in 2004, I assumed
3 responsibilities as a Technical Specialist, the position I currently hold.

4 **Q. Please describe your role in the M29 Transmission Line Project.**

5 A. I am responsible for the assessment of the reliability of the transmission system,
6 providing assistance to critical organizations within the Company, and representing the Company
7 in the NYISO process. With respect to the M29 project, I directed the conduct of studies for the
8 assessment of the voltage and thermal performance of the Con Edison transmission system as it
9 relates to its ability to meet load demand in the East 179th Street load area, in accordance with
10 planning design criteria specified in the New York State Reliability Council and Con Edison
11 System Transmission Design and Operating Criteria (February 2006).

12 **Q. What portions of the Application does this panel's testimony support?**

13 A. Our testimony supports the portions of the Application concerning the need for
14 the Project; a feasible, safe, and reliable interconnection scheme, and integration into the overall
15 New York Control Area Bulk Power System infrastructure through the New York Independent
16 System Operator process; the cost of the M29 Transmission Line Project; and the development
17 of the Project's overall licensing and construction schedule. This includes the following Exhibits
18 to the Application, which were prepared by us or under our direction and supervision, and which
19 form the bases for the conclusions stated here:

- 20
- Exhibit 1 – General Information Regarding Application
 - 21 • Exhibit 6 – Economic Effect of Proposed Facilities
 - 22 • Exhibit 8 – Other Pending Filings

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Francesco Elmi

- 1 • Exhibit 9 – Cost of Project
- 2 • Exhibit E-4 – Engineering Justification

3 **Q. Can you please briefly discuss why Con Edison believes the M29 Transmission Line**
4 **Project is needed?**

5 A. As part of its ongoing efforts to provide safe and reliable electric service to its
6 customers, Con Edison is continually assessing its ten-year electrical load forecasts and its
7 transmission and distribution infrastructure requirements to meet these forecasts. Based upon
8 Con Edison’s most recent electrical load forecasts for the East 179th load area, which
9 encompasses portions of the Bronx and upper Manhattan, the Project is necessary to provide
10 power reliably to area substations which serve this and other load areas, by averting overload
11 conditions on existing transmission lines, due to first contingency events. Area substations and
12 associated supply feeders must be capable of supplying their projected peak loads during a first
13 contingency condition, defined as the loss of an area substation transformer and/or its associated
14 138 kV feeder. On the transmission side, the M29 transmission line would provide sufficient
15 additional transmission capacity to the East 179th load area to not only meet its first contingency
16 design requirements, but also provide enough margin over the next ten years to achieve close to
17 second contingency design capability. As compared to other potential transmission solutions, the
18 M29 transmission line also directly benefits the Sherman Creek Substation by providing it with
19 an additional supply source. With the transmission line, anticipated load growth at the Sherman
20 Creek Substation could also be supplied while maintaining second contingency transmission
21 capability into the area substation. In addition, the M29 transmission line would benefit the
22 Dunwoodie North load area in southern Westchester County, an area that is electrically

1 interconnected to the East 179th Street load area, and forecasted to experience significant load
2 growth. Exhibit E-4 of this Application further details the justification for the Project.

3 Con Edison believes that this approach, as opposed to other alternatives such as
4 demand-side management and distributed generation technology, is the most realistic and
5 prudent approach to address near-term overload concerns and to meet long-term electric load
6 growth.

7 **Q. Can you please elaborate on Con Edison's schedule for developing and constructing**
8 **the M29 Transmission Line Project?**

9 A. As detailed in Exhibit E-4 of this Application, the M29 Transmission Line Project
10 is being designed to meet both near-term and anticipated long-term electric load growth in the
11 East 179th Street load area. Failure to meet the proposed in-service date of May 2008 will
12 increase the likelihood of electrical supply disruptions caused by overload conditions following
13 the contingency loss of Feeder X28, which is the largest transmission feeder currently serving
14 the East 179th Street load area.

15 **Q. In addition to the Article VII certificate requested from the Commission, will you be**
16 **seeking other permits or approvals to design, construct and/or operate the proposed**
17 **facilities?**

18 A. Yes. In addition to the Article VII certificate, Con Edison will be applying for
19 approvals from the New York State Department of Transportation (NYSDOT), the City of
20 Yonkers, Westchester County, the New York City Department of Transportation, the U.S. Army
21 Corps of Engineers (USACE), the New York State Department of Environmental Conservation
22 (NYSDEC), New York State Department of State, Division of Coastal Resources, the

