

**STATE OF NEW YORK  
PUBLIC SERVICE COMMISSION**

**CASE 06-T-0650 - Application of New York Regional Interconnect, Inc. for a Certificate of Environmental Compatibility and Public Need pursuant to Article VII for a high voltage direct current electric transmission line running between National Grid's Edic Substation in the Town of Marcy, and Central Hudson Gas & Electric's Rock Tavern Substation located in the Town of New Windsor.**

**DIRECT TESTIMONY  
OF WITNESSES FOR  
THE POWER AUTHORITY OF THE STATE OF NEW YORK**

January 9, 2009

Submitted By: Power Authority of the State of New York

Submitted To: Michelle L. Phillips, Administrative Law Judge;  
Jeffrey E. Stockholm, Administrative Law Judge; and  
Service List

### **List of Witnesses**

1. Mark D. O'Connor
2. Kevin J. McGrath
3. Andrew Cline
4. Thomas J. McDermott
5. Robert S. Burton

**PSC ARTICLE VII  
APPLICATION OF NEW YORK REGIONAL INTERCONNECT, INC.**

**DIRECT TESTIMONY OF**

**MARK D. O'CONNOR**

**Q. Please state your full name, affiliation, and your title.**

A. My name is Mark D. O'Connor. I am Director of Real Estate for the Power Authority of the State of New York.

**Q. What is the Power Authority of the State of New York?**

A. The Power Authority is a body corporate and politic, a political subdivision of the state, exercising governmental and public powers. The Power Authority was created in 1931 through the enactment of the Power Authority Act (Chapter 772, Laws of 1931).

**Q. Please describe your education.**

A. I attended Arizona State University from 1977 to 1981. I graduated with a Bachelor of Arts degree. I graduated from the Albany Law School in 1985. In 1994, I graduated from the Pace University School of Law with a Masters of Law in Environmental Law.

**Q. Describe your professional experience.**

A. I have been with the Power Authority since 1992 and have been its Director of Real Estate since 1995. Prior to 1992, I was an associate attorney in the private practice of law.

**Q. Are you familiar with the Power Authority's Marcy-South transmission line?**

A. Yes, I am familiar with the Power Authority's Marcy South Line

**Q. What is the Marcy South Line?**

A. The Power Authority's Marcy South was licensed by the New York State Public Service Commission by order dated January 30, 1985. The Marcy South Line is a 345 kV transmission facility that originates in Marcy, near Utica, and terminates in East Fishkill in Dutchess County. It includes double circuit, single circuit, overhead, and underground configurations, with varying widths of right-of-way. The Marcy South Line crosses over private land, state property under New York State Department of Environmental Conservation's jurisdiction, and crosses in the riverbed of the Hudson River, which is under the Office of General Services' jurisdiction.

**Q. Do you know how the Power Authority acquired the land rights to build Marcy South?**

A. From 1985 through 1987, the People of the State of New York, through the New York State Commissioner of Transportation, on behalf of the Power Authority, acquired, by appropriation, the majority of permanent easement rights to the approximately 2,100 parcels for the Power Authority's Marcy South Line

**Q. Are there any restrictions in the Power Authority's permanent easements acquired by appropriation for the Marcy South Line?**

A. These easements contain restrictions and limitations on the use of the land and prohibit interference with the use and exercise of the Authority's permanent easements. No building or other structure may be erected or maintained on the land without the written consent of the Power Authority. Attached as Exhibit "A" is copy of a representative permanent easement on the Marcy South Line.

**Q. Are there any rights reserved to the landowner in the Power Authority permanent easements?**

A. In general, the landowner may construct and maintain a set of electric, telephone, water, gas, sewer lines. Additionally, the landowner has the right of ingress and egress. See, Exhibit "A".

**Q. Is there a procedure for obtaining the Power Authority's permission to conduct activities on the Power Authority's permanent easements on the Marcy South Line?**

A. The Power Authority Trustees adopted a permitting process in 1979 and amended it in 1987. In general, a landowner upon whose property the Power Authority has a permanent easement would submit an application to the Power Authority. As set forth in the Marcy South permanent easement language, the Power Authority does not grant permits under circumstances in which the activities of the permittee might interfere with Power Authority operations or prevent the Power Authority from the complete enjoyment of its easement.

All permits include provisions for cancellation or termination; removal of facilities; relocation of facilities; and insurance and indemnification.

