

Exhibit_(DAC/LE-1)

NIAGARA MOHAWK POWER CORPORATION

EXHIBIT __ (DAC/LE-1)

NEW YORK ISO INTERCONNECT STUDY

345 kV TRANSMISSION LINE

BESICORP - EMPIRE DEVELOPMENT COMPANY PROJECTS

The Executive Summary of the NY ISO Interconnection Study is included in this appendix.
Full copies are available on line at:

http://www.nyiso.com/services/planning.html#besicorp_empire_state

Besicorp - Empire Development Company, LLC

**Interconnection Study
For the Empire State Newsprint Project**

**Prepared by: Dr. George A. Mulligan
Khin Swe**

Reviewed by: Richard M. Bucci

November 2001

**Washington Group International, Inc.
510 Carnegie Center
Princeton, NJ 08543**

Executive Summary

Besicorp-Empire Development Company, LLC (Besicorp) engaged Washington Group International, Inc. (WGI) to perform a Interconnection Study to assess the feasibility of interconnecting a 603 MW net generating plant to be located at the BASF site in the city of Rensselaer, N.Y. Besicorp expects to commence commercial operation of the plant in the Summer of 2004.

The Empire State Newsprint Project (ESNP) is an integrated facility consisting of an electric generating plant and a recycled newsprint manufacturing plant. The generating plant will consist of two 161 MW gas turbine units and one 297 MW steam unit which will provide a net summer maximum output of 603 MW after supplying the generating plant auxiliary load. A portion of the plant net output will normally provide power to the newsprint manufacturing plant with a maximum load of approximately 66 MW. The newsprint manufacturing plant load is represented as off in these studies in order to model maximum output into the bulk power system. A separate analysis of the newsprint manufacturing plant load connected to the system without the power plant is provided in Appendix G. The ESNP is proposed to be connected to the Niagara Mohawk Power Corporation (NMPC) Reynolds Road 345 kV substation by an approximately 9 mile long overhead 345 kV transmission line with two 1192 kcmil ACSR conductors per phase. The interconnection plan includes the addition of two new 345 kV circuit breakers at the Reynolds Road 345 kV substation.

This study evaluated the impact on the reliability of the bulk power system of the proposed interconnection to the Reynolds Road 345 kV Substation. The purpose of the report is to evaluate the proposed interconnection and to recommend modifications, as may be required. The report addresses intra-area and inter-area transfer limit issues including thermal, voltage, and stability limits. The report also addresses local load flow, extreme contingency, and fault duty issues. WGI performed these studies with the exception of the fault duty study, which was performed by NMPC and provided to WGI for inclusion in this report. The studies evaluated the performance of the system with and without the proposed project using the latest FERC Form 715 power flow summer and winter peak base cases (filed by NYISO in April 2001) which are applicable to year 2004. Representations for the baseline units, databases for thermal transfer limit

analysis, and dynamics databases were all provided by the New York Independent System Operator (NYISO).

When dispatched to Southeast New York (SENY), the impact of the ESNP Project on New York State summer normal and emergency transfer capability is a reduction of 475 MW on Central East and of 775 MW on Total East interfaces. Upstate NY - Southeast NY (UPNY-SENY) interface transfer capability is minimally affected with a reduction of 25 MW normal from 4250 MW to 4225 MW and of 50 MW emergency from 4900 MW to 4850 MW. UPNY-Con Ed interface transfer capability actually increases by 175 MW normal from 4125 MW to 4300 MW and by 150 MW emergency from 5975 MW to 6125 MW. The reductions in Central East and Total East are due to the power distribution of the additional 603 MW on the bulk power transmission system. For dispatches to SENY, approximately 12 percent (71 MW) of the additional generation from ESNP flows west across the Central East interface and east across the Marcy South transmission facilities. Approximately 51 percent (306 MW) of the additional generation from ESNP flows on the New Scotland - Leeds 345 kV circuits which are the limiting elements for Central East and Total East.

The ESNP Project also impacts the Inter-Area transfer limits. The NY-NE summer limits increase by a range of 125 MW to 325 MW normal and by 150 MW to 300 MW emergency for the redispatch locations examined. The NE-NY limits decrease by a range of 150 MW to 250 MW normal and 150 MW to 275 MW emergency. The NY-PJM limits are unchanged for both normal and emergency conditions and the PJM-NY limits are affected by only a 25 MW increase under normal conditions for ESNP Project dispatched to PJM.

The winter Intra-Area limits are higher than the summer limits and are little changed by the addition of The ESNP Project. Central East and Total East decrease by 125 MW and 50 MW, respectively, both normal and emergency for The ESNP Project dispatched to SENY, while UPNY/SENY and UPNY/Con Ed normal limits increase by 50 MW and 25 MW.

The transmission limitations may cause generators that contribute to the loading of the transmission lines to

operate at lower levels of dispatch than they would otherwise for some part of the summer season. The ESNP Project may at times have reduced output due to these transfer limitations, but this depends on other factors, such as unit bid prices, that may cause the NYISO to select other units to operate at reduced levels. This assumes that the plant will be operated in accordance with the NYISO's operational procedures and limits through its day-ahead Security Constrained Unit Commitment (SCUC) and real time Security Constrained Dispatch (SCD). This is designed to dispatch The ESNP Project and other plants in a manner that maximizes reliability and minimizes energy costs.

The short circuit analysis performed shows a requirement to replace one 115 kV circuit breaker at Reynolds Road. All other circuit breakers remain within their rated capability.

This SRIS has been performed in accordance with all NYISO requirements. All required system upgrades have been identified herein. Approval of this SRIS does not preclude the possibility of future conditions, as envisioned under NYISO requirements, which may, at times, limit output of the ESNP Project or any other generating plant in the system so that system reliability and security will be maintained.

This SRIS confirms that the ESNP Project results in no adverse material impact on the Niagara Mohawk transmission system or the New York State bulk power system. The conclusions, based on the results and assumptions of this analysis, are as follows:

1. The 345 kV interconnect into the NMPC Reynolds Road 345 kV substation ensures that full output of the ESNP Project can be delivered to the New York State 345 kV system at Summer peak load. Of course, ESNP Project and/or other power plants may be subject to curtailment if NYISO Security Constrained Dispatch (SCD) attempts to optimize the Central East and Total East transfers during the summer peak load period. Additionally, the ESNP Project will be tripped for loss of the Reynolds Road – Alps 345 kV circuit to avoid overloading the Reynolds Road 345/115 kV bank.
2. The ESNP Project when dispatched to SENY reduces both summer normal and emergency

Central East transfer capability by 475 MW and decreases both the normal and emergency Total East transfer capability by 775 MW. The UPNY-SENY transfer capability is minimally reduced by 25/50 MW normal/emergency, and the UPNY-Con Ed transfer capability is actually increased by 75 MW normal and decreased by 25 MW emergency. The impact of the ESNP Project on the Inter-Area transfer capabilities is less with NY-NE increasing by a range of 125 MW to 325 MW, NE-NY limits decreasing by a range of 150 MW to 275 MW, and NY-PJM and PJM-NY limits remaining unchanged (25 MW increase normal in PJM-NY for ESNP dispatched to PJM).

3. Addition of the ESNP Project does not have any adverse impact to the transient stability response of the overall transmission system.
4. The short circuit analysis shows that only one 115 kV circuit breaker at Reynolds Road is required to be replaced.
5. The ESNP Project will not adversely impact bulk power system reliability, as the plant will be operated in accordance with the NYISO's operational procedures and limits through its day-ahead Security Constrained Unit Commitment (SCUC) and real time Security Constrained Dispatch (SCD). This conclusion also assumes that locational generation capacity requirements are met.

NIAGARA MOHAWK POWER CORPORATION

DIRECT TESTIMONY

345 kV TRANSMISSION LINE

BESICORP - EMPIRE DEVELOPMENT COMPANY PROJECTS

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STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)
_____)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

JOHN S. BILLO

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

**STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE**

PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

JOHN S. BILLO

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

John S. Billo

1 **Q. Please state your name, position and business address.**

2 A. My name is John S. Billo. I am a contract engineer with MSE Power Systems,
3 Inc. (MSE). MSE is located at 255 Washington Avenue Extension, Suite 202,
4 Albany, NY 12205.

5 **Q. On whose behalf are you testifying?**

6 A. Niagara Mohawk Power Corporation (NMPC).

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

8 A. I received a B.S. from Syracuse University in the City of Syracuse, New York in
9 1984. I have over 19 years experience in the engineering field. I have been
10 involved in the design and construction of electric transmission lines for
11 approximately 15 years, ranging in voltages from 69 kilovolts (kV) to 345 kV,
12 including line routing and design, structure and foundation design, electric and
13 magnetic field calculations, cost estimating, project management, and
14 construction inspection. I have participated in various stages of the licensing
15 process from initial site selection, to technical analysis, and public information
16 meetings. I recently completed the design of 10 miles of 230 kV, double circuit,
17 steel monopole transmission line in compliance with National Electric Safety
18 Code (NESC) and California GO-95 standards.

John S. Billo

1 **Q. Would you briefly describe your responsibilities in regard to the instant**
2 **NMPC Article VII Application?**

3 A. I selected and modeled NMPC standard transmission structures, and created the
4 conceptual transmission line computer model with input from surveyors at C.T.
5 Male & Associates, environmental specialists at Epsilon Associates, Inc.
6 (Epsilon), and other MSE personnel. I am responsible for the Electric and
7 Magnetic Fields (EMF) calculations for the NMPC proposed 345 kilovolt (kV)
8 transmission line (Proposed Transmission Line).

9 **Q. What is the purpose of your testimony?**

10 A. The purpose of my testimony is to provide information regarding the EMF
11 calculations. In conjunction with other witnesses, I am responsible for testifying
12 on the Proposed Transmission Line and structure design.

13 **Q. Are you familiar with the EMF calculations for the Proposed Transmission**
14 **Line?**

15 A. Yes, I prepared the EMF calculations that are referenced in Exhibit 5, *Design*
16 *Drawing*, Section 5.6 and in Exhibit __ (JSB-1) of the Article VII Application.

17 **Q. Can you explain why you prepared the EMF calculations?**

18 A. I performed the EMF calculations to determine the EMF levels along the
19 transmission right-of-way (ROW) for the Proposed Transmission Line and the

John S. Billo

1 other existing lines on the rights-of-way (ROWS) paralleled by the Proposed
2 Transmission Line (other witnesses have described the ROW for the Proposed
3 Transmission Line, including the 3 segments of the Proposed Transmission Line).
4 Specifically, the calculations were intended to demonstrate compliance with the
5 New York State Public Service Commission (NYSPSC) Policy concerning EMF
6 ("Statement of Interim Policy on Magnetic Fields of Major Electric Transmission
7 Facilities," September 11, 1990).

8 **Q. Can you explain how you prepared the EMF calculations?**

9 A. I used the computer program "ENVIRO" (Version 3.51) which was developed by
10 the Electric Power Research Institute and represents the industry standard for
11 calculating EMF strengths.

12 I modeled the existing circuits within each segment of the ROW using ROW cross
13 sectional profiles, structure configurations, and electrical circuit phasing data from
14 NMPC. I added the Proposed Transmission Line circuit and phasing developed
15 by the project team for each segment and alternative.

16 For Segment 1 of the Proposed Transmission Line, the minimum vertical
17 conductor clearance to ground surface was established at 55 feet for both the 345
18 kV and 115 kV circuits.

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

John S. Billo

1 The minimum conductor clearances to ground surface for Segments 2 & 3 were
2 established per NESC at 37 feet for the new 345 kV construction. This choice
3 results in maximum EMF values at the ROW edges. Final design and
4 construction should result in lower values at the edge of the ROW since the actual
5 conductor clearances above ground will be larger than NESC minimums.

6 All minimum conductor clearances to ground were assumed to take place at a
7 maximum conductor operating temperature of 257 degrees Fahrenheit.

8 The winter-normal conductor ampacities were obtained from NMPC
9 Transmission System Thermal Ratings Manual, dated February 1983. Electric
10 field calculations were performed for 1.05 PU overvoltage. A copy of all model
11 results is included in Exhibit __ (JSB-1) of the Article VII Application.

12 **Q. What EMF criteria must the Proposed Transmission Line meet?**

13 **A.** The electric and magnetic fields must meet the following criteria in all three
14 segments as specified in the "Statement of Interim Policy on Magnetic Fields of
15 Major Electric Transmission Facilities", issued on September 11, 1990 by the
16 NYSPSC:

- 17 1. Article VII transmission circuits shall be designed, constructed, and operated
18 such that magnetic fields at the edges of their ROWs (measured one meter
19 above ground level) will not exceed 200 milligauss (mG) when the circuit

John S. Billo

1 phase currents are equal to the winter-normal conductor rating (as defined by
2 the New York Power Pool).

3 2. Where there is no edge of ROW defined, the field level shall not exceed the
4 value specified in paragraph 1 above at a horizontal distance of (a) 75 feet
5 from the centerline of the structures supporting an Article VII transmission
6 circuit operating at 345kV, (b) 60 feet from the centerline of the structures
7 supporting an Article VII transmission circuit operating at 230kV, and (c) 50
8 feet from the centerline of the structures supporting an Article VII
9 transmission circuit operating at a lower voltage.

10 3. For overhead Article VII transmission circuit proposals where multiple
11 transmission circuits will exist within the same corridor, the combination of
12 circuits and operating conditions that can reasonably be expected to produce
13 the maximum edge of ROW fields shall be used in determining compliance
14 with the interim standard.

15 4. In the Exhibit required by 16 NYCRR Part 86.4, which includes an evaluation
16 of the comparative advantages and disadvantages of any alternative
17 considered, Article VII applicants should address the level of fields to be
18 produced at the edge of the ROW for each alternative considered.

John S. Billo

1 5. Opinion 78-3 established an electric field strength interim standard of 1.6
2 kV/m for Article VII electric transmission facilities (at the edge of the ROW,
3 one meter above ground with the line at rated voltage). The conditions, set
4 forth in items 2-4 above, are to be added to that standard.