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Francesco Elmi

1 Metropolitan Transit Authority (MTA), the New York City Housing Authority (NYCHA), and
2 the New York City Department of Environmental Protection, Bureau of Water Supply
3 (NYCDEP), to allow the M29 Transmission Project to be constructed and/or operated, consistent
4 with the Public Service Commission’s ongoing jurisdiction under Public Service Law Article
5 VII. The NYSDOT approval will be in the form of a Utility Work Permit for installation of
6 utilities (i.e. the M29 Transmission Line) along the portions of the route within or adjacent to
7 state highway rights-of-way, specifically Tuckahoe Road, Nepperhan Avenue and Riverdale
8 Avenue (within the City of Yonkers). Street opening permits will also be required from the City
9 of Yonkers, Westchester County, and the City of New York. Authorization from the USACE for
10 the crossing of the Harlem River will be sought under the Nationwide General Permit No. 12 for
11 Utility Line Activities. A General SPDES Permit for Stormwater Discharges Associated With
12 Construction Activities will be required from the NYSDEC. A Coastal Zone Consistency
13 Determination will be sought from the New York State Department of State, Division of Coastal
14 Resources, for the portions of the Project located within the New York State designated Coastal
15 Zone. A Utility License Agreement from the MTA will be required for the installation of the
16 M29 transmission line beneath the MTA Metro-North Railroad right-of-way, north of the
17 Harlem River. Temporary construction and permanent easements from **Kingsbridge Associates,**
18 **the MTA and New York-Presbyterian Hospital** will be required for **tunnel and shaft construction**
19 and staging in support of the transmission line crossing of the Harlem River.

20 **Q. What conclusions have you reached with respect to the cost associated with the**
21 **planning, design, construction and subsequent operation of the Project?**

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Francesco Elmi

1 A. The cost estimate presented in Exhibit 9 of the Application is justified and
2 represents Con Edison’s current assessment of the cost to engineer, design, license, and construct
3 the Project. The cost estimate covers the proposed construction of approximately 9.5 miles of
4 345 kV high-pressure fluid-filled (HPFF) pipe-type cable installed along the preferred route, and
5 required modifications at the existing Sprain Brook Substation and at the new Academy
6 Substation. The anticipated labor, construction and equipment costs are based upon Con
7 Edison’s experience with similar substation and transmission line construction projects in New
8 York. The cost estimate also reflects Con Edison’s best estimate of project expenses that will be
9 incurred to acquire easements, engineering and inspection surveys, administrative overhead, fees
10 for legal and other services, interest expenses during construction, and contingencies.

11 **Q. Does this conclude your testimony at this time?**

12 A. Yes.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

M29 TRANSMISSION LINE PROJECT

Case No. 06-

PRE-FILED DIRECT TESTIMONY

of

**JAMES MOONEY, JR.
KENNETH CHU**

CONSOLIDATED EDISON COMPANY of NEW YORK, INC.
Pre-Filed Direct Testimony of
James Mooney
Ken Chu

1 **Q. Mr. Mooney, please state your full name, employer and business address.**

2 A. My name is James Mooney, Jr. I am employed by Consolidated Edison Company
3 of New York, Inc. (“Con Edison” or the “Company”). My business address is 4 Irving Place,
4 New York, NY 10003.

5 **Q. In what capacity are you employed?**

6 A. I am a Project Engineer. I work in the Central Engineering Department, Project
7 Engineering Section.

8 **Q. Please summarize your education and professional background.**

9 A. I received a Bachelor of Science degree in Nuclear Energy Technology in 1985
10 from the State University of New York at Empire State College, and a Master of Science degree
11 in Management Science from Pace University in 1993. In addition, after extensive formal
12 training, I was licensed by the United States Nuclear Regulatory Commission as both a Reactor
13 Operator and Senior Reactor Operator.

14 My experience consists of more than 28 years in several diverse aspects of the power
15 industry. I was employed by Con Edison at the New York Power Authority’s (NYPA) Indian
16 Point 3 Nuclear Power Plant from 1978 until 1982. In 1982, I became a NYPA employee at
17 Indian Point 3 and worked in several positions of increasing responsibility, including Nuclear
18 Plant Operator, Reactor Operator, Senior Reactor Operator, Systems Engineer, and Systems
19 Engineering Section Manager, until 1997. In 1997 I resigned from NYPA and founded a
20 consulting firm. My firm completed projects and contracts in several industry-related areas
21 including project management, construction, software quality assurance, Y2K, nuclear plant
22 operations, plant modifications, technical procedure writing, regulatory affairs, operations and

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1 engineering training, systems engineering, emergency planning, post modification and
2 maintenance testing, work control, simulator management and ANSI 3.5 testing. I have been
3 employed by Con Edison since July 2003. I was the Project Engineer for the rebuild of 7 World
4 Trade Center, as well as several other large capital projects, e.g., Astor Substation, East River
5 Steam Gas Conversion, Bensonhurst Cooling Plant, and Grasslands Server Farm.

6 **Q. Please describe your role in the M29 Transmission Line Project.**

7 A. As the Project Engineer, I am responsible for coordinating all engineering and design
8 activities, including the coordination of all engineering construction packages.

9 **Q. Mr. Chu, please state your full name, employer and business address.**

10 A. My name is Kenneth Chu. I am employed by Con Edison. My business address
11 is 4 Irving Place, New York, NY 10003.

12 **Q. In what capacity are you employed?**

13 A. I am a Senior Engineer with Con Edison Central Engineering, Transmission
14 Feeders Engineering Section. My current employment with Con Edison includes the
15 responsibilities of Underground Transmission Engineer.

16 **Q. Please summarize your education and professional background.**

17 A. I received a Bachelor of Science degree in Electrical Engineering, with a minor in
18 Computer Science, from the Polytechnic University, New York, in 1987. I am a member of
19 IEEE.