**Q. Please explain the Power Authority's permit review process.**

A. Generally, the underlying fee owner or its agent will fill out an application, on a Power Authority form, for a permit and submit it to the Power Authority. If the application is for a permissible use, the Power Authority internally circulates a proposed permit to Power Authority staff. The proposed permit must be reviewed and approved by the Power authority's environmental, engineering, insurance, legal and transmission departments. If each of those Power Authority departments approves the proposed permit and determines

that the activity that is the subject of the proposed permit will not interfere or potentially interfere with the Authority's transmission facilities and activities, a permit may be issued. However, all Power Authority permits have provisions providing for revocation of the permit and termination of the use or activity upon Power Authority notice to the permittee. In addition, the Power Authority maintains the right to demand removal or relocation of any permittee structure.

**Q. Does the Power Authority issue permits to third parties?**

A. The Power Authority's permanent easements are appropriated by the People of New York State, under Section 30 of the Highway Law as made applicable by Article 5, Title 1 of the Public Authorities Law and the Eminent Domain Procedure Law, based upon the Power Authority's certification that the permanent easement is necessary for the construction and operation of the Power Authority's electric transmission line or lines. The majority of the permits issued by the Power Authority are to the landowners and their agents, and, in some circumstances, to third parties. The Power Authority would only issue a permit to a third party where the third party has received sufficient additional real estate rights from the underlying fee owner.

On the Marcy South Line, the Power Authority has issued approximately forty-six (46) permits.

Typically, however, the Power Authority would not grant any permit or permission to conduct activities on its permanent easement that the Power Authority determined would or potentially could adversely impact the Power Authority's present facilities and operations or future development options on the Marcy South Line right-of-way.

**Q. What conditions have been imposed in these permits?**

A. The standard language in the "Permit Requiring Insurance" imposes conditions, such as "Relocation of Facilities", which requires the permittee to relocate its constructed facilities if those facilities interfere or become inconsistent with the Power Authority's use, operation and the maintenance of the transmission line; and "Removal of Facilities", which requires the permittee to remove the constructed or installed facilities if the permittee ceases operation of its facilities. Additionally, a Power Authority permit often includes "Special Conditions" to deal with specific activities and locations.

**Q. Has the Power Authority acquired land rights for the Marcy South Line in ways other than through permanent easements?**

A. The Power Authority acquired approximately 21 parcels in fee and also acquired three parcels through a transfer of jurisdiction from the New York State Department of Environmental Conservation. These transfers are accomplished under New York Public Lands Law Section 3.

**Q. Approximately how many acres of the Marcy South Line right-of-way were acquired by transfer of jurisdiction?**

A. Approximately 49.5 acres.

**Q. What is a transfer of jurisdiction?**

A. In the case of Marcy South, the New York State Department of Environmental Conservation owned parcels of land along the proposed Marcy South Line. Because of the legal relationship between state agencies and state authority's, jurisdiction of these parcels was transferred from the Department of Environmental Conservation to the Power Authority.

**Q. Are there any restrictions or limitations on these transfers of jurisdiction?**

A. Yes. The transfer of jurisdiction between the Department of Environmental Conservation and the Power Authority for the Marcy South Line specifically grants those rights to the Power Authority that the Power Authority deems necessary for purposes connected with the Power Authority's Marcy South 345 kV transmission line. The transfer of jurisdiction specifically states: "This transfer is personal to the Power Authority of the State of New York and may not be transferred, assigned or otherwise conveyed to any other party."

**Q. Was any real property for the Marcy South Line acquired in fee?**

A. Approximately 288 acres was acquired in fee.

**Q. Does the Power Authority have limitations and restrictions on the conveyance of rights on its Marcy South right-of-way?**

A. Because the Power Authority's permanent easements for its Marcy South Line were taken by appropriation by the People of the State of New York, the Power Authority may be precluded from transferring or conveying any rights on its Marcy South right-of-way to NYRI. Additionally, those parcels on which a transfer of jurisdiction took place were specifically granted to the Power Authority for its Marcy South Line and may not be transferred, assigned or in any way conveyed to any other party. Furthermore, the Public Authorities Accountability Act restricts the Power Authority's ability to convey any rights in real estate in which the Power Authority has an interest.

Presuming that the Power Authority has a legal right to convey or transfer a real property interest or right, every conveyance of real property interests in excess of ten thousand (\$10,000) dollars in value held by the Power Authority must be approved by the Power Authority Trustees in a resolution. The Trustees have a duty to determine whether the conveyance is in the best interests of the present or future operation of the Power Authority. The Trustees could not convey a real property interest that would adversely impact the Power Authority's ability to maximize the benefits of its transmission assets.

**Q. Has NYRI explained its plan for obtaining the necessary real estate property rights on its Marcy South alternate route?**

A. In response to the Power Authority's Interrogatory NYPA-5, NYRI mentions a vague plan to "negotiate with land owners for all required property rights and interests and to offer property owners at or above fair market value for rights and interests required." In response to the Power Authority's Interrogatory 3 ("2."), NYRI states that it will acquire a "stand alone easement from the appropriate property owners to locate its facilities on the owners' property, including those portions that may involve overlapping easements with existing energy facilities."