5 **Q. Did your EMF calculations demonstrate compliance with the required**
6 **criteria?**

7 A. Yes. The calculation results show the eastern ROW boundary of Segment 3 has
8 the higher magnetic field level. To achieve the goal of 200 mG at the ROW
9 boundary, it was assumed that the eastern most split circuit, Reynolds Road -
10 Greenbush #9 Circuit 115 kV, would be modified to have a reverse phase
11 configuration.

12 In addition to the conservative runs required by the NYSPSC, NMPC has also
13 evaluated the EMFs that would be experienced in the field based on actual 2002
14 peak loading of the existing facilities and normal peak load for the Proposed
15 Transmission Line, and this also shows compliance with the criteria.

16 **Q. Are there any revisions, updates or corrections to those matters for which**
17 **you are responsible?**

18 A. Not at this time.

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John S. Billo

1 Q. Does this complete your testimony?

2 A. Yes.

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PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

DAVID G. CARR

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF
DAVID G. CARR

David G. Carr

1 **Q. Please state your name, position and business address.**

2 A. My name is David G. Carr. I am a Senior Engineer at MSE Power Systems, Inc.
3 ("MSE"), with an address of 255 Washington Avenue Extension, Suite 202, City
4 of Albany, New York.

5 **Q. On whose behalf are you testifying?**

6 A. Niagara Mohawk Power Corporation (NMPC).

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

8 A. I received a B.S. in Civil Engineering from the Massachusetts Institute of
9 Technology in the City of Cambridge, Massachusetts in 1996. I am a licensed
10 Professional Engineer in New York State. I have over seven years of civil and
11 structural engineering experience on industrial, highway, and power projects. I
12 completed the following short courses in Transmission Line Design: "Design of
13 Transmission Line Structures and Foundations" at the University of Wisconsin -
14 Madison, in the City of Madison, Wisconsin, and "Fundamentals of Overhead
15 Transmission Line Design" at Power Technologies, Inc. in the City of
16 Schenectady, New York.

17 I have been with MSE since June 2001. With MSE, I have been involved with
18 over fifteen substation projects and four transmission line projects. I performed
19 the design of the structures and foundations on seven of these projects.

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

David G. Carr

1 On the Elk Hills Power Project in Kern County, California, I coordinated and
2 reviewed the design of the transmission tower foundations for an 11 mile 230
3 kilovolt (kV) transmission line.

4 On the Smithland Hydroelectric Power Project in Livingston County, Kentucky, I
5 prepared the soil erosion and sediment control plan, preliminary transmission line
6 alignment and access road plans, and typical details for erosion control measures
7 for an 11 mile 161 kV proposed transmission line. These documents were
8 submitted as part of permit applications with the U.S. Department of Fish And
9 Wildlife, Kentucky Department for Environmental Protection, and the Federal
10 Energy Regulatory Commission.

11 Currently, I am working on the preparations for the Article VII filing for the Flat
12 Rock Wind Power project in Lewis County, New York. The project is
13 considering a 10.3 mile 230 kV transmission line for interconnection of a wind
14 energy facility to the NMPC bulk electric system. I prepared the preliminary plan
15 and profile drawings and associated engineering efforts for this filing.

16 Also, currently, I am working on the 8.1 mile NMPC proposed 345 kV
17 transmission line (Proposed Transmission Line) that will connect the
18 Besicorp - Empire Development Company, LLC (BEDCO) proposed nominal 505
19 megawatt cogeneration facility (BEDCO Power Plant) to the NMPC Reynolds

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

David G. Carr

1 Road substation in the Town of North Greenbush, Rensselaer County, New York.

2 **Q. Would you briefly describe your responsibilities in regard to the instant**
3 **NMPC Article VII Application?**

4 **A.** I have been involved with and responsible for the engineering analysis for the
5 preliminary layout of the Proposed Transmission Line. I worked on the
6 preparation of the engineering computer model of the Proposed Transmission
7 Line and structure diagrams. I performed the cost estimates for the various
8 alternatives for the overhead facility, and for the civil works portions of the
9 underground alternatives.

10 **Q. What is the purpose of your testimony?**

11 **A.** I am responsible for testifying on Exhibit 4, Section 4.2.1 *Construction Process*,
12 Section 4.2.2 *Construction Equipment and Workforce*, Exhibit 5, *Design*
13 *Drawings*; Exhibit 9, *Cost of Proposed Facilities*; and Exhibit E-1, *Description of*
14 *Proposed Transmission Line*.

15 **Q. Were the materials referenced above prepared by you or under your**
16 **supervision and control?**

17 **A.** Yes, they were.

David G. Carr

1 **Q. Are there any revisions, updates, or corrections to those matters for which**
2 **you are responsible?**

3 **A. Not at this time.**

4 **Q. Are you familiar with the planning and design of the Proposed Transmission**
5 **Line?**

6 **A. Yes, I was responsible for the design drawings that are referenced in Exhibit 5,**
7 **Sections 5.1 through 5.5, and also for preparation of Exhibits E-1, E-5, and E-6 of**
8 **the Article VII Application. In addition, I also was responsible for preparation of**
9 **the cost estimate of the Proposed Transmission Line as set forth in Exhibit 9 of**
10 **the Article VII Application, and for development of certain aspects of the**
11 **construction process as set forth in Exhibit 4, Sections 4.2.1, and 4.2.2.**

12 **Q. Please give a brief description of the Proposed Transmission Line.**

13 **A. The Proposed Transmission Line will be an approximately 8.1 mile long, 345 kV**
14 **AC single circuit connecting the proposed BEDCO Power Plant to the Reynolds**
15 **Road substation. The Proposed Transmission Line is located on existing NMPC**
16 **rights-of-way (ROWS) and consists of 3 segments. Segment 1 starts at the**
17 **BEDCO Power Plant and travels south along the existing 100-foot wide NMPC**
18 **right-of-way (ROW), a distance of approximately 1.7 miles. This portion of the**
19 **ROW contains an existing transmission line, Greenbush #16 Circuit 115 kV, for**

David G. Carr

1 its entire length. Segment 2 then follows an existing 250-foot wide NMPC ROW
2 in a northeasterly direction for approximately 2.3 miles. This ROW presently
3 contains two existing transmission lines: the Feura Bush - Reynolds Road #17
4 Circuit 115 kV, constructed for 230 kV, and the Greenbush #16 Circuit 115 kV.
5 Segment 3 then continues approximately 4.1 miles in a northerly direction
6 following an existing 355-foot wide NMPC ROW, and terminates at the NMPC
7 Reynolds Road substation. This ROW presently contains four electric circuits and
8 other conduits.

9 On Segment 1, a double circuit is proposed with vertical phase-over-phase
10 configuration; one circuit is the Proposed Transmission Line, and the other is the
11 relocated NMPC Greenbush #16 Circuit 115 kV line, which currently exists on
12 this segment. On Segments 2 and 3, a single circuit is proposed with the power
13 conductor in a delta configuration.

14 The power conductors for the Proposed Transmission Line will consist of twin
15 bundled 1192.5 thousand circular mills (kcmil) 45/7 Aluminum Conductor Steel
16 Reinforced (ACSR) conductors with 45 aluminum strands and 7 steel strands.
17 Single 795.0 kcmil 26/7 ACSR with 26 aluminum strands and 7 steel strands will
18 be used for the Greenbush #16 Circuit 115 kV on Segment 1.

David G. Carr

1 **Q. Please describe the structures that will be used on the Proposed Transmission**
2 **Line.**

3 **A. Steel monopole tubular structures are proposed for the Proposed Transmission**
4 **Line. Structures will be approximately 112 feet to 160.5 feet in height and will be**
5 **self-supporting. The structures will be galvanized, and therefore neutral in color,**
6 **with gray porcelain insulators. Diagrams of typical structures are shown in**
7 **Exhibit 5 of the Article VII Application, Figures 5-1 through 5-3.**

8 A single, reinforced concrete pier is proposed as the typical foundation for the
9 Proposed Transmission Line structures. Piers will be from 6 to 9 feet in diameter
10 and nominally 30 to 40 feet in depth. Where solid rock is encountered, the piers
11 will extend at least one pier diameter into the rock. The pier foundation size
12 requirements will be determined by a detailed geotechnical analysis as part of a
13 project specific Environmental Management and Construction Standards and
14 Practices Plan (EM&CS&P Plan) that will be submitted to the New York State
15 Public Service Commission (NYSPSC) for review and approval prior to
16 construction. Exact structure locations will depend on final design of the
17 Proposed Transmission Line that will be provided in the EM&CS&P Plan, and
18 will be determined based on electrical clearance requirements, environmental
19 factors such as wetlands, archaeological resources, steep slopes, and existing land
20 use. Thus, conductor spans will vary widely in the range of approximately 600 to

David G. Carr

1 1,000 feet.

2 **Q. Please briefly describe the construction process that will be used for the**
3 **Proposed Transmission Line.**

4 A. Construction of the Proposed Transmission Line would occur in five general
5 phases: ROW clearing and preparation, foundation construction, pole assembly,
6 conductor stringing, and cleanup and restoration. Specialized construction
7 techniques may be required at certain locations along the ROW based on existing
8 land use or environmental constraints. The EM&CS&P Plan will identify specific
9 construction techniques and erosion control measures for the entire Proposed
10 Transmission Line alignment for review and approval prior to construction.

11 A construction workforce of approximately 30 linemen, electricians, general
12 construction workers, and members of other crafts and trades is necessary to clear
13 the existing ROW, establish access roads, and construct the Proposed
14 Transmission Line. The following timetable is estimated for each stage of
15 construction:

16

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1	Mobilization	3 weeks
2	Clearing ROW & Access Roads	3 weeks
3	Foundation & Monopole Construction	16 weeks
4	Insulators & Conductor Stringing	11 weeks
5	Line Inspection & Testing	2 weeks
6	Energize Line	1 week
7	Demobilization & Close Out	1 week

8 **Q. Are you familiar with the estimated cost of the Proposed Transmission Line?**

9 **A. Yes. I developed the cost estimates set forth in Exhibit 9 of the Article VII**
10 **Application, with the exception of substation upgrade costs, using the following**
11 **sources of information:**

12 1. NMPC is the source for the Reynolds Road substation costs, based on NMPC
13 fiscal year (FY) 2003 labor costs, rates, and overhead.

14 2. MSE Power System, Inc.'s historical cost records.

15 3. BEDCO contract documents for services, such as surveying, legal, soil
16 investigation, real estate agencies, and other services.

17 4. Present material costs updated by national and local material suppliers.

David G. Carr

1 5. Transmission line contractors were contacted and provided their latest cost
2 estimate and unit prices to construct a 345 kV line based on Proposed
3 Transmission Line alignment.

4 6. An average of 7 percent was used to determine accumulative interest during
5 construction.

6 7. Contingencies were established at 20 percent.

7 8. Estimated costs were escalated to determine the actual costs at the time of
8 expenditure.

9 As indicated in Exhibit 9 of the Article VII Application, the total cost estimate for
10 the Proposed Transmission Line, including upgrades to the Reynolds Road
11 substation, is \$14,892,000.

12 **Q. Did you evaluate whether the Proposed Transmission Line would have any**
13 **effects on communications or transportation?**

14 **A.** Yes, I did. With respect to communication, as explained in Exhibit E-5 to the
15 Article VII Application, although the Proposed Transmission Line is not expected
16 to have any adverse impact on any existing shortwave (FM) radio, television,
17 telephone, microwave, or other communications, it is possible that the monopole
18 structures could impact AM radio broadcasts originating within close proximity of

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

David G. Carr

1 the Proposed Transmission Line. During the final design process, which will
2 continue with the development of the EM&CS&P Plan, NMPC will evaluate the
3 design configuration of the Proposed Transmission Line to further ensure that
4 there will be no adverse effects on communications.

5 Construction of the Proposed Transmission Line is not expected to have any
6 adverse impacts on transportation. The construction contractor will implement
7 measures described in Exhibit 4 of the Article VII Application to minimize
8 impacts to automobile traffic and avoid impacts to rail traffic.

9 **Q. Does this complete your testimony?**

10 **A. Yes, it does.**

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DIRECT TESTIMONY OF
DOUGLAS A. CONSTANT
ON BEHALF OF
NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY OF
DOUGLAS A. CONSTANT

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Douglas A. Constant

1 **Q. Please state your name, position and business address.**

2 A. My name is Douglas A. Constant. I am the Project Manager for the Niagara
3 Mohawk Power Corporation (NMPC) proposed 345 kilovolt (kV) transmission
4 line (Proposed Transmission Line) for the Besicorp - Empire Development
5 Company, LLC (BEDCO), with an address of 1151 Flatbush Road, Kingston,
6 New York.

7 **Q. On whose behalf are you testifying?**

8 A. NMPC.

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

10 A. I received a B.A. from Marist College in Poughkeepsie in the field of Physics, and
11 an A.A.S. degree from Ulster County Community College in the field of
12 Mechanical Technology. My experience in the electrical industry covers a wide
13 range of disciplines, projects, and knowledge of the electrical bulk power system
14 and its workings. I was hired by Central Hudson Gas & Electric Corporation
15 (Central Hudson) in 1967, in the field of drafting. I then transferred into the
16 substation design engineering section where I was working directly with the lead
17 engineer responsible for mechanical, civil, and electrical design of substations,
18 including the 345 kV / 115 kV substations at Rock Tavern in Newburgh, New
19 York and at Hurley Avenue, in Kingston, New York. I then joined the system

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Douglas A. Constant

1 operations group as a System Operator, responsible for the hourly operation of the
2 distribution and transmission systems of Central Hudson. Following the blackout
3 of 1977, I became the Operations Coordinator for Central Hudson, responsible for
4 training of other Central Hudson System Operators, as well as providing training
5 at the then New York Power Pool. In 1983, I was transferred to the position of
6 Building Services Supervisor at the Roseton Generating Plant, and then eventually
7 also assumed these same duties at the Danskammer Generating Station. In this
8 position I was primarily responsible for all mechanical and electrical maintenance
9 coordination at these facilities, as well as other duties. In 1990, I was transferred
10 to the Central Hudson main offices as Supervisor of the Energy Accounting area.
11 In this capacity, I was responsible for all energy accounting for both the electric
12 and the gas operations of Central Hudson. This included, but was not limited to,
13 purchases and sales agreements, corporate area load accounting, fuel accounting,
14 and regulatory reporting.