20 I have 19 years of professional experience in generation, commercial and industrial and
21 utility operations, including 11 years of experience with low, medium and high voltage cable
22 system design and installation from 120 volts to 345,000 volts. This includes solid dielectric,

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1 paper insulated and dielectric fluid-filled pipe-type transmission lines, direct buried, duct and
2 manhole, high-pressure pipe-type, aerial, and submarine installations. I have been employed by
3 Con Edison since 1990.

4 From 1988 to 1990, I was employed by Stone & Webster Engineering Corporation, as an
5 electrical engineer in the Electrical and Controls Division. At Stone & Webster, I was
6 responsible for electrical modifications at various fossil nuclear and commercial facilities.
7 From 1987 to 1988, I was employed at the Naval Air Engineering Center where I was a civilian
8 engineer responsible for performing engineering analysis related to design problems for aircraft
9 support equipment.

10 **Q. Please describe your role in the M29 Transmission Line Project.**

11 A. I serve as the Project's Senior Underground Transmission Engineer, responsible
12 for the engineering activities associated with design and construction of the Project's high
13 voltage cable feeders, as well as the development of the construction methods to be employed
14 during feeder installation.

15 **Q. What portions of the Application does this panel's testimony support?**

16 A. Our testimony supports the portions of the Application concerning the electrical
17 engineering design, layout and construction of the M29 Transmission Line Project. This includes
18 the following exhibits to the Application, which were prepared by us or under our direction and
19 supervision and which form the basis for the conclusions stated here:

- 20 • Exhibit 2 – Location of Facilities;
- 21 • Exhibit 3 – Alternatives;
- 22 • Exhibit 5 – Design Drawings;

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Pre-Filed Direct Testimony of
James Mooney
Ken Chu

- 1 • Exhibit E-1 – Description of Proposed Transmission Line;
- 2 • Exhibit E-2 – Other Facilities; and
- 3 • Exhibit E-3 – Underground Construction.

4 **Q. Please provide a brief description of the M29 Transmission Line Project.**

5 A. Con Edison is submitting this Application for a Certificate of Environmental
6 Compatibility and Public Need pursuant to Article VII of the New York State Public Service
7 Law (“PSL”) to authorize the construction and operation of an approximately 9.5-mile, 345 kV
8 high-pressure fluid filled (HPFF pipe-type), primarily underground, transmission line connecting
9 Con Edison’s existing Sprain Brook Substation in the City of Yonkers, Westchester County, with
10 the new Academy Substation to be located in the Inwood section of upper Manhattan, in the City
11 of New York (the “Project”). The HPFF pipe-type transmission line will be installed primarily
12 below grade, within publicly-owned street rights-of-way and previously developed Con Edison
13 property. Equipment required to accommodate the new transmission line will be added at both
14 the Sprain Brook Substation and new Academy Substation. The interconnection of the proposed
15 345 kV transmission line at the Sprain Brook Substation will also include the installation of new
16 345 kV circuit breakers, 345 kV disconnect switches, 345 kV pothead structures, "A" frame
17 towers, a pressurizing plant with a tank that holds 20,000 gallons of dielectric fluid, and related
18 equipment. At the new Academy Substation, which is planned as an indoor, gas-insulated type
19 station (GIS), the major electrical equipment that will be installed includes 345 kV circuit
20 breakers, 345 kV disconnect switches, 345 kV pothead structures, 345 kV/138 kV
21 autotransformers, 138 kV phase angle regulators, and related equipment. The substation will
22 contain a pressurization plant with two tanks for dielectric fluid. The total tank capacity will be

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Ken Chu

1 30,000 gallons, consisting of a 10,000-gallon tank and a 20,000-gallon tank. The work at the
2 existing Sprain Brook Substation will be completed within its existing fence and property lines,
3 and where the new transmission line connects with the Academy Substation, the work will occur
4 within the former Sherman Creek Generating Station property, in previously disturbed areas
5 historically used for power plant operations.

6 The Project's component facilities are described in greater detail in Exhibits 5, E-1
7 and E-2 of the Application.

8 **Q. What conclusions have you reached regarding the methods to be employed during**
9 **construction of the Project's transmission facilities?**

10 A. The transmission line will be installed primarily underground within existing Con
11 Edison property and public roadway rights-of-way, with the exception of four bridge crossings
12 where the transmission line will be mounted to the underside of bridges or installed within the
13 bridge roadway. The four bridge crossings are:

- 14 • Old Nepperhan Avenue Bridge over the Saw Mill River
- 15 • Tuckahoe Road Bridge over the New York City New Croton Aqueduct and an abandoned
16 railroad
- 17 • West 252nd Street Bridge over the Henry Hudson Parkway
- 18 • Nepperhan Avenue Bridge over the Saw Mill River

19 For the Nepperhan Avenue Bridge crossing over the Saw Mill River, the route is presently
20 designed such that the transmission line is installed in the bridge roadway, and will not be
21 affixed beneath the bridge. Along most of the proposed route, the transmission line will be

1 installed within an open-cut trench. Where the feeder crosses the Harlem River into Manhattan,
2 the pipe-type cable will be installed **within a new tunnel**.