However, because the People of the State of New York acquired the permanent easements for the benefit of the Power Authority with restrictions on the landowners prohibiting the landowners from any activity that would or could "interfere with or prevent the use and exercise of the [Power Authority's] permanent easement" it is doubtful that the landowners could convey such rights. Moreover, on those parcels on which the transfer of jurisdiction took place, the transfer was personal to the Power Authority for the specific purpose of constructing and maintaining its Marcy South Line.

**Q. Are you aware of any Power Authority future development plan for the Marcy South Line?**

A. No, I am not aware of any specific future development plans for the Marcy South Line. I am aware that the New York Transmission Owners have recognized the need to evaluate the status of the state's transmission system and determine the most efficient way to provide a reliable system to deliver electricity to support New York's economy in the future. The Power Authority is taking part in the State Transmission Assessment and Reliability Study ("STARS") which will evaluate the state's transmission system and recommend ways to enhance transmission system reliability for the future. I am also aware that the NYISO's economic planning process coupled with the STARS may provide a comprehensive transmission plan for the state for the future. I believe that the NYISO plan and STARS will incorporate a review of the Marcy South Line.

The Power Authority, as one of the participants in STARS, will await the findings and recommendations of STARS on the comprehensive state-wide transmission system before initiating development plans for its transmission system.

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

A. Yes

**PSC ARTICLE VII  
APPLICATION OF NEW YORK REGIONAL INTERCONNECT, INC.**

**DIRECT TESTIMONY**

**KEVIN J. McGRATH**

**Q. Please state your full name, affiliation, and title.**

A. My name is Kevin J. McGrath. I am the Manager, Environmental Studies & Remediation for the Power Authority of the State of New York (“Power Authority”).

**Q. What is the Power Authority of the State of New York?**

A. The Power Authority is a body corporate and politic, a political subdivision of the state, exercising governmental and public powers. The Power Authority was created in 1931 through the enactment of the Power Authority Act (Chapter 772, Laws of 1931).

**Q. Please describe your education.**

A. I have a Ph.D. in Biological Sciences from Fordham University – 1977.

**Q. Describe your professional experience.**

A. I have been employed with the Power Authority since 1986. From 1986 to the present, I have held the positions of Environmental Scientist, Senior Environmental Scientist and Manager, Environmental Studies and Remediation. Prior to 1986, I worked for nine and one half (9.5) years in the Environmental Division of Consolidated Edison. During my tenure with the New York Power Authority, I was the lead environmental staff person for the licensing, constructing and operation of a 26 mile 345kV ac transmission line (8.8 mile segment in Westchester County, 7.9 mile submarine crossing of Long Island Sound, and 9.6 mile segment in Nassau County).

**Q. Are you familiar with the Power Authority’s Marcy-South transmission line?**

A. Yes, I am familiar with the Power Authority’s Marcy South Line (“Marcy South Line”).

**Q. What is the Marcy South Line?**

A. The Power Authority’s Marcy South Line was licensed by the New York State Public Service Commission by order dated January 30, 1985. The Marcy South Line is a 345 kV transmission facility that originates in Marcy, near Utica, and terminates in East Fishkill in Dutchess County. It includes double circuit, single circuit, overhead, and underground configurations, with varying widths of right-of-way. The Marcy South Line crosses over private land, state property under New York State Department of Environmental



Conservation's jurisdiction, and crosses in the riverbed of the Hudson River, which is under the Office of General Services' jurisdiction.

**Q. Do you have concerns about the possible shared use of existing on and off Right-of-Way (ROW) access routes during construction and operation of a NYRI Marcy South Alternate?**

A. Yes, I have several concerns. NYRI has not provided plans for a coordinated joint ROW program nor has it provided adequate responses to the Parties' numerous interrogatories on such matters. This makes it nearly impossible to evaluate and render an opinion on the impacts the NYRI project would have on (a) the Power Authority's operation and maintenance of Marcy South infrastructure, and (b) the land owners from whom the Power Authority has easements. For example, in response to DPS 39, NYRI has stated that existing access will be used for 76.4 miles of the primary route.

In Interrogatory NYPA-14, the Power Authority asked NYRI about their access road assumptions for NYRI's Marcy South alternate, and whether NYRI proposed to use Power Authority constructed on and off ROW access. The NYRI response stated that it "...has made no assessment, at this time, of the miles of the Marcy South Alternate Route where no new access roads would be required". NYRI further states, "NYRI recognizes that there is potential to use NYPA constructed on and off ROW access if the Marcy South Alternate were certified by the PSC. As such, during development of the EM&CP, which will occur after route certification by the PSC, use of NYPA constructed on and off ROW access will be evaluated, and, if proposed, NYRI will enter into discussions with NYPA to define their use and mitigation measures during and following construction activities which will then be presented in the EM&CP."