15 In May 2000, I retired from Central Hudson and began work at the New York
16 Independent System Operator (NY-ISO) in Guilderland, New York, in the
17 position of Customer Representative, responsible for numerous Market
18 Participants in the NY-ISO customer list, such as New York State Electric and
19 Gas (NYSEG) and New York Power Authority (NYPA). In this capacity, I was
20 responsible for becoming familiar with the software and operations of the

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Douglas A. Constant

1 NY-ISO, and the actual billing being performed for my customers.

2 In December 2000, I joined BEDCO in the Development Group as a Development
3 Associate. As such, I was responsible for locating potential sites for project
4 development. This included, but was not limited to, interconnection capabilities
5 for electric and gas facilities, and the siting criteria for the applicable area under
6 consideration. In October 2001, I was assigned the responsibility of Project
7 Manager responsible for the permitting, design and construction of the electric
8 and gas facility interconnections related specifically to the nominal 505 megawatt
9 (MW) cogeneration plant (BEDCO Power Plant) proposed by BEDCO in the City
10 of Rensselaer, Rensselaer County, New York.

11 **Q. Please identify any regulatory proceedings in which you have testified.**

12 A. I have testified as an expert witness before the New York State Public Service
13 Commission (NYSPSC) in regard to Fuel Adjustment rate case filing by Central
14 Hudson as it related to power purchase and power sales levels and costs,
15 generation costs and the average cost of fuel for supplying the corporate area load
16 of Central Hudson.

17 **Q. Would you briefly describe your responsibilities in regard to the instant**
18 **NMPC Article VII Application?**

19 A. As the Project Manager for BEDCO, I have been involved with the analysis and

Douglas A. Constant

1 selection of the proposed route for the Proposed Transmission Line, the
2 configuration for construction of the Proposed Transmission Line and alternatives
3 investigated. In addition, I am responsible for any general need of the Proposed
4 Transmission Line such as the environmental analysis and impact assessment
5 review and overall coordination of the permitting efforts related to both the
6 Proposed Transmission Line and gas transmission line for the BEDCO Power
7 Plant. I was involved with the preparation of Exhibit 3, *Alternatives* (Sections
8 3.3, 3.5.1 and 3.5.2), Exhibit 6, *Economic Effects of Proposed Facility*, and
9 Exhibit E-4, *Engineering Justification* of the Article VII Application. I have
10 worked closely with representatives of NMPC in connection with the Article VII
11 Application, as well as with representatives of Epsilon Associates, Inc. (Epsilon)

12 **Q. What is the purpose of your testimony?**

13 **A.** As the BEDCO representative with responsibility for the overall coordination,
14 preparation, selection and analysis associated with the preparation of the Article
15 VII Application for the Proposed Transmission Line, the purpose of my testimony
16 is to support NMPC's presentation in this case that the Proposed Transmission
17 Line is needed. My testimony will explain why the Proposed Transmission Line
18 is needed to deliver the electrical output from the BEDCO Power Plant to the grid
19 and its role in partially fulfilling the capacity needs of the NY-ISO. In addition,
20 my testimony will also provide information regarding the economic effects of the

Douglas A. Constant

1 Proposed Transmission Line.

2 **Q. Please describe how the Proposed Transmission Line will enable BEDCO to**
3 **deliver the output of the BEDCO Power Plant to the grid.**

4 **A.** The Proposed Transmission Line would connect the BEDCO Power Plant to
5 NMPC's existing 345 kV Reynolds Road substation in the adjoining Town of
6 North Greenbush, also in Rensselaer County. As described in Exhibit 3 to the
7 Article VII Application, based on evaluation of a number of factors (described in
8 testimony of other witnesses), the Reynolds Road substation has been determined
9 to be the preferred interconnection for the BEDCO Power Plant. Without the
10 Proposed Transmission Line, the BEDCO Power Plant would not be able to
11 deliver its output to the Reynolds Road substation, and the output would not be
12 available for further distribution from that location.

13 **Q. Please describe how the Proposed Transmission Line will aid in satisfying the**
14 **long-term capacity needs of the NY-ISO.**

15 **A.** The Proposed Transmission Line connects the BEDCO Power Plant to the bulk
16 power system at the Reynolds Road substation for delivery of its excess
17 generation to the NY-ISO. In March 2002, the NY-ISO issued a report entitled
18 "Power Alert II" which stated that there exists a need for 7,100 MW of additional
19 capacity in the State of New York by 2005. Of this total, approximately 2,000 to

Douglas A. Constant

1 3,000 MW need to be located in New York City and the remainder would be
2 located in other parts of the State. The NY-ISO states that in order to meet the
3 State's electric supply needs and prepare for the rebounding economy, approvals
4 for an additional 3,000 MW of new capacity are needed by the spring of 2002.
5 The BEDCO Power Plant is proposed to fulfill 505 MW of this desired capacity,
6 which is anticipated to be on-line prior to the peak load demands for the summer
7 of 2005.

8 **Q. Please describe the economic effects that the Proposed Transmission Line**
9 **will have in adjacent areas?**

10 **A.** The Proposed Transmission Line will not promote additional development in
11 areas adjacent to its location as it is designed to provide an electrical connection
12 from the proposed BEDCO Power Plant to NMPC's existing transmission system.
13 However, the Proposed Transmission Line is critical to the development of the
14 BEDCO Power Plant and Recycled Newsprint Manufacturing Plant (RNMP),
15 which will have a positive economic impact on the area. The BEDCO Power
16 Plant and RNMP will employ up to 274 full time employees and have a peak
17 construction work force in excess of 1,000 workers. This work force will be
18 drawn primarily from the Capital Region and within New York State. In addition,
19 construction of the Proposed Transmission Line will have a temporary positive
20 economic impact on the area through the creation of construction jobs for a 6 to 9

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Douglas A. Constant

1 month period. Construction work would involve approximately 30 workers. The
2 construction workforce will consist of linemen, electricians, general construction
3 workers, and members of other crafts and trades necessary to clear the existing
4 right-of-way (ROW). The workforce hired will include local craftsmen from the
5 Capital Region and individuals from outside of the region based on the skills of
6 workers required for the job. A secondary benefit to area businesses for
7 construction supplies or services for construction workers would also be expected
8 to a limited extent during construction. The operation of the Proposed
9 Transmission Line will not require any additional employees at NMPC so no
10 long-term employment impacts are expected.

11 In addition, the City of Rensselaer and the Town of East Greenbush and Town of
12 North Greenbush will receive a Payment In Lieu of Taxes (PILOT). These
13 payments will be distributed to each of these tax entities in the same proportion,
14 as any taxpayer would pay taxes. For the total project (including the BEDCO
15 Power Plant, RNMP, Proposed Transmission Line and the proposed gas
16 transmission line) it is estimated that approximately 53% of all PILOT payments
17 would go to the City of Rensselaer School system, approximately 31% would go
18 to the City of Rensselaer and approximately 16% to Rensselaer County and other
19 towns. Payments over a 20-year period will amount to almost \$60 million. The
20 cost of the Proposed Transmission Line is estimated at approximately \$10.8

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Douglas A. Constant

1 million and improvements to the Reynolds Road substation are estimated at \$4.1

2 million.

3 Q. Does this complete your testimony?

4 A. Yes it does.

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)
_____)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

LARRY ENG

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY OF
LARRY ENG

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Larry Eng

1 **Q. Please state your name and business address.**

2 A. My name is Larry Eng and my business address is 1125 Broadway, Albany, New
3 York 12204.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by Niagara Mohawk Power Corporation (NMPC) as a Consulting
6 Engineer.

7 **Q. Please state briefly your educational and business experience.**

8 A. I graduated from Cornell University with a Bachelor of Engineering (Electrical
9 Engineering) degree in 1972. I received a Masters of Engineering (Electric Power
10 Engineering) degree from Rensselaer Polytechnic Institute in 1973. I received a
11 Master of Business Administration degree from the State University at Albany in
12 1994. I joined NMPC in 1973 as a Junior Electric Studies Engineer in Albany. In
13 1975 I accepted a position as Associate Transmission Planning Engineer at the
14 New York Power Pool. I was subsequently promoted to Engineer, and then
15 Senior Engineer, and in 1985 to Supervisor of Transmission Planning. From 1991
16 to 2002, I held various positions within NMPC's Transmission Planning
17 Department. As of February 2003, I assumed my present title of Consulting
18 Engineer.

Larry Eng

1 **Q. Are you a licensed Professional Engineer in the State of New York?**

2 **A. Yes.**

3 **Q. Are you a member of any professional organizations?**

4 **A. Yes. I am a member of the Power Engineering Society of the Institute of**
5 **Electrical and Electronics Engineers. I am a member of the New York State**
6 **Reliability Council Executive Committee, New York State Independent Service**
7 **Operator Transmission Planning Advisory Subcommittee, and the Northeast**
8 **Power Coordinating Council (NPCC) Task Force on Coordination of Planning.**

9 **Q. Have you previously testified before the New York State Public Service**
10 **Commission (NYSPSC)?**

11 **A. Yes. I provided testimony concerning the engineering justification in the**
12 **following Article VII Applications for a Certificate of Environmental**
13 **Compatibility and Public Need:**

- 14 1. Case 70126, Power Authority of the State of New York, Application for the
15 Marcy-South 345 kV Transmission Facilities;
- 16 2. Case 91-T-1152, Selkirk Cogen Partners, L.P., Application for the 345 kV
17 Electric Transmission Line in the Town of Bethlehem, Albany County; and

Larry Eng

1 3. Case 92-T-0114, NMPC, Application for the Independence Station-Clay 345
2 kV Transmission Line Project.

3 I have also testified in the following NYSPSC cases:

4 1. Case Nos. 94-E-0098 and 94-E-0099, NMPC 1995 Rate Case, to present long-
5 term transmission and subtransmission capacity costs associated with load
6 growth and to identify electric losses.

7 2. Case Nos. 93-E-0912, Proceeding on Motion of the Commission to Review
8 Long-Run Avoided Cost Estimation Policies and Methods, and 93-E-1075,
9 Proceeding on Motion of the Commission to Establish a Process for Setting
10 the Fuel Targets and Buy-Back Rates of all Electric Utilities on an Annual
11 Basis, to address the manner in which line loss factors are applied in the
12 estimates for Long-Run Avoided Cost and Buy-Back rates. I also
13 recommended an alternate methodology for calculating the avoided line losses
14 associated with bulk power/economy energy transactions.

15 **Q. Would you briefly describe your responsibilities in regard to the instant**
16 **NMPC Article VII Application?**

17 **A. I was involved in the preparation of Exhibit 3, *Alternatives* (Sections 3.3 and 3.4)**
18 **of the Article VII Application. Section 3.3, *Voltage Considerations*, addresses**
19 **considerations of 115 kV, 230 kV, and 345 kV transmission voltages to connect**

Larry Eng

1 the Besicorp - Empire Development Company, LLC (BEDCO) cogeneration
2 power plant (BEDCO Power Plant) to the NMPC Reynolds Road substation.
3 Section 3.4, *Preferred Substation Interconnection*, presents an evaluation of the
4 potential substation interconnection options. In addition, as described in further
5 detail later in my testimony, I reviewed certain studies contained in the system
6 reliability impact study.

7 **Q. What is the purpose of your testimony in this proceeding?**

8 A. I have reviewed the technical thermal, voltage, stability, and short circuit studies
9 evaluating the electrical design of the 345 kV transmission line (Proposed
10 Transmission Line) required to interconnect the Besicorp-Empire Development
11 Company, LLC (BEDCO) cogeneration power plant (BEDCO Power Plant) to the
12 Reynolds Road substation. These studies are documented in the "Empire State
13 Newsprint Project System Reliability Impact Study, July 31, 2001" (Study)
14 performed by the Washington Group International. The Operating Committee of
15 the New York Independent System Operator (NY-ISO) approved the results of
16 this Study in November 2001. A copy of the executive summary of the Study is
17 provided in Exhibit __ (DAC/LE-1) of the Article VII Application.

18 **Q. What were the conclusions of that Study?**

19 A. A summary of the conclusions of that Study is as follows:

Larry Eng

- 1 1. The 345 kV interconnect into the NMPC Reynolds Road 345 kV substation
2 ensures that full output of the BEDCO Power Plant can be delivered to the
3 NY-ISO 345 kV system at summer peak load.

- 4 2. The BEDCO Power Plant when dispatched to South Eastern New York
5 (SENY) reduces both summer normal and emergency Central East transfer
6 capability by 475 Megawatts (MW) and decreases both the normal and
7 emergency Total East transfer capability by 775 MW. The Upstate New
8 York- South Eastern New York (UPNY-SENY) transfer capability is
9 minimally reduced by 25/50 MW normal/emergency and the UPNY-ConEd
10 transfer capability is actually increased by 75 MW normal and decreased by 25
11 MW emergency. The impact of the BEDCO Power Plant on the Inter-Area
12 transfer capabilities is less with New York-New England (NY-NE) increasing
13 by a range of 125 MW to 325 MW, NE-NY limits decreasing by a range of
14 150 to 275 MW, and New York- New Jersey, Maryland (NY-PJM) and PJM-
15 NY limits remain unchanged (25 MW increase in normal PJM-NY for the
16 Empire State Newsprint Project (ESNP) proposed by BEDCO (NYSPSC Case
17 No.00-F-2057) dispatched to PJM).

- 18 3. Addition of the BEDCO Power Plant does not have any adverse impact on the
19 transient stability response of the overall transmission system.

Larry Eng

1 4. The short circuit analysis shows that only one 115 kV circuit breaker at the
2 Reynolds Road substation is required to be replaced.