3 In general, the trench would be excavated to a depth sufficient to provide a minimum of
4 three feet of cover over the cable pipe. When less than two feet of cover over the cable pipe or
5 fluid-circulating pipe is authorized because of special conditions, suitable guards such as one-
6 inch thick steel plates would be placed over the pipes prior to backfilling. A greater depth of
7 cover may be required for installations within roadways under NYSDOT jurisdiction. Typical
8 trench width will be approximately three feet, however, this could be increased depending upon
9 the configuration of pipes within the trench and whether other utilities must be crossed.

10 A Construction Stormwater Pollution Prevention (“CSWPP”) Plan will be developed and
11 implemented during transmission line installation. The CSWPP Plan includes the identification
12 of best management practices to be implemented during construction and operation of the
13 transmission facilities. The CSWPP will also identify monitoring and reporting requirements. A
14 copy of the CSWPP Plan will be included as part of Con Edison’s Environmental Management
15 and Construction Plan (“EM&CP”) for the Project.

16 The underground construction methods to be employed in support of the Project are
17 described in greater detail in Exhibit E-3 of the Application.

18 **Q. In your opinion, does the proposed routing of the Project's transmission line reflect**
19 **Con Edison's best efforts to minimize the potential environmental impacts associated with**
20 **the construction and operation of these facilities?**

21 A. Yes. The Project’s design and the construction methods to be employed
22 minimize, to the extent practicable, potential environmental impacts.

1 **Q. What is your basis for this conclusion?**

2 A. Our conclusion is based upon the description and analyses of the Project's
3 environmental impacts as set forth in Exhibit 4 of the Application and the pre-filed direct
4 testimony offered in support of that Exhibit.

5 **Q. What alternatives to the Project were evaluated by Con Edison?**

6 A. Con Edison evaluated alternative routing and transmission line technologies for
7 the proposed 345 kV transmission line between the existing Sprain Brook Substation and the
8 new Academy Substation. Con Edison also addressed alternate methods to fulfill energy
9 requirements, including a “no-action” alternative and the feasibility of demand-side management
10 and distributed generation.

11 **Q. Please describe the alternate transmission line technologies considered by Con**
12 **Edison.**

13 A. Solid dielectric cables for the 345 kV transmission line was considered. This
14 alternative technology was not selected because of the as-yet limited in-service experience with
15 such system’s reliability in North America. While solid dielectric cable systems above 345 kV
16 have been installed successfully overseas, Con Edison considers paper-insulated cable systems to
17 be a proven and more reliable technology at these higher voltages.

18 Con Edison only considered an underground transmission line because underground lines
19 are consistent with this type of line and voltage in the Project area; underground lines
20 substantially minimize any environmental and visual impacts as compared to overhead facilities;
21 and underground lines significantly increase the reliability of these circuits by avoiding exposure
22 to high winds and ice.

1 **Q. Were other alternatives to the preferred route evaluated by Con Edison?**

2 A. Con Edison staff identified and evaluated seven major route alternatives in
3 addition to the preferred route. These route alternatives are shown on Figure 3-1 and described in
4 detail in Exhibit 3 of the Application. Several specific criteria were used by Con Edison to
5 identify the optimum route, including:

- 6 • Maintaining a direct route between the two substations;
- 7 • Minimizing the number of bends and therefore manholes along the route;
- 8 • Minimizing use of roadways within which existing high-voltage feeders are located;
- 9 • Minimizing the number of bridge crossings;
- 10 • Avoiding constructibility issues and the need for specialized construction methods (e.g.
11 boring and jacking, horizontal directional drilling, etc.)
- 12 • Minimizing longitudinal placement of the transmission line within major transportation
13 corridors.

14 **Q. What other alternatives to the Project were considered by Con Edison?**

15 A. Other alternatives considered by Con Edison included a “no-action” alternative
16 and the feasibility of demand-side management and distributed generation. The no-action
17 alternative is not considered viable because Con Edison’s most recent electrical load projections
18 indicate that the potential exists for development of a near-term overload situation in the East
19 179th Street load area, which covers upper Manhattan and portions of the Bronx (see Exhibit E-
20 4). An overload in this area would, in turn, have the potential to negatively impact existing
21 substations servicing Westchester County. Selecting the no-action alternative would not

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1 satisfactorily address the increasing electrical demands of in the Bronx, upper Manhattan, and
2 Westchester County, and Con Edison's ability and obligation to meet these demands.

3 Demand-side management and distributed generation programs are presently in
4 place and additional expansion of the programs were determined to not be sufficient, either due
5 to financial, permitting and/or siting issues, to meet the electric transmission and distribution
6 obligations of Con Edison. While demand-side management and distributed generation are a
7 component of current electric supply mix, the increased electric demands in the Bronx, upper
8 Manhattan, and Westchester County necessitates the proposed construction of the M29
9 Transmission Line Project. Demand-side management is viewed as a short-term and temporary
10 solution during peak demand periods to a potential overload situation. The Project is intended as
11 a long-term solution in the public interest, needed by Con Edison to meet its obligations under
12 the PSL to provide reliable and essential electric service to its service territory customers.