NYRI's plan to discuss how it would use the Power Authority's access routes *after* certification is not acceptable and in contravention of the Article VII process. It pre-supposes "acceptability" of use that requires analysis *before* certification.

**Q. Has NYRI proposed specific mitigation measures it would use during access road construction?**

A. No. NYRI has not stated what specific mitigation measures, if any, would be developed during access road construction. When asked, NYRI's response is similar to its response to many of the interrogatories: that such matters will be discussed as part of the EM&CP, which is submitted post certification and *not* an acceptable approach to such an important issue.

**Q. Has NYRI made any commitments regarding the scheduling of activities?**

A. Only conditionally. NYRI has stated that it will follow "...prudent weather sensitive scheduling of maintenance activities **to the extent feasible**". This statement does not provide any plan for coordination with interested parties, such as the Power Authority.

**Q. Do you have any other concerns regarding potential use of NYPA ROW by NYRI?**

A. Yes. Equipment and material laydown areas can impact existing structures, access roads, and vegetation. When asked, NYRI has responded, as it has so often before, that it will address the location of any temporary material laydown areas, and their mitigation measures, *during development of the EM&CP*, which, as I have stated above, will occur after route certification and is not acceptable.

**Q. Has NYRI communicated its plan for vegetation management within the potentially shared portion of the ROW?**

A. No. In Interrogatory NYPA 7, NYRI responded that it would “undertake discussions with NYPA to determine the vegetation management along shared rights of way during the detailed engineering and design phases of the Project [EM&CP]” to develop plans regarding the shared use of the ROW in order to achieve the most compatible configuration. As I stated earlier in my testimony, having this discussion *post certification* is too late to address and avoid or mitigate issues associated with the co-location of NYRI with Marcy South.

**Q. Do you have any concerns about NYRI vegetation management?**

A. Yes. Any modifications (i.e. filling, clearing, grading etc.) to the potentially shared joint Marcy South ROW could significantly alter existing vegetation. NYRI’s failure to provide adequate information could result in the Power Authority compiling inaccurate information in its vegetation database and adversely impact the implementation of the Power Authority’s Integrated Vegetation Management Plan.

**Q. Do you have concerns about NYRI potential impact on wetlands?**

A. Yes. During its development of Marcy South, the Power Authority specifically avoided construction in wetlands wherever possible. In response to Interrogatory NYPA 9, NYRI stated that “Since detailed field investigations and final design have not been completed, specific structure placement has not yet been determined that would indicate if fill would be necessary within wetlands along the NYRI-Marcy South ROW. Such field investigations and final design will occur after route certification by the PSC. However, NYRI will keep structures out of wetland resource areas where possible.” Once again, NYRI’s delay in conducting field investigations and providing a final design until *after* certification is not acceptable.

**Q. If NYRI’s facility is constructed on new ROW, is this a concern?**

A. The Power Authority does not know what NYRI’s intentions are at the present time. Their proposed use of the Power Authority’s ROW may impact wetlands, and it is impossible to evaluate such proposed use with the little information NYRI has provided. It

is clear, however, that underground segments of a NYRI Marcy South Alternate, and CARI's underground alternate, would potentially impact wetlands within the existing Power Authority ROW.

**Q. Is underground construction within the Power Authority ROW a concern?**

A. Yes. Marcy South was specifically designed to avoid placement of structures or fill in wetlands. Transmission towers were placed to avoid wetlands and span open water areas (i.e. rivers, streams etc.). Off ROW access was developed to approach sensitive environmental areas from opposite ends. The proposed development of a continuous, underground transmission facility within 50 feet of the edge of the existing Power Authority ROW is too simplistic, and does not take into account the mitigation measures used by the Power Authority on Marcy South. If NYRI has to avoid such environmental conditions, the potential impacts on Marcy South may change significantly. NYRI has not provided enough information to evaluate these impacts.

**Q. Do you have any concerns about threatened or endangered species?**

A. Yes. This issue is important to the Power Authority because it could impact its continued use of the Marcy South ROW. DPS proposed condition 50 states:

“If previously unidentified threatened or endangered species are encountered during construction, work activities will be temporarily suspended in the identified location until a mitigation plan will be developed in consultation with the staffs of the DEC and DPS.”

Should such identified threatened and endangered species be federally listed, NYRI would be required to consult with the U.S. Fish & Wildlife Service in addition to the NYSPSC and the DEC. NYPA must also be consulted to the extent that Marcy South is involved.