3 5. The BEDCO Power Plant will not adversely impact bulk power reliability
4 (assuming it is operated in accordance with NY-ISO operating procedures).

5 **Q. Did you perform system analysis of alternatives to the Proposed**
6 **Transmission Line?**

7 A. Yes. An analysis of the system impacts of alternative transmission
8 interconnections plans was performed and presented to BEDCO's consultants,
9 Epsilon Associates, Inc. (Epsilon) for further evaluation and consideration.
10 Epsilon will address the conceptual design of the Preferred Route in Mr. Stuart's
11 testimony.

12 **Q. Have you reviewed the conceptual design of the Preferred Route?**

13 A. Yes. The proposed conceptual design will be built according to NMPC's design
14 standard as modified and approved by the project Senior Engineer and will be
15 compliant with the New York State Reliability Council's "Reliability Rules For
16 Planning and Operating the New York State Power System", Northeast Power
17 Coordinating Council's "Basic Criteria for Design and Operation of
18 Interconnected Power Systems", and North American Electric Reliability
19 Council's "NERC Planning Standards".

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Larry Eng

1 Q. Does this conclude your testimony?

2 A. Yes.

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)
_____)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

JOHN W. GUARIGLIA

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION
DIRECT TESTIMONY OF
JOHN W. GUARIGLIA

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

John W. Guariglia

1 **Q. Please state your name and business address.**

2 A. My name is John W. Guariglia. I am a Project Manager for Environmental
3 Design & Research, P.C. (EDR), 238 West Division Street, City of Syracuse, New
4 York 13204.

5 **On whose behalf are you testifying?**

6 A. Niagara Mohawk Power Corporation (NMPC).

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

8 A. I received a Bachelor of Landscape Architecture from the State University of New
9 York, College of Environmental Science and Forestry in Syracuse, New York in
10 1994. I am a registered Landscape Architect in the State of New York. I have
11 over eight years of experience in project management, and landscape architecture
12 and design. My experience includes a wide variety of projects and successful
13 permitting efforts primarily in New York and Pennsylvania. I have principally
14 worked on landscape design projects and more recently visibility and visual
15 impact assessment. I have conducted viewshed mapping, computer-assisted
16 visual simulations, and impact evaluations for numerous projects that have been
17 reviewed by local and state agencies, including the New York State Public Service
18 Commission.

19 I provided support for the permitting effort for the Empire State Newsprint Project

John W. Guariglia

1 (ESNP) Article X proceeding with both my former and current employer,
2 including the creation of three-dimensional models and photo simulations. This
3 permitting support has continued for the visual impact analyses of monopole
4 structures associated with NMPC's Article VII Application for the 345 kV
5 transmission line (Proposed Transmission Line) from the Besicorp-Empire
6 Development Company, LLC (BEDCO) cogeneration power plant (BEDCO
7 Power Plant) to the NMPC Reynolds Road substation.

8 **Q. Please identify any regulatory proceedings in which you have testified.**

9 **A. None to date.**

10 **Q. Would you briefly describe your responsibilities in regard to the instant**
11 **NMPC Article VII Application?**

12 **A. As an employee of EDR, I am the Project Manager overseeing the visual impact**
13 **analysis associated with the Proposed Transmission Line monopole structures. I**
14 **was responsible for the preparation of the *Article VII Visual Impact Assessment,***
15 ***Proposed 345kV Electrical Transmission Line, City of Rensselaer, Town of North***
16 ***Greenbush and Town of East Greenbush, Rensselaer County, New York (VIA)***
17 **that is contained in Exhibit __ (JWG/MPC-1) to the Article VII Application.**

John W. Guariglia

1 Q. What is the purpose of your testimony?

2 A. As indicated above, I am responsible for the preparation of the VIA contained in
3 Exhibit __ (JWG/MPC-1). I will be testifying as to the methods used, analysis,
4 and visual impacts of the Proposed Transmission Line.

5 Q. Were the materials referenced above prepared by you or under your
6 supervision and control?

7 A. Yes, they were.

8 Q. Are there any revisions, updates, or corrections to those matters for which
9 you are responsible?

10 A. Not at this time.

11 Q. Please provide a brief overview of information contained in the Sections of
12 the Article VII Application for which you will be testifying, including any
13 relevant findings?

14 A. As described in Section 4.8 of the Article VII Application, EDR prepared an
15 analysis of the potential visibility and visual impact of the Proposed Transmission
16 Line. This analysis was prepared in accordance with the 16 NYCRR §§
17 86.5(2)(b)(i), (ii), and (8). A copy of the VIA is attached to the Article VII
18 Application as Exhibit __ (JWG/MPC-1).

19 The VIA identifies the viewshed in which the Proposed Transmission Line can be

John W. Guariglia

1 seen and sensitive receptors that may have views of the Proposed Transmission
2 Line. Visual simulations of the Proposed Transmission Line have been prepared
3 from representative locations to assess its potential visual impact. The VIA
4 concludes that the Proposed Transmission Line will, for the most part, not
5 significantly change the existing visual/aesthetic character of the area studied
6 based on the following:

- 7 1. The Proposed Transmission Line is compatible with the current use of the
8 right-of-way (ROW).
- 9 2. The effective screening provided by existing structures, vegetation and to a
10 lesser extent topography.
- 11 3. The distance and screening that exists between the Proposed Transmission
12 Line and most sensitive resources/viewer locations within the area studied.
- 13 4. The color of the proposed monopole structures, which tends to blend with the
14 sky under certain lighting conditions (and to a certain extent with background
15 vegetation), particularly in the midground views.

16 The VIA concludes that all these factors will make the Proposed Transmission
17 Line appear less dominant and noticeable within the landscape, and it will
18 therefore have a negligible effect on most existing views of the corridor.

John W. Guariglia

1 The only visually sensitive/significant resources located in the study area that
2 could have a view of the Proposed Transmission Line are the Hudson River,
3 Island Creek Park, and the winter berth of the USS Slater. However, any
4 available views from these sites will be significantly screened, distant, and/or
5 obscured by existing industrial clutter. Such views of the Proposed Transmission
6 Line will not impact the overall visually quality of the existing view.

7 Some residential dwellings close to the alignment, particularly those near Route
8 151, will have clear foreground views of the Proposed Transmission Line. These
9 residences are located adjacent to the Proposed Transmission Line alignment, and
10 will have prolonged exposure to one or more monopole structures. Where a
11 sensitive land use is adjacent to the preferred alignment, mitigation measures
12 should be explored to minimize any potential impacts.

13 **Q. Does this complete your testimony?**

14 **A. Yes, it does.**

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

JOEL I. KLEIN

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

JOEL I. KLEIN

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Joel I. Klein

1 **Q. Please state your name, position and business address.**

2 A. My name is Joel I. Klein. I am a Senior Project Manager in the Cultural
3 Resources Department of John Milner Associates, Inc. with an address of 1
4 Croton Point Avenue, Croton-on-Hudson, New York.

5 **Q. On whose behalf are you testifying?**

6 A. Niagara Mohawk Power Corporation (NMPC).

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

8 A. I received a B.S. in Anthropology from the City College of New York in 1970.
9 Subsequently I received both a M.S. and Ph.D in anthropology from New York
10 University in 1973 and 1981, respectively. I am a Registered Professional
11 Archaeologist and have over thirty years of experience in the fields of archaeology
12 and anthropology. My experience includes a wide variety of projects for a diverse
13 client base of governmental and private clients. I have designed and worked on
14 numerous Phase IA and Phase IB cultural resource and archeological surveys as
15 well as cultural resource impact evaluations.

16 **Q. Please identify any regulatory proceedings in which you have testified.**

17 A. I have provided expert testimony in connection with Article VII proceedings
18 associated with Public Service Electric and Gas's Cross Hudson Project, and the
19 New York Power Authority's Sound Cable Project; in connection with Article X

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Joel I. Klein

1 proceedings associated with the Athens Generating Project, and the Ramapo
2 Energy Project; and in connection with Article VII proceedings associated with
3 the Halfmoon Cogeneration Project. I have also provided expert testimony in
4 New Jersey in connection with regulatory proceedings associated with the
5 permitting of Jersey Central Power and Light's Redbank to Aberdeen 230 kV
6 Transmission Line Project, and in Florida in connection with the permitting of the
7 City of Tallahassee's Purdom 8 Repowering Project, and Florida Power and Light's
8 Martin Coal Gasification Combined Cycle Project.

9 **Q. Would you briefly describe your responsibilities in regard to the instant**
10 **NMPC Article VII Application?**

11 A. I provided support for the permitting effort for the Empire State Newsprint Project
12 (ESNP) Article X proceeding, including the archeological and architectural
13 surveys. This permitting support has continued with archeological and
14 architectural surveys carried out for the rights-of-way (ROWS) followed by the
15 345 kV transmission line (Proposed Transmission Line) from the Besicorp-
16 Empire Development Company, LLC (BEDCO) cogeneration power plant
17 (BEDCO Power Plant) to the NMPC Reynolds Road substation.

18 **Q. What is the purpose of your testimony?**

19 A. In association with Patrick J. Heaton, I was responsible for the *Phase 1 Cultural*

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Joel I. Klein

1 *Resources Survey, Empire State Newsprint Project, Electric Transmission Lines,*
2 *Towns of East and North Greenbush, Rensselaer County, New York.* This
3 document is included with the Article VII Application in Exhibit __ (JIK-1).

4 **Q. Were the materials referenced above prepared by you or under your**
5 **supervision and control?**

6 **A. Yes, they were.**

7 **Q. Are there any revisions, updates, or corrections to those matters for which**
8 **you are responsible?**

9 **A. Not at this time.**

10 **Q. Please provide a brief overview of information contained in the Sections of**
11 **the Article VII Application for which you will be testifying, including any**
12 **relevant findings?**

13 **A. Exhibit __ (JIK-1) in the Article VII Application consists of a Phase I Cultural**
14 **Resources Survey that describes the comprehensive cultural resources**
15 **investigation conducted for the Proposed Transmission Line alignment in**
16 **accordance with the New York Archaeological Council's Standards for Cultural**
17 **Resource Investigations. This survey was submitted to the New York State Office**
18 **of Parks, Recreation, and Historic Preservation (OPRHP) for their review and**
19 **comment. Two potentially significant archaeological deposits and a small mid-**

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Joel I. Klein

1 nineteenth century family plot cemetery were discovered during the investigation.
2 NMPC has modified the Proposed Transmission Line design to provide sufficient
3 distance from one of the archeological deposits and the cemetery to avoid
4 disturbance of these potentially sensitive areas. The second archeologically
5 sensitive area is the agricultural field in the Town of East Greenbush along
6 Segment 1 of the Proposed Transmission Line. A Phase II investigation should be
7 conducted to determine the archaeological significance of this area.

8 In addition, two properties listed in the OPRHP Building-Structure Inventory are
9 less than 500 feet from the Proposed Transmission Line alignment. An opinion
10 has been requested from the OPRHP as to the eligibility of these two properties
11 for the State Register of Historic Places.

12 Q. Does this complete your testimony?

13 A. Yes, it does.

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

DAVID W. PERFITT

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF
DAVID W. PERFITT

David W. Perfitt

1 **Q. Would you please state your name, employer and business address?**

2 A. My name is David W. Perfitt. I am employed by Niagara Mohawk Power
3 Corporation (NMPC), with a business address of 300 Erie Blvd. West, Syracuse,
4 NY 13202.

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

6 A. I am employed by NMPC in the Transmission Line Engineering and Project
7 Management Group as a Senior Engineer.

8 **Q. How long have you been employed by NMPC?**

9 A. I have been employed by NMPC since June 1983.

10 **Q. Would you please summarize your educational background?**

11 A. In 1983, I received a Bachelor of Science degree in Electrical Engineering from
12 Clarkson College. Before I attended Clarkson, I received an Associate Science
13 Degree in Engineering Science from Alfred College of Technology.

14 **Q. Would you briefly describe your professional experience?**

15 A. From June 1983 to September 1987 I was employed by NMPC as the Central
16 Region Transmission Engineer. From September 1987 to May of 2002 I was
17 employed as an Engineer in the System Transmission Design Engineering Group.
18 From May 2002 to the present I have been a Senior Engineer in the Transmission
19 Line Engineering and Project Management Group.

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

David W. Perfitt

1 My work assignments during my twenty years of employment at NMPC have
2 related exclusively to overhead transmission facilities, their design and
3 maintenance. Representative work assignments have included siting of new
4 transmission facilities for load growth and generator interconnections. I have also
5 participated in major projects involving the licensing and permitting of
6 transmission facilities, both for local governmental agencies and in connection
7 with Article VII Applications before the New York State Public Service
8 Commission (NYSPSC). My experience encompasses the management of various
9 NMPC construction projects, as well as special assignments to study groups and
10 committees related to transmission facilities.

11 I have supplemented my work experience at NMPC by attending engineering
12 professional development courses relative to transmission design, electric and
13 magnetic fields (EMF) and the National Electric Safety Code (NESC).

14 Additionally, my employment at NMPC includes regular attendance at corporate
15 training programs designed to assure familiarization with and understanding of
16 NMPC policies and guidelines in effect for environmental, safety and electric
17 operations.