13 **Q. Does this conclude your testimony at this time?**

14 A. Yes.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

M29 TRANSMISSION LINE PROJECT

Case No. 06-_____

PRE-FILED DIRECT TESTIMONY

of

**CRAIG WOLFGANG
BRIAN DEMPSEY
RAYMOND PASQUARIELLO
KEVIN MAHER
ANTHONY AGRETI**

CONSOLIDATED EDISON COMPANY of NEW YORK, INC.
Pre-Filed Direct Testimony of
Craig Wolfgang
Brian Dempsey
Raymond Pasquariello
Kevin Maher
Anthony Agresti

1 **Q. Mr. Wolfgang, please state your full name, employer and business address.**

2 A. My name is Craig Wolfgang. I am employed by TRC Environmental Corporation
3 (TRC). My business address is 1200 Wall Street West, Lyndhurst, New Jersey, 07071.

4 **Q. In what capacity are you employed?**

5 A. I am the Manager of Environmental Planning in the TRC Lyndhurst office and
6 serve as Project Manager for various electric generation and transmission projects.

7 **Q. Please summarize your education and professional background.**

8 A. I received a Master of City Planning degree from the Georgia Institute of
9 Technology in 1979, and a Bachelor of Science degree in Natural Resource Conservation from
10 the University of Connecticut in 1976. I am a Member of the American Planning Association
11 and the American Institute of Certified Planners.

12 I have 25 years of professional experience as a Project Manager and
13 Environmental Planner on a variety of development and infrastructure improvement projects. I
14 have served in my present position since 1999. My work has involved overseeing permitting and
15 environmental analyses for numerous proposed electric generation, electric transmission and
16 natural gas pipeline projects. In addition, I have managed permitting and environmental analyses
17 for numerous transportation and resource assessment and planning projects.

18 Prior to joining TRC, from 1994 to 1999, I was a Principal Planner at Louis
19 Berger & Associates, Inc. From 1986 to 1994, I was Supervisor of Resources Planning at
20 Ebasco Environmental. From 1983 to 1986, I was a Licensing Specialist at the New York Power
21 Authority. From 1980 to 1983, I was an Environmental Planner at Claude Terry & Associates.

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Craig Wolfgang
Brian Dempsey
Raymond Pasquariello
Kevin Maher
Anthony Agresti

1 **Q. Please describe your role in the M29 Transmission Line Project.**

2 A. For the M29 Transmission Line Project, I served as TRC's Project Manager,
3 responsible for the supervision of the TRC project team with regard to field survey activities and
4 the preparation of the environmental analyses required as part of the Application.

5 **Q. Mr. Dempsey, please state your full name, employer and business address.**

6 A. My name is Brian Dempsey. I am employed by TRC Environmental Corporation.
7 My business address is 7 Skyline Drive, Hawthorne, New York.

8 **Q. In what capacity are you employed?**

9 A. I am a Senior Traffic Engineer at TRC.

10 **Q. Please summarize your education and professional background.**

11 A. I received a M.B.A. in Finance from Fordham University in 1992, and my B.C.E.
12 in Civil Engineering from Villanova University in 1986.

13 I have 15 years of professional experience encompassing traffic engineering
14 studies, traffic planning studies, parking studies, environmental impact statements and traffic
15 demand management. I am a member of the Institute of Transportation Engineers. I am also a
16 certified Professional Traffic Operations Engineer in the states of New York, New Jersey,
17 Delaware, Pennsylvania and Connecticut.

18 **Q. Please describe your role in the M29 Transmission Line Project.**

19 A. As a Senior Traffic Engineer, I am responsible for designing and conducting
20 traffic analyses for traffic engineering studies undertaken in conjunction with environmental
21 analyses required for client development projects. My duties as a Senior Traffic Engineer

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Kevin Maher
Anthony Agresti

1 include performing analyses of existing conditions and projecting future conditions on major
2 arterials, local roadways, and parking resources. I supervised studies performed concerning
3 traffic in Exhibit E-6 of the Application.

4 **Q. Mr. Pasquariello, please state your full name, employer and business address.**

5 A. My name is Raymond D. Pasquariello. I am employed by TRC Environmental
6 Corporation. My business address is 1 Richmond Square Suite 220D, Providence, RI 02906.

7 **Q. In what capacity are you employed?**

8 A. I am a Program Manager and Senior Archaeologist.

9 **Q. Please summarize your education and professional background.**

10 A. I received a Bachelor of Arts degree in Anthropology, and a Bachelor of Science
11 degree in Biology from Syracuse University, New York in 1992, as well as an Master of Arts
12 degree in Anthropology from Syracuse University, New York in 1995.

13 I have more than 11 years of experience, encompassing project management,
14 prehistoric, and historic archaeological survey and excavation, cultural resource surveys, historic
15 research, and public interpretation. My responsibilities include the direction of archaeological
16 surveys, testing projects, and data recovery projects as part of the cultural resource management
17 services offered by TRC. I carry out and oversee fieldwork, laboratory processing, and analysis,
18 and I am responsible for the marketing of new and existing clients in the New England, New
19 York, and New Jersey area. I have served as Project Manager/Principal Investigator for over 20
20 projects. I manage my own projects and oversee those of others, and I regularly interact with
21 clients (both private and public sector), agency reviewers, and the public. I have research

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1 experience in both academic and cultural resource management settings. I have directed projects
2 for numerous clients in the New England area, New York, New Jersey and Connecticut, and also
3 have participated in archaeological projects in the Caribbean.