**Q. Do you have concerns regarding cultural resources?**

A. Yes. NYRI's evaluation of co-locating its line in the NYRI ROW adjacent to the Power Authority's ROW does not take into account the cumulative impacts that such construction would have on the Power Authority's ability to alter or expand the Marcy South facility if future conditions so warrant. Furthermore, in light of the State Historic Preservation Office's ("SHPO") determination that the NYRI project will have adverse impacts on cultural resources (October 28, 2008 letter from SHPO to NYRI), the cumulative impacts as a result of the construction and operation of NYRI become even more of a concern. Because SHPO has already determined that there will be adverse impacts, any additional work that the Power Authority planned would add to the cumulative adverse impacts.

**Q. Do you have any concerns about NYRI's visual assessment of the Marcy South alternative?**

A. Yes. NYRI's Supplemental Visual Impact Assessment (Appendix M) primarily assesses impact of overhead structures on the landscape and does not factor in the impacts of the expanded cleared ROW. The exception to this is where the corridor crosses over ridgelines where NYRI acknowledges the impact of the cleared ROW would be greater. The viewshed assessment of the Marcy South Alternative in Appendix L, section 2.2 does not take into account the decreased screening effect of vegetation in a widened Marcy South ROW.

NYPA is concerned that NYRI's widening of the Marcy South ROW may actually increase the visibility of the NYPA's ROW and overhead structures.

**Q. Do you have any concerns regarding the archeological survey?**

A. Yes. The original archeological survey for the Marcy South corridor was for an overhead transmission line. Major impacts were considered to be limited to tower locations. Burying 183 miles of underground line within the Marcy South ROW would create major ground disturbances for the entire length of the line, plus access routes, laydown areas and substations. This work would occur within the Power Authority's ROW and the level of effort required is significantly more than what NYRI has demonstrated. For example, for the Tri-Lakes 46kv project, an overhead project in the Adirondack Park not subject to PSC Article VII process, the Power Authority was required to shovel test about 26 miles of the approximately 56 mile route, with a test pit every 50 feet, with additional test pits where anything of interest was found. NYRI has not conducted any field work for the proposed Marcy South Alternates that are being considered for certification in this proceeding. Finally, as stated earlier, NYRI's response that it would develop specific mitigation measures as part of the EM&CP, which is post certification, is not acceptable.

**Q. Do you have any suggestions for a proposed condition regarding cultural resources?**

A. Yes. NYRI should be required to provide the Power Authority with proof of compliance with Section 14.09 of the state code for work that is to be conducted on any Power Authority access roads and/or ROWs before commencing work.

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

A. Yes.

**PSC ARTICLE VII  
APPLICATION OF NEW YORK REGIONAL INTERCONNECT, INC.**

**DIRECT TESTIMONY OF**

**ANDREW CLINE**

**Q. Please state your full name, affiliation, and your title.**

A. My name is Andrew Cline. I am General Manager-Transmission Maintenance with the New Power Authority. (“Power Authority”)

**Q. Please describe your education.**

A. I graduated from Canton College in 1982 with an AAS in Criminal Justice. I graduated from Empire State College in 2005 with a BS in Business Administration.

**Q. Describe your professional experience.**

A. I have been with the New York Power Authority for 26+ years. I was hired as a Security Guard in 1982 at the Clark Energy Center in Marcy, New York. I joined the Transmission Department in 1984 as an Apprentice Lineman, working my way up through the ranks to High Voltage Hotstick Lineman. In March of 2002, I was promoted to Transmission Supervisor. In December of 2006, I was promoted to Transmission Superintendent and, in April of 2008, I was promoted to my current position of General Manager - Transmission Maintenance.

**Q. Are you familiar with the Power Authority’s Marcy-South transmission line (“Marcy South Line”)?**

A. Yes, I am.

**Q. How are you familiar with the Marcy South Line?**

A. I have been involved with the operation and maintenance of the Marcy South Line since the time of the post-construction inspection prior to NYPA acceptance in 1988.

**Q. Have you reviewed the NYRI proposed primary route crossings of the Power Authority's Marcy South project?**

A. Yes, I have.

**Q. What is your assessment of NYRI's proposed "bus span" crossings of Marcy South?**

A. Such "bus span" crossings" would impact the Power Authority's operational flexibility. The Power Authority advised NYRI of its concerns and the conditions that would need to be met in this regard, as follows:

- "NYPA cannot be 'sag limited' by NYRI's joint use of the Marcy South right-of-way. An additional 8-10 feet clearance is required; if not, NYPA's winter thermal rating will be compromised, and eventually NYPA's ability to realize full advantage of the installed circuit may be restricted."
- It is necessary to see the NYRI evaluation of the blow-out of NYPA's conductors towards its strain bus coming off the DC dead-end structure. The NYRI dead-end structure is shown at 100 feet from the bus structure, which is a considerable distance. Clearance between the circuits has to be kept not only vertically but also horizontally during heavy winds.
- NYPA needs bucket truck access to its tower. NYRI's placement of the bus span is shown as typically 50 feet from NYPA's pole base, making it difficult to move equipment in place. However, NYRI has apparently placed it there because of the need to establish minimal vertical clearance to NYPA's conductors; moving the bus span further away from the pole base along the catenary of our conductors, which will encroach even more on the vertical clearance that is too tight to begin with. NYRI should be required to stay at least 75 feet from the base of NYPA's structure and establish the crossing where all the parameters can be met.
- Wherever the bus span is put on the right of way, it will impede NYPA in gaining bucket truck access to its conductors and spacers. NYPA (and the interconnected New York system) will be at risk should maintenance be needed at that crossing and access be limited without removal of the NYRI circuit from operation. Workers should not work over live 400 kV buses. Workers would be required to remove the NYPA line and the proposed NYRI circuit, a difficult proposition.
- Construction will likely require the removal from service of the NYPA circuits above the NYRI facility. Removal of both Marcy-South circuits will constraint the operation of the New York electrical grid. Furthermore, these outages would be needed multiple times and for extended periods.
- The layout of the NYPA lines coming into the Edic substation (through the NYRI converter yard) needs more elaboration in order to permit evaluation.

**Q. How would construction, operation, and maintenance of the NYRI project using any of the proposed Marcy South alternates affect the Power Authority's ability to operate and maintain its own lines?**

A. The Power Authority is unable to answer that question because NYRI has not provided enough information for the Power Authority to evaluate what the operations and maintenance impacts of a NYRI Marcy South Alternate would be on Power Authority operations.

**Q. What is the basis of this assertion?**

A. The Power Authority has attempted to obtain specific information from NYRI through discovery. NYRI's responses have not been forthcoming; NYRI has not, to date, provided sufficient detail to allow the Power Authority to evaluate the impacts of a NYRI Marcy South alternate on the continued operation and maintenance of Marcy South.

**Q. What information does the Power Authority lack concerning NYRI development of a Marcy South alternate?**

A. Because of NYRI's failure to provide specific detail, the Power Authority lacks the following information:

- How NYRI proposes to utilize the Power Authority's ROW
- How NYRI plans to work together and interact with the Power Authority during both the construction and operation of the NYRI line
- NYRI's emergency response plan
- NYRI's landowner relations policies
- NYRI's vegetation management plan
- NYRI's use, if any, of the Power Authority's developed ROW infrastructure
- NYRI's proposed maintenance plan for facilities

**Q. How much of the Power Authority's ROW would be impacted by a NYRI Marcy South Route?**

A. As proposed, the NYRI Marcy South Alternate, and that of Staff, would require overlapping rights to at least 50 feet of the Power Authority's Marcy South ROW. This is essentially "air rights", but, without detail regarding NYRI's proposed use of the Power Authority's infrastructure, even this is not certain. The underground segments of the NYRI Marcy South alternate, and the CARI underground proposal, would physically occupy 50 feet of the Power Authority's ROW. Unfortunately, the Power Authority does not know whether or not any of its infrastructure will be impacted because NYRI has repeatedly stated in its responses to numerous interrogatories that it does not intend to address this issue until development of the EM&CP. Development of the EM&CP would not occur until after the PSC issuance of a certificate. In the Power Authority's opinion, receiving the information at that time would be too late.

**Q. Why is the development of this information at the EM&CP stage not acceptable?**

A. Marcy South is part of New York State's critical infrastructure, and actions or activities that could jeopardize its security and reliability cannot be tolerated. Proposing to address these issues after an Article VII Certificate is issued is not acceptable, and forecloses options that should be addressed during the certification process.

As an example, in response to Interrogatory NYPA 15 in which NYRI was asked how NYRI's construction would be coordinated with a the Power Authority's planned outages at Marcy South, NYRI responded that it would coordinate "and endeavor to include NYPA's personnel in

the scheduling of construction activities that may impact the operation and maintenance of NYPA's facilities." For the safety, security, and reliability of the Power Authority's Marcy South Line, NYRI's response that it will "endeavor" to include NYPA personnel if NYRI activities are occurring on or adjacent to NYPA's facility, is not acceptable.

Another example of NYRI's lack of responsiveness during the certification proceeding concerns its response to Interrogatory NYPA 3, where NYRI responded: "NYRI will plan to perform that portion of the construction work requiring an outage of these facilities to coincide with the respective facility owner's planned outages, when possible." NYRI's response: 1) does not provide sufficient information with which the Power Authority can evaluate the impact of NYRI on its Marcy South operations, and 2) appears to contemplate having unscheduled outages on Marcy South to accommodate NYRI's schedule.