David W. Perfitt

1 **Q. Would you briefly describe your involvement in the NMPC proposed 345 kV**
2 **transmission line (Proposed Transmission Line) and your past experience**
3 **with comparable projects while employed by NMPC?**

4 **A. I am the designated Lead Transmission Line Engineer for NMPC with respect to**
5 **the Proposed Transmission Line that is intended to connect the proposed**
6 **Besicorp-Empire Development Company, LLC (BEDCO) 505-Megawatt (MW)**
7 **cogeneration power plant (BEDCO Power Plant) with the NMPC Reynolds Road**
8 **substation. As such, I am responsible to insure that the Proposed Transmission**
9 **Line is designed in accordance with the NESC and applicable NMPC standards**
10 **and practices.**

11 **I have worked on similar transmission line projects greater than one mile**
12 **involving review of designs performed by a consultant including Kraft/Canton**
13 **Cogeneration, Sithe/Oneida Cogeneration, Energy Initiatives/Onondaga**
14 **Cogeneration and Sithe-Independence 345 kV Cogeneration. Additionally, I have**
15 **reviewed numerous other cogeneration ties of less than a mile and have had direct**
16 **design responsibility on over 200 miles of various transmission construction**
17 **projects. I have participated at various levels on previous Article VII applications**
18 **including Dennison – Colton 4&5, Adirondack 115 kV, Oneida – Cortland #3 and**
19 **the Sithe Independence Station-Clay, 345 kV facilities.**

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

David W. Perfitt

1 **Q. What is the purpose of your testimony?**

2 **A. The purpose of my testimony is to describe (1) NMPC's participation in the**
3 development of the design aspects of the Proposed Transmission Line that are
4 described in this Article VII Application, (2) the conformance of the proposed
5 design with the NESC and applicable NMPC standards and practices, and (3) the
6 involvement of NMPC in the Proposed Transmission Line route selection process.

7 **Q. Please describe your involvement in the relationship between NMPC and**
8 **BEDCO as it relates to the Proposed Transmission Line.**

9 **A. BEDCO has the responsibility for the preparation of the Article VII Application**
10 for submission by NMPC and for design and construction of the Proposed
11 Transmission Line. BEDCO has retained Epsilon Associates, Inc. (Epsilon), MSE
12 Power Systems, Inc. (MSE), and C.T. Male Associates (C.T. Male) to perform
13 design, construction, and environmental planning activities in connection with the
14 Proposed Transmission Line.

15 To facilitate these efforts, I have provided information to BEDCO on NMPC's
16 transmission line standards, practices and procedures. Further, I have coordinated
17 closely with Epsilon and MSE personnel and members of BEDCO's project team,
18 as have the members of the NMPC project team, in the transfer of information,
19 requirements, standards, and practices to develop the Article VII Application.

David W. Perfitt

1 Finally, I have reviewed pertinent portions of the Article VII Application, and will
2 be reviewing the detailed design and construction plans of the Proposed
3 Transmission Line for conformance with the Article VII Application, Article VII
4 Certificate, and NESC / NMPC standards, practices and procedures.

5 **Q. What exhibits or portions thereof, are you supporting?**

6 A. I have reviewed and verified the contents of Exhibit 5, *Design Drawings*, Exhibit
7 9, *Cost of Proposed Facility*, Exhibit E-1, *Description of Proposed Transmission*
8 *Line*, Exhibit E-5, *Effect on Communications* and am in agreement with the
9 contents of each of these exhibits.

10 **Q. Please give a brief description of the Proposed Transmission Line, which is**
11 **the subject of this Article VII Application.**

12 A. The Proposed Transmission Line may be divided into three major segments:

13 Segment 1 - Existing NMPC corridor double circuit construction with a temporary
14 relocation of existing transmission facilities.

15 Segment 2 - Existing NMPC corridor single circuit construction.

16 Segment 3 - Existing NMPC corridor single circuit construction.

17 Segment 1 exits the BEDCO Power Plant site to the south along an existing gas
18 and electric right-of-way (ROW). The existing electric transmission facility
19 (Greenbush #16 Circuit 115 kV) will be temporarily relocated to make room for a

David W. Perfitt

1 new double circuit facility. The double circuit facility will accommodate the
2 Proposed Transmission Line and the relocated existing electric facility within the
3 existing ROW. This segment continues to the south approximately 1.7 miles to
4 the closest existing available utility corridor that can be used to connect to the
5 delivery point, the existing Reynolds Road substation. This corridor is used to
6 make up the remaining portions described in Segments 2 and 3. Segments 2 and 3
7 of the Proposed Transmission Line are within an existing 250 foot and a 355 foot-
8 wide transmission corridor, respectively. The corridor has space available along
9 its north and westerly side for the installation of the Proposed Transmission Line.
10 BEDCO has proposed that the Proposed Transmission Line utilize this available
11 space. The proposed delivery location, Reynolds Road Substation, is
12 approximately 6.4 miles to the north and east of the intersection of Segments 1
13 and 2.

14 All three segments described above will have NMPC's standard double bundled
15 1192.5 kcmil Aluminum Conductor Steel Reinforced (ACSR) power conductor
16 used for each 345 kV phase of the Proposed Transmission Line.

David W. Perfitt

1 **Q. Please describe your involvement in the selection of the preferred route and**
2 **alternative routes for the Proposed Transmission Line?**

3 A. I worked closely with BEDCO, Epsilon, MSE and NMPC personnel in the
4 selection of the preferred and alternative routes for the Proposed Transmission
5 Line. Together with the NMPC team, I reviewed, critiqued, verified and
6 commented upon all aspects of the preferred and alternative routes for the
7 Proposed Transmission Line, and provided information and analysis related to the
8 various routes studied. Further, I was involved in the decision making which led
9 to selection of the preferred and alternative routes for the Proposed Transmission
10 Line.

11 **Q. In your professional opinion, does the design of this line meet NYSPSC**
12 **requirements for EMF?**

13 A. I have reviewed the EMF calculations made by MSE and contained in Exhibit 5 of
14 the Article VII Application and have found them to be done in accordance with
15 current policy. The design meets NYSPSC requirements.

16 **Q. In your professional opinion, does the Proposed Transmission Line**
17 **interconnection and associated facilities proposed by NMPC represent the**
18 **minimum adverse environmental impact, considering the state of available**
19 **technology and the nature and economics of the various alternatives and**

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

David W. Perfitt

1 **other pertinent considerations including but not limited to the effect on**
2 **agricultural lands, wetlands, parklands, and river corridors traversed?**

3 A. Yes.

4 Q. Does this conclude your direct testimony?

5 A. Yes.

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

CHARLES C. SHANK

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF

CHARLES C. SHANK

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

1 **Q. Please state your name and business address.**

2 A. My name is Charles Clarence Shank. My business address is 225 Greenfield
3 Parkway, Suite 203, Liverpool, NY 13088.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by E-Pro Engineering and Environmental Consulting. I am
6 employed as an Electrical Engineer assigned as a contractor to Niagara Mohawk
7 Power Corporation (NMPC). I am currently working in the NMPC Station
8 Electric Design Department New York (SEDNY) as a Project Engineer.

9 **Q. How long have you been working as a contractor to NMPC?**

10 A. I have been working as a contractor at NMPC since March of 2001. From March
11 of 2001 until July 2002, I worked in the Project Management Department as a
12 Project Manager. Since July 2002, I have worked in the SEDNY as a Project
13 Engineer.

14 **Q. What is your educational background?**

15 A. In 1988, I received a Bachelor of Science Degree in Electronic Engineering
16 Technology from the University of Dayton in Dayton, Ohio.

17 **Q. Please summarize your professional work experience.**

18 A. Since 1990, I have worked directly and indirectly for the electric power utility
19 industry throughout the world. From 1990 until 1993 I worked as a field engineer

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

1 for Rochester Instrument Systems in Rochester, New York. In this capacity I was
2 responsible for designing, constructing, installing and testing instrumentation
3 installed in substation and power generation facilities. Then from 1993 until 1997
4 I worked as the Director of Engineering for a company called Electronic
5 Instruments International in Ballston Spa, New York. In this respect I was
6 responsible for the design, installation and maintenance of digital fault recording
7 equipment throughout the world. From 1997 until 2000, I worked as a Consultant
8 for Power Technologies, Inc. in Schenectady, New York. In this capacity I
9 worked as a design and operation consultant to the power industry throughout the
10 world. In 2000 and 2001, I worked as a Senior Electrical Project Engineer for
11 HMT, Inc. in Cicero, New York. In this capacity, I was responsible for the
12 design, testing, installation and maintenance of electric power equipment for
13 various manufacturing industries. Since being employed by E-Pro Engineering
14 and Environmental Consulting in 2001, I have been working as a consultant to
15 NMPC. Initially I worked in the Project Management Department and I am
16 currently in the SEDNY.

17 **Q. Are you involved with any professional organizations?**

18 **A.** Yes. I have been a member of the Institute of Electrical and Electronic Engineers
19 (IEEE) since 1990. I have served on the Power System Relaying Committee and
20 the Standards Review Committee. I have co-authored three (3) IEEE standards

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

1 and revisions currently in use by the IEEE concerning substation communications
2 and testing procedures.

3 **Q. Have you been involved with comparable projects while employed by**
4 **NMPC?**

5 A. No, I have not. However, while at NMPC I have been responsible for project
6 management and design review for multiple station design projects including the
7 addition of a capacitor bank at Edic station, replacement of line relay packages at
8 Porter station and construction of the new Corning substation.

9 **Q. What is the purpose of your testimony?**

10 A. My testimony is to support the testimonies and exhibits of NMPC, Epsilon
11 Associates, Inc., MSE Power Systems, Inc., and C.T. Male Associates personnel
12 regarding the NMPC proposed 345 kV transmission line (Proposed Transmission
13 Line) that will interconnect with the Besicorp-Empire Development Company,
14 LLC (BEDCO) proposed cogeneration power plant (BEDCO Power Plant).
15 Further, I am the primary NMPC home office interface with regards to the station
16 design matters of this Article VII Application.

17 **Q. In general terms, would you explain your duties as they pertain to the**
18 **interface, design and construction of electric transmission substations?**

19 A. As a Project Engineer in the SEDNY Department, I am responsible for the design,

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

1 installation and testing of equipment that is installed at NMPC facilities. For each
2 of the projects that I am assigned, I have the responsibility to research and
3 determine what equipment is required, verify that the design work has been
4 performed to current NMPC standards, verify that all equipment specified meets
5 the prescribed design requirements and verify that the equipment is installed and
6 tested correctly.

7 **Q. Would you briefly describe your responsibilities in regard to the NMPC**
8 **Article VII Application?**

9 A. I am assigned as NMPC's station design engineer for the Reynolds Road
10 substation expansion associated with the Proposed Transmission Line. As such, I
11 am responsible for the substation design, construction and testing and the
12 coordination with the NMPC System Protection Department.

13 **Q. Please give a brief description of the work to be done at the Reynolds Road**
14 **and Greenbush substations associated with the Proposed Transmission Line.**

15 A. If the Proposed Transmission Line is approved by the New York State Public
16 Service Commission (NYSPSC), the following equipment would need to be
17 installed to allow the safe operation of the bulk power system:

- 18 ♦ Two (2) - 345 kV Circuit Breakers;
- 19 ♦ One (1) - 115 kV Circuit Breaker;

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

- 1 ♦ Three (3) - 345 kV Coupling Capacitor Voltage Transformers (CCVT);
- 2 ♦ Three (3) - new 345 kV Line Disconnect Switch sets, with Motor Operators;
- 3 ♦ One (1) - 345 kV Line Grounding Switch;
- 4 ♦ One (1) - 345 kV Line trap and Tuning Equipment;
- 5 ♦ Expansion of the existing Control House;
- 6 ♦ Relay and control panels for the new 345 kV equipment;
- 7 ♦ Digital Fault Recorder (DFR);
- 8 ♦ Fiber Optic Communication Equipment;
- 9 ♦ Required Structures and Foundations;
- 10 ♦ Yard Expansion (approximately 17,000 sq. ft.);
- 11 ♦ Fencing;
- 12 ♦ Grounding;
- 13 ♦ Duct Bank and Conduit; and
- 14 ♦ Miscellaneous Bus work/Conductor/Fittings.

15 **Q. Why would NMPC need to replace the R63 115 kV breaker at Reynolds**
16 **Road substation?**

17 **A. The short circuit study performed as part of the System Reliability Impact Study**

Charles Clarence Shank

1 (SRIS) determined that one 115 kV breaker (R63) at the Reynolds Road
2 Substation would be over-dutied as a result of the addition of the BEDCO Power
3 Plant and thus will need to be replaced.

4 **Q. Would you briefly describe the nexus between the Reynolds Road substation**
5 **and what is referred to in the Application General Exhibit 2, *Location of***
6 ***Facilities as the "Proposed Transmission Line"?***

7 **A.** The Reynolds Road substation would be the interconnection point for the power
8 generated at the BEDCO Power Plant and the NYS power grid. The Reynolds
9 Road substation configuration will allow power to be dispersed through the 115
10 kV and distribution lines at the station or transmitted to the NYS power grid via
11 the existing Reynolds Road – Alps 345 kV circuit.

12 **Q. Would you briefly describe the nexus between the Greenbush substation**
13 **expansion and what is referred to in the Application General Exhibit 3,**
14 ***Alternatives as the "Single Circuit 230 kV Option" alternative?***

15 **A.** The Greenbush substation would be used as a new termination point for the
16 existing Feura Bush – Reynolds Road # 17 115 kV Circuit if the 230 kV option
17 were selected. A new breaker position would be constructed in the existing
18 station and the appropriate relaying installed to terminate the line from the Feura
19 Bush station.

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

1 **Q. Would you briefly describe the work to be done at the Reynolds Road**
2 **substation assuming the NYSPSC adopts NMPC's Proposed Transmission**
3 **Line?**

4 A. In accordance with the currently used station design criteria, NMPC would design,
5 install and interconnect the Proposed Transmission Line with the NMPC bulk
6 power transmission system. At the Reynolds Road substation, NMPC would
7 design and install the take-off structures, switches, breakers, bus and associated
8 protection devices that will permit the correct and safe operation of the BEDCO
9 Power Plant and the transmission of power to NMPC's transmission system.

10 **Q. What Article VII Application exhibits, or portions thereof, are you**
11 **sponsoring?**

12 A. I am sponsoring portions of Exhibit 2, *Location of Facilities* concerning the
13 location of the Reynolds Road, Greenbush, Albany Steam, New Scotland and
14 other 115 kV substations in the area of the BEDCO Power Plant. I am also
15 sponsoring portions of Exhibit 3, *Alternatives* concerning the design of
16 substations for the various alternatives discussed and the costs associated with
17 each alternative. I am sponsoring the portion of Exhibit 9, *Cost of Proposed*
18 *Facility* concerning the estimated costs associated with the Reynolds Road
19 substation. Finally, I am sponsoring Exhibit E-2, *Other Facilities* concerning the
20 work that will be performed at the Reynolds Road substation.