4 **Q. Please describe your role in the M29 Transmission Line Project.**

5 A. I conducted a review of the route for the proposed 345 kV electric transmission
6 line and at the Sprain Brook Substation and planned Academy Substation site to determine the
7 potential for archeological resources. I also reviewed the information obtained from the files of
8 the New York State Office of Parks, Recreation and Historic Preservation regarding known
9 archeological and historic architectural resources in the Project's vicinity. Based on the results of
10 my analysis and the file search, I prepared a Phase 1A Cultural Resources Report that served as a
11 basis for the assessment of cultural resources for the Application.

12 **Q. Mr. Maher, please state your full name, employer and business address.**

13 A. My name is Kevin J. Maher. I am employed by TRC Environmental Corporation.
14 My business address is 1200 Wall Street West, Lyndhurst, New Jersey, 07071.

15 **Q. In what capacity are you employed?**

16 A. I am a Project Manager in the TRC Lyndhurst office and serve as a project
17 manager and environmental planner for various electric generation and transmission projects.

18 **Q. Please summarize your education and professional background.**

19 A. I received a Master of Planning degree from the University of Southern
20 California, School of Urban and Regional Planning in 1993, and a Bachelor of Science in

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1 Environmental Planning and Design from Cook College, Rutgers University in 1990. I am a
2 Member of the American Planning Association and the American Institute of Certified Planners.

3 I have over ten years of professional experience with an expertise in
4 environmental documentation and permitting coordination on power generation and
5 infrastructure projects, primarily in New York State.

6 **Q. Please describe your role in the M29 Transmission Line Project.**

7 A. I conducted the land use reconnaissance survey for the area surrounding the
8 proposed 345 kV transmission route and the Sprain Brook and Academy Substations and
9 prepared an assessment of potential land use impacts associated with the Project. I also prepared
10 the Exhibits pertaining to Economic Effects (Exhibit 6) and Effect on Communication (Exhibit
11 E-5).

12 **Q. Mr. Agresti, please state your full name, employer and business address.**

13 A. My name is Anthony Agresti. I am employed by TRC Environmental
14 Corporation. My business address is 1200 Wall Street West, Lyndhurst, New Jersey, 07071.

15 **Q. In what capacity are you employed?**

16 A. I am a Senior Noise Analyst.

17 **Q. Please summarize your education and professional background.**

18 A. I have a Bachelor of Arts Degree in Meteorology from Kean College of New
19 Jersey and I am certified through Rutgers University as a State of New Jersey Noise Control
20 Officer. I am responsible for preparing noise analyses and impact assessments, design and
21 implementation of ambient noise monitoring programs and noise compliance. I have prepared

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1 numerous noise assessments and impact analyses for electric power and industrial sector clients.
2 My experience includes developing detailed noise level data for a variety of sources, performing
3 modeling analyses and specifying noise abatement measures.

4 **Q. Please describe your role in the M29 Transmission Line Project.**

5 A. I conducted the noise analysis for construction and operation of the proposed
6 electric transmission facilities and associated substations.

7 **Q. What portions of the Application does this panel's testimony support?**

8 A. Our testimony supports the portions of the Application concerning the
9 environmental effects of the M29 Transmission Line Project (with the exception of electric and
10 magnetic field effects, which is the subject of another witness panel). This includes the following
11 exhibits to Con Edison's Application, which were prepared by us or under our direction and
12 supervision, and which form the basis for the conclusions stated here:

- 13 • Exhibit 4 – Environmental Studies;
- 14 • Exhibit 6 – Economic Effects;
- 15 • Exhibit 7 – Local Laws;
- 16 • Exhibit E-5 – Effect on Communication; and
- 17 • Exhibit E-6 – Effect on Transportation

18 **Q. What conclusions have you reached regarding the potential environmental effects of**
19 **the construction and operation of the M29 Transmission Line Project?**

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1 A. The studies we conducted found that the Project’s construction and operation will
2 have minimal impact on the environment and to residents of the City of Yonkers, Bronx County
3 and upper Manhattan.

4 The transmission line will be installed primarily underground within existing Con
5 Edison property and public roadway rights-of-way, with the exception of four bridge crossings
6 where the transmission line will be mounted to the underside of bridges or installed within the
7 bridge roadway. Land uses adjacent to or near the proposed route consist primarily of
8 industrial/manufacturing, public park, residential, commercial/retail, and transportation corridor.
9 There are no agricultural land uses adjacent to the proposed route or substations.

10 Construction of the transmission line will be the primary land use impact
11 associated with the proposed route. During construction, potential impacts on adjacent land uses
12 will be mitigated by such means as minimizing work crew time on site, implementing equipment
13 noise reduction, promptly restoring the landscaping and pavement along the public roadway
14 rights-of-way and the implementation of traffic control measures. There will be no significant
15 land use impacts due to operation of the Project.

16 Since the transmission line will be primarily underground, with the exception of
17 short segments to be installed underneath bridge spans, the transmission line right-of-way will
18 not be noticeable following the temporary visual impacts associated with construction activities.
19 Accordingly, there will be no long-term, adverse visual impacts attributable to the proposed
20 transmission line. Indirect visual impacts from the proposed equipment at the existing Sprain
21 Brook Substation will be avoided since the new equipment will be located within the existing

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1 substation area and these equipment installations will be visually compatible with the existing
2 substation and will not create any new visual elements. The new installations will be effectively
3 screened by existing vegetation and viewed in the context of an existing industrial setting of the
4 38-acre Sprain Brook Substation. Furthermore, the new equipment to be installed within the
5 Academy Substation building will not be visible by the public.