NYRI defers providing vital information until the EM&CP regarding material lay down areas, coordination with the Power Authority when working in close proximity to Marcy South overhead transmission lines, proposed use of access roads, vegetation clearing, landowner issues, and virtually all other relevant information asked of them. In Interrogatory NYPA 7, NYRI states: " The location of any temporary material laydown areas will be identified during development of the EM&CP, which will occur after route certification by the PSC." Without knowledge of their intentions and plans, the Power Authority cannot determine the impact on Marcy South operations.

**Q. Are you familiar with Interrogatory DPS 116, and NYRI's response?**

A. Yes.

**Q. What did Interrogatory DPS 116 address?**

A. DPS 116 provided a series of proposed Certificate conditions to NYRI, which addressed design, engineering, and construction of the NYRI facility, with emphasis on coordination with adjoining utilities.

**Q. Did you find the NYRI response acceptable?**

A. I did not. NYRI struck every reference to coordination or cooperation with the Power Authority:

- During design, engineering and construction of the NYRI facility;
- To ensure appropriate system relay protection and appropriate communication capabilities;
- To operate the facility in accordance with applicable rules and protocols of the Power Authority;
- To be in full compliance with applicable reliability criteria of the Power Authority;
- To obey dispatch instructions issued by the Power Authority's control center to maintain reliability of the transmission system;



- After commencement of construction, to provide the Power Authority with a monthly report on progress and updates of the construction schedule;
- To work with the Power Authority system planning and protection engineers to discuss the characteristics of the transmission system;
- To work with Power Authority engineers and safety personnel on testing and energizing equipment, and to work with the Power Authority on testing protocol;
- To make modifications to its facility if found by the Power Authority to cause reliability problems.

Development of a NYRI Marcy South Alternate would require NYRI to provide the Power Authority with a great deal of technical information and numerous firm commitments to assure the continued safe and reliable operation and maintenance of the Power Authority's Marcy South Line. NYRI has provided none of this information or commitments.

**Q. What concerns do you have about NYRI's use of Power Authority on and off ROW access roads?**

A. My overarching concern is that NYRI is refusing to provide critical information during the certification process; the majority of its answers state that it will provide the information requested in the EM&CP phase, which would be after they have been issued a certificate.

The Power Authority maintains approximately 231 miles, or 1,220,059 feet of access routes and roads to the Marcy South Line. Construction of Marcy South was completed in 1988, and construction impacts on surrounding landowners and the public has stabilized. New use of the routes may create issues for the Power Authority which NYRI refuses to address until after certification, in the EM&CP stage. For example, in response to Interrogatory NYPA 14, NYRI states: "NYRI will be developing a detailed construction execution plan as well as a construction and operating real-estate services plan during the EM&CP phase of the Project, which will occur after route certification by the PSC. Such plan will include the necessary staffing and response actions required to respond to potential right of way issues, conditions or claims, both during construction and after construction."

In response to Interrogatory NYPA 14, NYRI again states that it "has made no assessment, at this time, of the miles of the Marcy South Alternate Route where no new access roads would be required. NYRI's assumptions regarding construction of access roads for the Marcy South Alternate Route, if certified by the PSC, would be the same as that for the Proposed Route as further described in Section 4.5 of Exhibit 4 and Appendix C. NYRI recognizes that there is potential to use NYPA constructed on and off ROW access if the Marcy South Alternate were certified by the PSC. As such, during development of the EM&CP, which will occur after route certification by the PSC, use of NYPA constructed on and off ROW access will be evaluated, and, if proposed, NYRI will enter into discussions with NYPA to define their use and mitigation measures during and following construction activities which will then be presented in the EM&CP."

NYRI's failure to provide information during the Article VII proceeding on such critical issues is unreasonable and could be harmful to the Power Authority's Marcy South ROW.

**Q. How will NYRI handle complaints from surrounding landowners and the public?**

A. The Power Authority is unable to answer this question. NYRI has stated that it will be developing a detailed construction execution plan as well as a construction and operating real-estate services plan during the EM&CP phase of the Project, after route certification by the PSC. In response to Interrogatory NYPA 7, NYRI states "In the event that a route adjacent to the Marcy South line were certified by the PSC, NYRI would work with the NYPA, during the detailed engineering and design phases of the Project, to develop plans regarding the shared use of the ROW in order to achieve the most compatible configuration. NYRI would also undertake communications with the underlying property owners along any shared ROWs where NYPA has easements. At this time, however, it is too early in this proceeding to specify with any certainty the frequency of communication with NYPA; however, NYRI would discuss the communications protocols with NYPA to establish not only the frequency but the appropriate contact(s) for both parties regarding such communications." This could be very problematic if NYRI were to share the Power Authority's ROW: landowners and the public may not know who to contact or call in the event of a problem or an emergency. This is the type of issue that must be addressed during consideration of NYRI's Article VII application.