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Charles Clarence Shank

1 **Q. In your professional opinion, does the work that is proposed at the Reynolds**
2 **Road substation, as it relates to the Proposed Transmission Line, represent**
3 **the minimum adverse environmental impact, considering the state of**
4 **available technology and the nature and economics of the various**
5 **alternatives and other pertinent considerations including, but not limited to,**
6 **the effect on agricultural lands, wetlands, parklands and rivers corridors**
7 **traversed?**

8 **A. Yes.**

9 **Q. Does this conclude your testimony?**

10 **A. Yes, it does.'**

STATE OF NEW YORK

DEPARTMENT OF PUBLIC SERVICE

PUBLIC SERVICE COMMISSION

In the Matter of the Article VII
Application

of

Niagara Mohawk Power Corporation)
_____)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

SCOTT D. SHUPE

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF
SCOTT D. SHUPE

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Scott D. Shupe

1 **Q. Please state your name and business address.**

2 A. My name is Scott D. Shupe. My business address is 300 Erie Blvd. West,
3 Syracuse, New York 13202.

4 **Q. By whom are you employed and in what capacity?**

5 A. I am employed by Niagara Mohawk Power Corporation (NMPC), in the
6 Environmental Department, Environmental Licensing, and Permitting Section.
7 My title is Environmental Permitting Specialist.

8 **Q. How long have you been employed by NMPC?**

9 A. I have been employed by NMPC since July of 1989.

10 **Q. What is your educational background?**

11 A. In 1972, I received a Bachelor of Science Degree in Forest Biology from the State
12 University of New York College of Environmental Science and Forestry with a
13 major in Aquatic Resources and a minor in Forest Engineering. In 1977, I
14 received a Master of Science Degree in Water Resources Management with
15 emphasis in hydrology and remote sensing from the same institution. In 1995, I
16 earned a Master of Science Degree in Engineering and Science Management from
17 the University of Alaska-Anchorage.

18 **Q. Please summarize your work experience.**

19 A. From July of 1976 to October of 1980, I was employed by Chas. T. Main, Inc. on

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Scott D. Shupe

1 three New York Power Authority (NYPA) transmission line construction projects
2 between Marcy, Massena, and Plattsburgh, New York and Quebec, Canada. I was
3 responsible for inspection, construction management, and claims administration
4 of all aspects of these 115 kV, 230 kV and 765 kV projects. From November,
5 1980 to August, 1986, I was employed by the U.S. Army Corps of Engineers
6 (USACOE) as a hydrologist in Alaska. I was a Planning Branch Project Manager
7 of teams performing reconnaissance through design-level investigations. Most of
8 these entailed small hydropower development, commercial fishing harbor
9 improvements, erosion protection, and Yukon and Kuskowim River navigation
10 improvement investigations and reports to the United States Congress. During
11 this tour of duty I also wrote the economic models for the Army's Light Infantry
12 off-base federal §801 housing programs at Fort Wainwright and Fort Drum. I
13 served as the Alaska District's Alternate Emergency Management Officer. I was
14 also part of the Department of Defense's initial Defense Environmental
15 Restoration Project to clean up hazardous waste and abandoned military material
16 across Alaska. In September, 1986 I rejoined C. T. Main (now Parsons
17 Engineering) as Contract Administrator and Office Engineer to help manage
18 construction of the NYPA Marcy-South 345kV Line and then the Long Island
19 Submarine Cable Crossing 345 kV Projects. In July, 1989 I was hired by NMPC,
20 Environmental Affairs Department, to facilitate NMPC's hydroelectric relicensing

Scott D. Shupe

1 effort before the Federal Energy Regulatory Commission (FERC). In that
2 capacity, I provided fisheries, hydraulic, hydrologic, wetlands, recreational,
3 aesthetic, cultural, public involvement, and economic guidance in the relicensing
4 negotiations. In 1993, I began my current, similar duties associated with
5 licensing, permitting, franchising, constructing, operating and maintaining major
6 gas and electric transmission facilities, statewide.

7 **Q. Have you been involved with comparable electric transmission facility**
8 **projects while employed by NMPC?**

9 **A.** Yes, I have. The Article VII process emulates in many ways the environmental
10 impact component of FERC hydroelectric relicensing projects which, in turn,
11 emulates the National Environmental Policy Act (NEPA) process. I was part of a
12 team responsible for 6 such licenses involving 33 hydroelectric project
13 developments. I was also assigned to close out New York State Public Service
14 Commission (NYSPSC) Article VII Cases 92-T-0114 (Independence-Clay 345
15 kV), 92-T-0252 (Pipeline 63), 92-T-0271 (Pipeline 64), and Case 92-T-0401
16 (Pipeline E-35). I began monitoring compliance with the Environmental
17 Management and Construction Standards and Practices Plan (EM&CS&P Plan)
18 beginning in late 1993. I also initiated and closed NYSPSC Case 97-G-1259
19 (Trenton Franchise) and NYSPSC Case 97-G-0865 (Hannibal Franchise). I am
20 currently part of the team facilitating Pipeline E-36 (NYSPSC 01-T-1160) to

Scott D. Shupe

1 construction phase.

2 **Q. What is the purpose of your testimony?**

3 A. My testimony is to support the testimonies and exhibits of NMPC personnel,
4 NMPC consultants, and consultants from Epsilon Associates, Inc. (Epsilon), MSE
5 Power Systems, Inc. (MSE) and C. T. Male Associates (C. T. Male), as they relate
6 to environmental practices, forestry and clearing, NMPC construction and
7 maintenance practices and the EM&CS&P Plan. I am the primary liaison with
8 regulatory and contractor entities regarding environmental and cultural matters of
9 this Article VII Application.

10 **Q. Would you briefly describe your responsibilities in regard to the instant**
11 **NMPC Article VII Application?**

12 A. I was involved in the preparation of Exhibit 3, *Alternatives* (Sections 3.4, 3.5, 3.6
13 and 3.7) of the Article VII Application. Section 3.4, *Preferred Substation*
14 *Interconnection*, presents an evaluation of the potential substation interconnection
15 options, and addresses environmental considerations, including stream and
16 wetland crossings. Section 3.5, *Alternative Connections to Reynolds Road*,
17 evaluated the underground and overhead routes, and also considered
18 environmental impacts. Section 3.6, *345 kV Structures, Monopole and H-frame*,
19 considered the environmental impacts of structure selection. Section 3.7, *Route*

Scott D. Shupe

1 *Variations*, also considered the environmental impacts, such as Spill Prevention
2 Control and Countermeasures, land use, construction, and contamination issues,
3 associated with route variations. In addition, I was extensively involved in the
4 preparation and review of Exhibit 4, *Environmental Impact*.

5 **Q. Please describe your involvement in the relationship between NMPC and**
6 **Epsilon as it relates to this project.**

7 A. Besicorp-Empire Development Company, LLC (BEDCO), the Recycled
8 Newsprint Manufacturing Plant (RNMP) and cogeneration plant (BEDCO Power
9 Plant) developer, was responsible for the preparation of the Article VII
10 Application to be filed by NMPC. Epsilon, MSE, and C. T. Male were
11 subcontracted to BEDCO for the field work and preparation of the Article VII
12 Application. I am responsible for guiding many substantive, administrative, and
13 contextual aspects of the Article VII Application and process including associated
14 permits/certifications. I provided commentary and guidance as siting studies and
15 natural resource inventories were conducted to ensure that the BEDCO
16 consultants adequately satisfied the NYSPSC requirements. I provided
17 information on NMPC's standards and practices to reflect a consistent NMPC
18 approach to the Article VII Application filing. This included consultation and
19 coordination with System Forestry, Transmission Engineering, Legal, and
20 Planning Departments. I reviewed the alternative routes and descriptions,

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Scott D. Shupe

1 potential construction and operational environmental cumulative impacts, and
2 provided background from past Article VII Application cases. I reviewed the
3 Epsilon documents prepared for the Article VII Application to ensure
4 conformance with governmental and NMPC standards and practices for this
5 filing. I will continue as environmental liaison between Epsilon/BEDCO, the
6 environmental governmental agencies, and NMPC personnel during coordination
7 of the EM&CS&P Plan and USACOE Permit activities, and through construction
8 restoration. Thereafter, I shall work with: (1) NMPC System Forestry to
9 communicate and implement essential elements of our right-of-way (ROW)
10 Vegetation Management Program, (2) Operations as needed to review
11 environmental matters relative to reliable operation and maintenance of the
12 NMPC proposed 345 kilovolt (kV) transmission line (Proposed Transmission
13 Line) facility in accordance with our Certificate(s); and, (3) Transmission
14 Engineering and Law to fulfill legal and regulatory obligations as the instant
15 Article VII Application is prosecuted.

16 **Q. What exhibits, or portions thereof, are you sponsoring or supporting?**

17 **A.** I am supporting Exhibit 4 *Environmental Impact* which contains a description of
18 the ROW and impacts of the Proposed Transmission Line addressed by NMPC's
19 environmental construction and maintenance practices. To assess these impacts I
20 have reviewed the other Article VII Application exhibits, to ensure that the intent

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Scott D. Shupe

1 and content of Exhibit 4 is sufficiently accurate, consistent, and complete such
2 that they collectively describe the Proposed Transmission Line and its anticipated
3 environmental effects, and satisfy the environmental impact regulations for an
4 Article VII Application.

5 **Q. In your professional opinion, does the Proposed Transmission Line represent**
6 **the minimum adverse environmental impact, considering the state of**
7 **available technology and the nature and economics of the various**
8 **alternatives and other pertinent considerations?**

9 **A. Yes.**

10 **Q. Does this conclude your testimony?**

11 **A. Yes, it does.**

STATE OF NEW YORK

DEPARTMENT OF PUBLIC SERVICE

PUBLIC SERVICE COMMISSION

In the Matter of the Article VII Application

of

Niagara Mohawk Power Corporation)

PSC CASE NO. _____
EMPIRE STATE NEWSPRINT PROJECT
345 kV TRANSMISSION LINE
FACILITY

DIRECT TESTIMONY OF

DANIEL J. STUART

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF
DANIEL J. STUART

Niagara Mohawk Power Corporation Article VII Application (Electric Facility)

Daniel J. Stuart

1 **Q. Please state your name, position and business address.**

2 A. My name is Daniel J. Stuart. I am a Senior Consultant at Epsilon Associates, Inc.
3 (Epsilon), with an address of 150 Main Street, Maynard, Massachusetts.

4 **Q. On whose behalf are you testifying?**

5 A. Niagara Mohawk Power Corporation (NMPC).

6 **Q. Please summarize your professional and educational background.**

7 A. I received a B.S. from Cornell University in Ithaca, New York in 1987. I have
8 over fifteen years of experience in the environmental field. My experience
9 includes a wide variety of disciplines, projects, and successful permitting efforts.
10 I have principally worked on alternative evaluations, environmental analysis,
11 licensing and permitting for energy, infrastructure, and urban development
12 projects in the Northeast and Midwest. I have completed Federal Energy
13 Regulatory Commission (FERC) resource reports and state level siting petitions
14 for an array of pipeline and transmission projects. I have also prepared
15 Environmental Impact Statements / Environmental Assessments (EIS/EAs) in
16 compliance with the National Environmental Policy Act (NEPA) and
17 Environmental Impact Reports (EIRs) in compliance with the Massachusetts
18 Environmental Policy Act (MEPA). I have participated in all stages of the
19 licensing process from initial site selection, technical analysis, public

Daniel J. Stuart

1 participation, agency hearings, and preparation of permit applications.

2 My NEPA experience includes submittals for FERC, the Federal Highway
3 Administration, and the U.S. Department of Justice. I have experience addressing
4 permit issues related to the Federal Clean Water Act and related state acts,
5 Endangered Species Act, National Pollution Discharge Elimination System
6 (NPDES) Permitting, the Marine Mammal Protection Act, and the Magnuson-
7 Stevens Fishery Conservation and Management Act.

8 From 1988 to 1999, I was employed by the HMM Associates which ultimately
9 became Earth Tech.

10 In 1999, I joined Epsilon as a Senior Consultant. In my current position, I
11 continue to focus on siting, environmental analysis, and permitting for a variety of
12 clients including those in the electric, gas and power utility industries. Over the
13 past 4+ years, I have been involved with environmental permitting and field study
14 efforts for the H160 transmission upgrade in Massachusetts proposed by National
15 Grid and the EIS for the Eastchester Pipeline Project proposed by Iroquois Gas
16 Transmission Company from Long Island, across Long Island Sound, and into the
17 Bronx, New York. I have also assisted Portland Natural Gas Transmission
18 System (PNGTS) as an expert in natural gas pipeline permitting and
19 environmental inspection in an arbitration matter. Currently, I am working on the

Daniel J. Stuart

1 proposed Besicorp-Empire Development Company, LLC (BEDCO) Empire State
2 Newsprint Project (ESNP) located in Rensselaer County, New York. This project
3 includes a Recycled Newsprint Manufacturing Plant (RNMP) and a nominal 505-
4 megawatt cogeneration project (BEDCO Power Plant). The NMPC proposed 345
5 kV electric transmission line (Proposed Transmission Line) that is the subject of
6 this Article VII proceeding and a 4.5-mile natural gas pipeline (NMPC E-37
7 Natural Gas Pipeline) are associated with the ESNP. My responsibilities include
8 coordination of all environmental and alternatives analysis, preparation of the
9 Article VII Application, providing testimony in support of several exhibits of the
10 Article VII Application, and preparation of an individual Section 404 Permit
11 Application for the Proposed Transmission Line for submittal to the Army Corps
12 of Engineers.