6 Construction of the M29 Transmission Line Project will have no impact on
7 cultural resources. Prior disturbance along the proposed right-of-way essentially eliminates the
8 potential for encountering significant archeological sites. In addition, no properties listed in the
9 State or National Register of Historic Places will be impacted by this Project. The transmission
10 line will be located within existing road rights-of-way, and prior disturbance along these rights-
11 of-way essentially eliminate the potential for encountering significant archaeological sites along
12 these routes. The proposed transmission line will be underground and will not result in any
13 indirect visual impacts to historic architectural properties.

14 The proposed transmission line route and Sprain Brook and Academy Substation
15 sites do not contain any unusual or unique ecological communities. Much of the proposed
16 transmission line route consists of paved roadways, bridges, highway/railroad corridors, and
17 existing utility rights-of-way. Accordingly, the vegetative communities within the Project area
18 are primarily roadside areas and previously developed areas that may or may not be directly
19 affected by the Project.

20 Soil types and topography encountered along the transmission line route are
21 ideally suited to the common construction methods to be employed. Upon completion, the

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1 portion of the corridor excavated will be returned to its original topographic and hydrologic
2 conditions. As a result, the construction activities will not impact the geologic environment.
3 Any soils that may be required to be disposed of offsite will be transported in accordance with all
4 applicable rules and regulations.

5 The impact of construction-related traffic associated with installation of the
6 transmission facilities is expected to be minimal. Construction will be temporary and will be
7 coordinated with and conducted within guidelines set forth by the NYSDOT, the NYCDOT, the
8 City of Yonkers, and Westchester County, as applicable. All construction will be conducted
9 within public rights-of-way. In addition, staging in support of daily construction activities will
10 occur.

11 Construction noise-related impacts from the proposed 345 kV transmission line are
12 expected to primarily be short-term at any given location and therefore minimal. Construction
13 noise along the majority of the transmission line route, while varying according to the equipment
14 in use, will be mitigated by the attenuating effect of distance; the intermittent and short lived
15 character of the noise; and the use of functional mufflers on all construction equipment. Further,
16 the nature of construction to be performed for the new 345 kV transmission line dictates that
17 construction activities and associated noise levels will move along the corridor. Mitigation
18 measures for the potential noise generated by **tunneling** operations will be employed to ensure
19 that noise is minimized to the greatest extent feasible. When operational, the underground
20 transmission line will not generate noise.

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1 The construction and operation of the transmission facilities and substation
2 improvements will not result in significant impacts on water supply or sanitary sewer services.
3 The Project will be designed, constructed, operated and maintained to be compatible with
4 applicable local, state and federal requirements relative to water supply, sewer services and
5 storm water management requirements.

6 The transmission facilities will be appropriately marked to alert the public to their
7 locations (e.g., road, highway and railroad crossings). Because the transmission route will be
8 located primarily underground in existing utility or roadway rights-of-way, no additional security
9 or emergency services will be required for operation of these facilities.

10 Con Edison sited and designed the M29 Transmission Line Project with careful
11 consideration of applicable local laws, and the Project will substantively comply with local
12 zoning, noise, street opening and excavation requirements, and all other applicable local laws
13 and regulations, except as noted in Exhibit 7 of this Application.

14 The proposed electric transmission line is expected to have no adverse effects on
15 communications (i.e., television, radio, telephone, etc.), primarily because the 345kV line will be
16 installed primarily underground and will therefore, have little or no effect on communications
17 signals transmitted through the air. No adverse effect on other underground communication
18 cables, that is, copper conductor communication cables, will occur from the installation of the
19 transmission facility. Con Edison will comply with applicable sections of the latest version of
20 the National Electrical Safety Code (NESC) related to appropriate spacing between power and
21 communication cables. Adequate separation between the electric transmission line and

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1 communication facilities will be maintained. Since the proposed route is contained primarily in
2 the existing right-of-way, interference is expected to be minimal, if any, and limited to areas
3 where the transmission line crosses highway corridors and under railroad crossings.

4 To ensure the adequate provision of essential services during construction, Con
5 Edison will require that the construction contractor and any subcontractors retained will call Dig
6 Safely New York at 1-800-962-7962 to notify utility companies of all excavation activities
7 planned along the electric transmission line route. This requirement will be replicated in all
8 construction specifications and bid documents issued by Con Edison. Additionally, Con Edison's
9 Construction Manager will meet with the selected construction contractor affected utility
10 companies and Westchester County, NYSDOT, and City of New York officials to review plans
11 and locate adjacent utilities to ensure that appropriate clearances are achieved.

12 **Q. Does this conclude your testimony at this time?**

13 A. Yes.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.

M29 TRANSMISSION LINE PROJECT

Case No. 06-_____

PRE-FILED DIRECT TESTIMONY

of

AMITABHA MUKHOPADHYAY

CONSOLIDATED EDISON COMPANY of NEW YORK, INC.
Pre-Filed Direct Testimony of
Amitabha Mukhopadhyay

1 **Q. Mr. Mukhopadhyay, please state your full name, employer and business address.**

2 A. My name is Amitabha Mukhopadhyay. I am employed by Consolidated Edison
3 Company of New York, Inc. (“Con Edison”). My business address is 4 Irving Place, New York,
4 New York 10003.