13 **Q. Please identify any regulatory proceedings in which you have testified.**

14 **A.** I have testified as an expert witness before the Massachusetts Energy Facilities
15 Siting Board for a 2.5-mile, 115 kV transmission line and new substation project
16 in Norwood, Massachusetts (Docket No. EFSB 96-2) and for a 1.3-mile, 115 kV
17 transmission line and new substation project in Milford and Hopkinton,
18 Massachusetts (Docket No. EFSB No. 96-1).

19

Daniel J. Stuart

1 **Q. Would you briefly describe your responsibilities in regard to the instant**
2 **NMPC Article VII Application?**

3 A. As the environmental consultant for BEDCO, the developer of the proposed
4 ESNP, I have been involved in the environmental analysis, route-selection
5 process, preparation of the environmental impact assessments, and preparation of
6 permit applications associated with the Proposed Transmission Line. NMPC is
7 the Applicant for the permit applications submitted for the construction,
8 operation, and maintenance of the Proposed Transmission Line.

9 **Q. What is the purpose of your testimony?**

10 A. I am responsible for managing Epsilon's effort to prepare the Article VII
11 Application for the Proposed Transmission Line. In conjunction with other
12 witnesses, I am responsible for testifying on Exhibit 2, *Location of Facilities*;
13 Exhibit 3, *Alternatives*, specifically Sections 3.1, 3.2, 3.3, 3.3.3; and 3.7, Exhibit
14 4, *Environmental Impact*, including Sections 4.1, 4.2 and 4.2.1 and the land use
15 assessment in Section 4.3; Exhibit 6, *Economic Effects of Proposed Facility*;
16 Exhibit 8, *Other Pending Filings*; and Exhibit __ (DJS-1), *Project*
17 *Correspondence.*

Daniel J. Stuart

1 **Q.** **Were the materials referenced above prepared by you or under your**
2 **supervision and control?**

3 **A:** Yes, they were.

4 **Q.** **Are there any revisions, updates, or corrections to those matters for which**
5 **you are responsible?**

6 **A.** Not at this time.

7 **Q.** **Please provide a brief overview of information contained in the Sections of**
8 **the Article VII Application for which you will be testifying, including any**
9 **relevant findings?**

10 **A** Exhibit 2 of the Article VII Application describes that NMPC is proposing to
11 construct the 345 kilovolt (kV) Proposed Transmission Line to transmit power
12 from the proposed BEDCO Power Plant in the City of Rensselaer, Rensselaer
13 County, New York. The Proposed Transmission Line would connect the 505
14 megawatt (MW) BEDCO Power Plant to NMPC's existing 345 kV Reynolds
15 Road substation in the adjoining Town of North Greenbush, also in Rensselaer
16 County. The BEDCO Power Plant that the Proposed Transmission Line will
17 serve is currently being reviewed under the State Environmental Quality Review
18 Act (SEQRA) and Article X of the New York Public Service Law (New York
19 State Department of Environmental Conservation Project No. 4-3814-0052 and

Daniel J. Stuart

1 Article X Case No. 00-F-2057). Exhibit 2, *Location of Facilities* addresses the
2 requirements of Part 86.3 of Title 16 of the New York Code of Rules and
3 Regulations and Article VII of the Public Service Law (§§ 121 and 122).

4 NMPC holds most necessary property rights for the Proposed Transmission Line
5 right-of-way (ROW) including fee interest, easements, and licenses, with the
6 exception of the southernmost point of the Proposed Transmission Line, where an
7 existing ROW will need to be expanded. The length of the Proposed
8 Transmission Line is estimated to be 8.1 miles and it consists of 3 segments.

9 Segment 1 starts at the BEDCO Power Plant and travels south along the existing
10 100-foot wide NMPC ROW, a distance of approximately 1.7 miles. This portion
11 of the ROW contains the existing Greenbush #16 Circuit 115 kV, for its entire
12 length. Segment 2 then follows an existing 250-foot wide ROW in a northeasterly
13 direction for approximately 2.3 miles, where additional circuits enter the existing
14 ROW. The corridor contains two existing sets of structures: the Feura Bush -
15 Reynolds Road #17 Circuit constructed for 230 kV and operated at 115 kV and
16 the Greenbush #16 Circuit 115 kV. Segment 3 will then continue approximately
17 4.1 miles in a northerly direction following an existing 355-foot wide NMPC
18 ROW, and terminate at the Reynolds Road substation. This ROW presently
19 contains four electric circuits and other conduits. Except for one location, the
20 Proposed Transmission Line will utilize an existing ROW for its entire length. At

Daniel J. Stuart

1 one location, the intersection of Segment 1 and Segment 2, expansion of the ROW
2 by approximately 10,000 square feet will be required to ensure safe operation of
3 the Proposed Transmission Line.

4 Exhibit 3, *Alternatives* of the Article VII Application addresses the requirements
5 of Part 86.4 of Title 16 of the New York Code of Rules and Regulations and
6 Article VII of the Public Service Law (§§ 121 and 122) by providing a detailed
7 description of the alternatives evaluation that was conducted for the Proposed
8 Transmission Line.

9 Exhibit 3, *Alternatives* addresses, among other things, the following items.

- 10 ♦ The “no-build” alternative - determined to not be a viable option.
- 11 ♦ A discussion of alternative transmission voltages (115 kV, 230 kV, 345kV) -
- 12 NMPC’s bulk electrical power transmission system in the Capital District and
13 across upstate New York currently includes 115 kV, 230 kV and 345 kV lines,
14 substations and related equipment. Accordingly, each of these voltages was
15 reviewed for use in connecting the BEDCO Power Plant to the bulk electrical
16 power transmission system. Under normal operating conditions, the BEDCO
17 Power Plant will produce 505 MW (nominal). Under certain conditions (low
18 ambient temperatures, duct firing), the BEDCO Power Plant can produce as
19 much as 670 MW. Although both 230 kV and 345 kV are feasible

Daniel J. Stuart

1 transmission voltages, the load from the BEDCO Power Plant can best be
2 transmitted by a 345 kV transmission system.

- 3 ♦ A discussion of alternative interconnection points (Reynolds Road substation,
4 New Scotland substation, Greenbush substation) - the results of an evaluation
5 of the preferred substation interconnect clearly demonstrate that a connection
6 to the Reynolds Road substation is the preferred approach.
- 7 ♦ Consideration of alternative routes, including those based on use of and/or
8 expansion of existing ROWs and underground routes.
- 9 ♦ Comparative advantages and disadvantages of alternatives considered in terms
10 of cost, potential environmental impacts and system reliability.
- 11 ♦ Alternative methods that would fulfill the energy requirements with
12 comparable costs.

13 Exhibit 4, *Environmental Impact* of the Article VII Application addresses the
14 requirements of Part 86.5 of Title 16 of the New York Code of Rules and
15 Regulations and Article VII of the Public Service Law (§§ 121 and 122) by
16 providing a detailed description of the Proposed Transmission Line's potential
17 environmental effects and specific studies conducted to evaluate potential effects.
18 Several environmental studies were conducted to characterize existing resources
19 and determine the potential impact of the Proposed Transmission Line. Studies
20 were conducted on:

Daniel J. Stuart

- 1 ♦ land use studies based on aerial photography (Year 2000 and 2002), site
- 2 review, and contact with land use planning agencies;
- 3 ♦ terrestrial habitat, wetland and stream studies based on federal and state permit
- 4 requirements;
- 5 ♦ historical and archaeological resource studies; and
- 6 ♦ visual resources.

7 As indicated in Exhibit 4, *Environmental Impacts* a final review of detailed
8 construction procedures will be completed as part of the development of a project
9 specific Environmental Management and Construction Standards and Practices
10 Plan (EM&CS&P Plan) that will be submitted to the New York State Public
11 Service Commission (NYSPSC) for review and approval prior to construction.

12 An important characteristic of the Proposed Transmission Line is that it
13 minimizes potential impacts by confining its preferred alignment almost entirely
14 within existing ROW. No change in land use will be required. Use of an existing
15 ROW avoids creating a new corridor in the area surrounding the Proposed
16 Transmission Line that can fragment existing land use. It also utilizes existing
17 disturbed areas within the ROW for much of the construction activities. Forest
18 clearing required for the construction and operation of the Proposed Transmission
19 Line will be minimized, as a majority of the area is presently a maintained ROW.
20 New roadway construction will be limited to short segments on the existing ROW

Daniel J. Stuart

1 to access specific monopole locations. The visual impact will be reduced by
2 paralleling an existing ROW, as the Proposed Transmission Line will be located
3 parallel to or replace existing pole structures. No substantive changes to physical
4 or biological processes of plant life or wildlife will result from temporary
5 construction impacts, nor will hydrology, soils, or topography be altered along the
6 existing ROW.

7 A general discussion of the construction process is provided in Section 4.2.1.
8 Construction of the Proposed Transmission Line would occur in five general
9 phases: ROW clearing and preparation, foundation construction, monopole
10 assembly, stringing wires, cleanup and restoration. Site-specific construction
11 techniques may be required at certain locations along the ROW based on existing
12 land use or environmental constraints. The detailed EM&CS&P Plan will identify
13 specific techniques for the entire alignment, and will be submitted to the NYSPSC
14 for review and approval prior to construction.

15 Exhibit 6, *Economic Effects of Proposed Facility* of the Article VII Application
16 addresses the requirements of Part 86.6 of Title 16 of the New York Code of
17 Rules and Regulations and Article VII of the Public Service Law (§§ 121 and
18 122). As explained in Exhibit 6, the Proposed Transmission Line will not
19 promote additional development in the area as it is designed to provide an

Daniel J. Stuart

1 electrical connection from the BEDCO Power Plant to NMPC's existing
2 transmission system. However, the Proposed Transmission Line is critical to the
3 development of the ESNP which will have a positive economic impact on the
4 area, and which are located within NMPC's service territory.

5 Exhibit 8, *Other Pending Filings*, identifies Federal and State agency applications
6 that concern the subject mater of this filing with the NYSPSC.

7 **Q. Does this complete your testimony?**

8 **A. Yes, it does.**

In the Matter of the Article VII Application

Niagara Mohawk Power Corporation)

DIRECT TESTIMONY OF

ON BEHALF OF

NIAGARA MOHAWK POWER CORPORATION

STATE OF NEW YORK
DEPARTMENT OF PUBLIC SERVICE
PUBLIC SERVICE COMMISSION

DIRECT TESTIMONY OF
JOHN VIEIRA

John Vieira

1 Q. Please state your name, position and business address.

2 A. My name is John Vieira. I am a Senior Scientist at Epsilon Associates, Inc., with
3 an address of 150 Main Street, Maynard, Massachusetts.

4 Q. On whose behalf are you testifying?

5 A. Niagara Mohawk Power Corporation (NMPC).

6 Q. Please summarize your professional and educational background.

7 A. I received a B.S. from the University of Massachusetts in North Dartmouth,
8 Massachusetts in 1976. I have also completed 6 semesters of graduate studies in
9 wildlife management at the University of Massachusetts in Amherst,
10 Massachusetts. I am a Certified Wetland Scientist in New Hampshire and have
11 been designated a Professional Wetland Scientist by the Society of Wetland
12 Scientists. I have 22 years experience as a biologist, environmental scientist, and
13 consultant. My technical work has focused on wetlands and aquatic ecosystems,
14 vernal pools and rare and endangered species. The majority of my consulting
15 experience has been in siting, environmental analysis, permitting, mitigation, and
16 environmental inspection for electric, gas and power utility clients. From 1981 to
17 1986, the U.S. Army Corps of Engineers, New England District (USACOE),
18 employed me. My primary responsibilities as a biologist with the USACOE
19 included design and implementation of water quality, fisheries, and wildlife

John Vieira

1 related field studies on federal flood control facilities in New England. Between
2 1987 and 1991, I attended graduate school at the University of Massachusetts in
3 Amherst. While attending graduate school, I also worked as a consultant with
4 several environmental consulting firms. These included Associated
5 Environmental Scientists (1987-1989), New England Environmental (1989-
6 1990), and Environmental Compliance Services (1990-1991). While working
7 with these firms as a wetland scientist, I was responsible for wetland-related
8 permitting and wetland mitigation compliance for a variety of residential,
9 commercial, and industrial power clients. As part of this work, I completed
10 numerous wetland and wildlife field studies.

11 From 1991 to 1998, I was a senior wetland scientist with HMM Associates which
12 ultimately became Earth Tech. In this capacity, I was responsible for designing
13 and implementing wetland field studies and related environmental permitting for
14 projects throughout the Northeastern United States. The vast majority of this
15 work was completed for electric transmission and gas pipeline clients. In
16 Massachusetts, I have worked on electric transmission and distribution projects
17 for clients that include Boston Edison Company and Massachusetts Electric. For
18 Boston Edison Company I served as project manager for two of their projects.
19 One project included the replacement of existing transmission line structures
20 within a major public drinking water supply reservoir. The other included the

John Vieira

1 siting and permitting of a new transmission station facility and underground
2 transmission line. Work that I completed for Massachusetts Electric included the
3 development of permit applications for the state and local wetland permitting of
4 10 miles of new underground transmission lines in three towns in the
5 Massachusetts Berkshires. For that project I also delineated wetland resource
6 areas and provided technical input related to construction related issues. My most
7 significant pipeline experience was obtained while working on natural gas
8 transmission projects for Algonquin Gas Transmission Company (AGT) and
9 Maritimes & Northeast Pipeline (M&N). While working for these clients I was
10 responsible for siting, development of Federal, state and local environmental
11 permit applications and Federal Energy Regulatory Commission (FERC) -
12 mandated environmental inspections. Part of my experience with AGT included
13 long-term, on-site environmental inspections during construction for eight (8)
14 natural gas pipeline projects to insure compliance with FERC, USACOE (Section
15 404), Water Quality Certification (Section 401), U.S. Environmental Protection
16 Agency National Pollution Discharge Elimination System and state and local
17 wetland permits. For M&N, I was responsible for coordinating and implementing
18 wetland delineation and rare species survey efforts for a 350+ mile natural gas
19 pipeline project in Maine. During 1998, Hancock Environmental Consultants
20 employed me, where I was responsible for marketing and managing the firm's

John Vieira

1 environmental services. While at Hancock, I also completed a detailed wildlife
2 habitat evaluation and impact analysis for the Athens Power Project located in
3 Athens, New York.

4 In 1998, I joined Epsilon Associates as a Senior Scientist. In my current position,
5 I continue to focus on siting, environmental analysis, permitting, mitigation, and
6 environmental inspection for a variety of clients including those in the electric,
7 gas and power utility industries. Over the past 4+ years, I have been involved
8 with environmental permitting and field study efforts for the 270 MW Brockton
9 Power project, the 750 MW Constellation Nickel Hill project and a Granite State
10 Gas pipeline relocation project in Maine. I have also assisted Portland Natural
11 Gas Transmission System (PNGTS) as an expert in natural gas pipeline permitting
12 and environmental inspection in an arbitration matter with one of their pipeline
13 contractors.

14 Currently, I am working on the Besicorp-Empire Development Company, LLC
15 (BEDCO) proposed Empire State Newsprint Project (ESNP) located in Rensselaer
16 County, New York. This project includes a Recycled Newsprint Manufacturing
17 Plant (RNMP), a nominal 505-megawatt cogeneration plant (BEDCO Power
18 Plant), the NMPC proposed 345 kV electric transmission line (Proposed
19 Transmission Line) and the proposed NMPC natural gas pipeline (NMPC E-37

John Vieira

1 Natural Gas Pipeline). My responsibilities include coordination and
2 implementation of wetland related field studies, the development of federal
3 wetland permit applications (Section 404) and sections in the New York State
4 Public Service Commission (NYSPSC) Article VII Applications related to
5 vegetation and wildlife, streams, wetlands and floodplains, soils and geology for
6 the Proposed Transmission Line.

7 **Q. Please identify any regulatory proceedings in which you have testified.**

8 A. I have testified as an expert witness in the Massachusetts Department of
9 Environmental Protection's Administrative Appeal process. My testimony
10 occurred in 1999 and 2000 and was part of "In the Matter of Donald Kline"
11 (Docket Nos. 99-021, 99-021, 99-022, 99-023, 99-024, 99-025, and 99-026). I
12 have also provided testimony in a proposed natural gas pipeline project for
13 Keyspan Energy Delivery before the Massachusetts Energy Facilities Siting Board
14 (Case No. EFSB-02-01). I have also made presentations at numerous public
15 hearings related to wetland and environmental permitting processes.

16 **Q. Would you briefly describe your responsibilities in regard to the instant**
17 **NMPC Article VII Application?**

18 A. As the environmental consultant for BEDCO, the developer of the proposed
19 ESNP, I have been involved in the environmental analysis, route selection

John Vieira

1 process, preparation of the environmental impact assessments, and preparation of
2 permit applications associated with the Proposed Transmission Line. NMPC is
3 permitting and will operate and maintain the Proposed Transmission Line.

4 **Q. What is the purpose of your testimony?**

5 A. In conjunction with other witnesses, I am responsible for the following sections of
6 the Article VII Application filed on behalf of NMPC: Exhibit 4, *Environmental*
7 *Impact*, Section 4.4, *Terrestrial Resources* including Section 4.4.1, *Vegetation*
8 *and Wildlife* and Section 4.4.2 *Threatened and Endangered Species; Streams,*
9 *Wetlands and Floodplains* in Sections 4.5.1, 4.5.2 and 4.5.3, respectively; Section
10 4.6.1, *Soils* and Section 4.6.2, *Geology*.

11 **Q. Were the materials referenced above prepared by you or under your**
12 **supervision and control?**

13 A. Yes, they were.

14 **Q. Are there any revisions, updates, or corrections to those matters for which**
15 **you are responsible?**

16 A. Not at this time.

17

John Vieira

1 **Q. Please provide a brief overview of information contained in the Sections of**
2 **the Article VII Application for which you will be testifying, including any**
3 **relevant findings?**

4 **A. Section 4.4.1 of the Article VII Application describes the environmental setting of**
5 **the Proposed Transmission Line including existing terrestrial community types,**
6 **unique, sensitive, or protected habitats, and impacts and mitigation. As explained**
7 **in Section 4.4.1 of the Article VII Application, most work in connection with the**
8 **Proposed Transmission Line will occur within the confines of an existing right-of-**
9 **way (ROW), with its resources managed for three decades in accordance with**
10 **NYSPSC ROW plans under 16 NYCRR Part 84, meaning there will be little**
11 **permanent change to vegetation and wildlife from existing conditions.**

12 Section 4.4.2 of the Article VII Application addresses threatened and endangered
13 species. As explained in the Application, the New York Natural Heritage
14 Program (NYNHP) was contacted with a request for information on the subject.
15 In response, the NYNHP mentioned two state-listed threatened or endangered
16 species: the least bittern (*Ixobrychus exilis*), last observed in 1983, and the
17 southern wood violet, last observed historically in 1910 (*Viola hirsutula*). There
18 were no federally listed threatened or endangered species identified. Several steps
19 are described that can be taken to avoid and/or mitigate the potential impacts to
20 these threatened and endangered species, if they are found to exist. In addition,

John Vieira

1 the Environmental Management and Construction Standards and Practices
2 (EM&CS&P) Plan to be prepared for the Proposed Transmission Line will detail
3 measures that will be implemented during construction to avoid or minimize
4 impacts.

5 Section 4.5, *Hydrology* of the Article VII Application identifies streams (Section
6 4.5.1), wetlands (Section 4.5.2) and project floodplains (Section 4.5.3) in the
7 vicinity of the Proposed Transmission Line, and describes measures that will be
8 used to avoid and/or mitigate impacts to these resources (Section 4.5.4).

9 Section 4.6.1 of the Article VII Application describes the soil encountered by the
10 Proposed Transmission Line. Section 4.6.2 describes the geologic conditions,
11 including topography, surficial geology, and bedrock geology, in the area of the
12 Proposed Transmission Line. Section 4.6.3 describes many of the mitigation
13 measures that will be implemented to minimize potential impacts top the
14 environment. It is also noted that additional measures will be identified and
15 designed development of the EM&CS&P Plan.

16 **Q. Does this complete your testimony?**

17 **A. Yes, it does.**



BOND, SCHOENECK & KING, PLLC
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November 6, 2003

VIA FEDEX OVERNIGHT

Paul Agresta, Esq.
Office of General Counsel
New York State Department of Public Service
Three Empire State Plaza
17th Floor
Albany, NY 12223-1350

RECEIVED

NOV - 7 2003

Office of Hearings and
Alternative Dispute Resolution

Re: *Case 03-T-0644; System Reliability Impact Study*

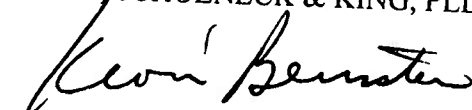
Dear Paul:

At the Evidentiary Hearing on October 31, 2003, you requested that Besicorp-Empire Development Company, LLC provide a complete copy of the System Reliability Impact Study ("SRIS") including all data on compact disc. In response, please find enclosed the SRIS on seven (7) compact discs ("CDs") together with a contents sheet. A copy of these CDs are also being provided to Judge Bouteiller for inclusion in the Record as part of what has already been marked as Exhibit 20.

Should anyone else on the Active Party List desire a copy of the seven-CD SRIS, please contact the undersigned.

Sincerely,

BOND, SCHOENECK & KING, PLLC


Kevin M. Bernstein

/ajh
Enclosures

cc: Robert R. Tyson, Esq.
Active Party List (w/o enc.)
Hon. William Bouteiller (w/enc via FedEx overnight)

One Lincoln Center, Syracuse, NY 13202-1355 ■ Phone: 315-218-8000 ■ Fax: 315-218-8100 ■ www.bsk.com

Empire State Newsprint Project (ESNP)
Article X Application
Stipulation No. 6
System Reliability Impact Study (SRIS) - Additional Computer Data

CONTENTS SHEET

The enclosed set of seven (7) CD ROMs represents the computer input data and output cases used in performing the System Reliability Impact Study (SRIS) for the subject project. The contents of each CD ROM are identified below to aid in correlating the files to the SRIS Report text, tables and figures:

File Nomenclature: As described in the SRIS Report, each scenario analyzed is identified by a Case No.. All input and output (.SAV) files on the CDs contain the name of the Case No. they represent. The first level identifier is a number, e.g., CS1, CS2, CS3, and CS4, representing the generation dispatch scenario modeled. (for Case 2 the additional identifier "80_20" indicates the ESNP plant dispatched to SENY, 80% to New York City and 20% to Long Island, as discussed in the report). The dispatch case nos. are described fully in the SRIS Report. The second level identifier is a letter, e.g., A, B, C, D, E, and F, each corresponding to the loss of (L/O) a particular line (i.e., contingency cases). The corresponding line outages analyzed are described in the SRIS Report. If there is no letter identifier then it is the Base Case (no line outages) for that dispatch scenario. The word LOAD in the title indicates it is one of the selected cases run without (W/O) the Besicorp generating plant but with the 66MW Newsprint Manufacturing Plant load connected to the transmission system as a bulk load (refer to SRIS Report Appendix G). SUM in the title indicates a Summer Peak Case. The SUM may be in the folder name rather than the individual file name indicating that all files in the folder are Summer Peak Load Cases. Similarly, WIN indicates Winter Peak Load. Each file also contains a more descriptive title that can be read at the beginning of the file when it is opened using the PSSE computer program. (.drw) files are drawing files used to produce the load flow output plots on system one-line diagrams contained in the SRIS Report appendices. Two types are needed: BESI (with the Besicorp Plant connected) and NO BESI (without the Besicorp Plant connected).

CD NO. 1

FOLDER: EMF_SUM

Files: Following are five of the files in this folder listed here to illustrate the use of the nomenclature described above -

CS1_LOAD.SAV - TITLE: CASE1. W/O BESICORP. HERITAGE, RAMAPO, BOW, ATHENS, BETH ON.WITH ESNP 66 MW LOAD. L/O ALBANY-KRUMKILL

CS1-A.SAV - TITLE: CASE1. W/O BESICORP. L/O GREENBUSH-REYNOLDS RD 2006 SUMMER PEAK LOAD

CS1A_LOAD.SAV - TITLE: CASE1. W/O BESICORP. HERITAGE, RAMAPO, BOW, ATHENS, BETH ON.WITH ESNP 66 MW LOAD. L/O GREENBUSH-REYNOLDS

Empire State Newsprint Project (ESNP)
Article X Application
Stipulation No. 6
System Reliability Impact Study (SRIS) - Additional Computer Data

CASE2-A.SAV - TITLE: CASE2_80_20. WITH BESICORP, L/O GREENBUSH-REYNOLDS RD 2006 SUMMER PEAK LOAD

CASE2-B.SAV - TITLE: CASE2_80_20. WITH BESICORP, L/O GREENBUSH-SCHODACK E 2006 SUMMER PEAK LOAD

FOLDER: ELF_WIN

Same file nomenclature applies as above, for Winter Peak Load. fercwp06.sav is the FERC Winter Peak Case model for 2006 as received from NYISO for use in the study.

CD NO. 2

FOLDER: INPUT_DATA

Subfolder: ELF_SUM - contains similar input data as CD No. 1 with a minor change in the bus numbering of AL bus for the four Base Cases. Also contains the FERC cases and supplemental files created by NYISO to update the FERC cases where it was deemed necessary (.idv files).

Subfolder: ELF_WIN - contains the FERC winter base cases (.raw format and .sav format) and associated (.idv) files.

Subfolder: STAB - contains the PSSE dynamics input files used to create the stability base cases contained in the SRIS Report.

Subfolder: TRANSF-LIMIT_SUM - contains the various instruction files used to perform the transfer limits analysis (Summer Peak Load) contained in the SRIS Report.

Subfolder: TRANSF-LIMIT_SUM - same as above, for Winter Peak Load.

FOLDER: STAB_SUM - contains the PSSE files used to perform the Summer Peak Load stability analysis (case set-up and execution files). Also contains the output data files and plot files (Transient Stability System Response Plots). Printouts of the output plot files are also included in the SRIS Report, Appendix F.

CD NO. 3

FOLDER: TRANSFER-LIMIT_SUM - Contains the PSSE TLTG Activity input (.dfx) and output (.out) files used to perform the Summer Peak Load Normal and Emergency transfer limits analyses. All of the TLTG Activity output files were printed and included in the SRIS Report, Appendix C.

Empire State Newsprint Project (ESNP)

Article X Application

Stipulation No. 6

System Reliability Impact Study (SRIS) - Additional Computer Data

CD NO. 4

FOLDER: STAB_SUM2 - this is a continuation of the stability analysis files from CD No. 2, Folder STAB_SUM and contains the input and output files used in the analysis of stability-constrained transfer limits as discussed in the SRIS Report.

FOLDER: TRANSFER-LIMIT_SUM2 - contains additional Summer Peak Load TLTG transfer limits analyses input and output files, similar to CD No. 3, Folder TRANSFER-LIMIT_SUM, for the New York - New England interface.

FOLDER: TRANSFER-LIMIT_WIN2 - same as above, for Winter Peak Load transfer limits analyses.

CD NO. 5

FOLDER: TRANSFER-LIMIT_WIN - Contains the PSSE TLTG Activity output (.out) files used to perform the Winter Peak Load Normal and Emergency transfer limits analyses. All of the TLTG Activity output files were printed and included in the SRIS Report, Appendix C.

CD NO. 6

FOLDER: TRANSFER-LIMIT_WIN3 - Contains the PSSE TLTG Activity input (.dfx) files used to perform the Winter Peak Load Normal and Emergency transfer limits analyses.

CD NO. 7

FOLDER: BESI_ISO_NE_STAB - Contains the input and output files for the cases requested by ISO NE subsequent to the SRIS Report. These cases were included in the previously submitted report, Transient Stability Tests For the Empire State Newsprint Project (ESNP) Per Request by ISO-NE, dated December 2001.