5 **Q. In what capacity are you employed?**

6 A. I am a Senior Engineer in Con Edison’s Transmission Feeder Engineering Section
7 of the Substation and Transmission Engineering Department.

8 **Q. Please summarize your education and professional background.**

9 A. I received a B.E. in Electrical Engineering from the University of Calcutta, India,
10 in 1967, as well as an M.S. in Electrical Engineering from the Polytechnic Institute of New York
11 in 1978. I am also a Senior Member of IEEE, Member EEI/IEEE - SCC - 28, and I am a
12 licensed Professional Engineer in the State of New York.

13 I have 38 years of professional experience as an electrical engineer. I have been
14 employed by Con Edison since 1987 and have been in my position as a Senior Engineer since
15 1997. In my current position, I am responsible for the analysis and installation of PCS, Mobile
16 Cell Phone Antennas and Base Stations for different telephone companies on Con Edison’s high
17 voltage overhead transmission towers and rights-of-way in Westchester County. I am also
18 responsible for the engineering and installation of All Dielectric Self Supporting (ADSS) fiber
19 optic cables on Con Edison’s High Voltage Transmission Lines, and I was acting as Consulting
20 Engineer to the New York City Transit Authority on the 25 Hz Cycloconversion Project.

21 From 1987 to 1997, I held the position of Engineer, responsible for electrical
22 discipline activities in the design, scheduling, funding and construction of a multibank 138 kV

1 area distribution substation, 138 kV high pressure fluid filled transmission feeders, and 138 kV/
2 345 kV overhead transmission lines. I was responsible for Inductive coordination,
3 Electromagnetic Field Management and Public Service Commission Mandated EMF studies.

4 Prior to joining Con Edison in 1987, I worked with Gibbs & Hill Inc., New York,
5 as Assistant Engineer, 1974-1978, Engineer, 1979-1982, and Senior Engineer from 1982 to
6 1987. From 1967 to 1974, I was an Assistant Engineer with the Government of India.

7 **Q. Please describe your role in the M29 Transmission Line Project.**

8 A. For the M29 Transmission Line Project, I served as the Senior Engineer,
9 responsible for the preparation of the electric and magnetic field evaluation of the proposed 345
10 kV transmission line between the Sprain Brook Substation and the planned Academy Substation.
11 I served in the same capacity for Con Edison's previous Grasslands and Cedar Street Public
12 Service Law Article VII projects.

13 **Q. What portions of the Application does your testimony support?**

14 A. My testimony supports the portions of the Application concerning the
15 electromagnetic field effects of equipment installations for the M29 Transmission Line Project at
16 the Sprain Brook and Academy Substations, as well as the 345 kV transmission line feeder from
17 the Sprain Brook Substation to the Academy Substation. This includes the following Exhibit to
18 the Application, which was prepared by me or under my direction and supervision, and which
19 forms the bases for the conclusions stated here:

- 20 • Exhibit 4, Section 4.9 – Electric and Magnetic Fields

21 **Q. What conclusions have you reached regarding the potential electromagnetic field**
22 **effects of the construction and operation of the M29 Transmission Line Project?**

1 A. The studies that were conducted found that the Project's construction and
2 operation will have minimal electromagnetic field effects in the project vicinity of Westchester,
3 Bronx, and New York Counties.

4 As stated in these studies, there are no national or federal standards in electric and
5 magnetic field exposure. However, a few states, including New York, have electric and
6 magnetic field standards for transmission lines. The New York standard specifies that the
7 electric and magnetic field strength be limited to 1.6 kV/m and 200 mG, respectively, at the edge
8 of the right-of-way.

9 Improvements required at the Sprain Brook Substation to accommodate the
10 Project's transmission line include the installation of 345 kV circuit breakers, 345 kV disconnect
11 switches, 345 kV pothead structures, "A" frame towers, related equipment, and a pressurizing
12 plant with a tank that holds 20,000 gallons of dielectric fluid. Equipment to be installed at the
13 Academy Substation as part of this project will include 345 kV circuit breakers, 345 kV
14 disconnect switches, 345 kV pothead structures, 345/138 kV autotransformers, 138 kV phase
15 angle regulators, and related equipment. The substation will contain a pressurization plant with
16 two tanks for dielectric fluid. The total tank capacity will be 30,000 gallons, consisting of a
17 10,000-gallon tank and a 20,000-gallon tank. The Academy Substation will be connected to Con
18 Edison's existing Sherman Creek Substation via two 138 kV feeders.

19 With respect to the operation of the 345 kV transmission line, the magnetic field
20 levels produced by this underground cable circuit at 1 meter above the ground at all locations
21 along the line, including directly above the cable, should not exceed any of the specified New
22 York State limits. Additionally, the transmission feeder will not produce an electric field above

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1 ground due to either shielding by the earth (i.e., underground installation) or the cable's metallic
2 sheathing and pipe enclosure.

3 **Q. Does this conclude your testimony at this time?**

4 A. Yes.