**Q. Has NYRI provided information to allow the Power Authority to review proposed worker protection procedures?**

A. No. In Interrogatory NYPA 15, NYRI has stated that "NYRI will ensure that standard utility practices and safety measures are used when working in close proximity to DC facilities." The Power Authority's immediate concern is for the safety of its workers if there was a co-location of NYRI and Power Authority facilities. Also of concern is reliability and NYRI's lack of a plan to coordinate close proximity work to the existing AC Marcy South Line. A Non Reclosure Assurance or Clearance will most likely be necessary for much of the work if this is to be an overhead line. Assurance of the reliability of the Marcy South Line is paramount to the integrity of the overall Power Authority system. NYRI has not provided the Power Authority with any worker protection procedures.

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

A. Yes.

**PSC ARTICLE VII  
APPLICATION OF NEW YORK REGIONAL INTERCONNECT, INC.**

**DIRECT TESTIMONY OF**

**THOMAS J. McDERMOTT**

**Q. Please state your name, affiliation, and title.**

A. My name is Thomas J. McDermott. I am employed by the Power Authority of the State of New York (Power Authority) as Director Asset Management.

**Q. Please describe your education background.**

A. I received a Bachelor of Science degree in Physics from the State University of New York at Stony Brook in 1972 and a Master of Science degree in Electrical Engineering from the Polytechnic Institute of New York in 1975.

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

A. I am a member of the Institute of Electrical and Electronic Engineers' (IEEE) and I served on several of its working groups and task forces. I was past chairman of the Subcommittee on Corona and Field Effects.

**Q. Please describe your professional experience.**

A. I began employment with the Power Authority in 1975 as Electrical Engineer. I was promoted to Senior Electrical, and sequentially to Supervisory Electrical Engineer, in 1982 and 1984 respectively. In 1992, I was promoted to Director Performance Engineering and, in 2005, to Director Asset Management. My duties involve the analysis of various technical concerns related to electric power system design and operation in both the generation and transmission sectors.

Among my responsibilities for the Power Authority have been the design and analysis of the corona (ion, radio and audible noise) and field (electric and magnetic) effects of high voltage transmission lines, insulation coordination, lightning protection and grounding, as well, as well the analysis and design of power systems, including short circuit and transient analysis of transmission systems. In addition, I am responsible for the asset management program at the Power Authority which, in part, entails the analysis and development of optimal performance and reliability of the Power Authority's generation and transmission assets.

**Q. Have you ever given expert testimony regarding similar projects to NYRI and, if so explain the nature of the proceedings?**

A. I have appeared as an expert electrical engineering witness in proceedings on the Power Authority's Marcy-South 345kV transmission facilities and Sound Cable 345kV project before this Commission. I have appeared as an expert electrical engineering witness on behalf of the Power Authority in its intervention in the Empire gas pipeline proceedings before this Commission. I have appeared as an expert electrical engineering witness in various civil cases in the Court of Claims on behalf of the Power Authority.

**Q. Please describe your responsibilities in connection with the NYRI Article VII application review?**

A. I reviewed the electrical engineering features of the NYRI lines, especially as it relates to the Marcy- South lines of the Power Authority. I was asked to provide an understanding of the feasibility of redevelopment of the Marcy- South lines to DC operation.

**Q. Besides the review of the NYRI application, have you been involved with other electrical engineering work?**

A. I have been principally responsible for the corona and field effects analysis, design and migration of all the Power Authority's extra high voltage transmission system since the construction of the 765kV lines in 1975. I have been the analysis engineer for the insulation and grounding design of the Power Authority's 345kV transmission system, including the Marcy South project. I have been the electrical engineer responsible for several electromagnetic compatibility projects, including the 150-mile Empire gas pipeline that parallels the Power Authority's double circuit 345kV cross-state transmission line. I have analyzed and designed various noise control projects for the Power Authority's generation and transmission facilities. I was the principle analysis engineer for the Power Authority's review of the conversion and consolidation of its two high voltage AC 230KV circuits from the St Lawrence switchyard to the Adirondack Substation to high voltage DC operation. For that study my group provided both the insulation coordination and system analysis necessary for the review. In addition, I have been responsible for multiple in-plant electrical system modifications, as well as transmission system protection and control modifications.

**Q. Please describe the current electrical configuration of the Power Authority's Marcy-South project.**

A. The Marcy South project is composed of several 345kV transmission line sections for a total length of approximately 200 miles. The project was licensed by the Public Service Commission in January 1985. The first line segment is a double circuit 345kV lines, placed mostly in a vertical configuration on the same structure; it begins at the Edic Substation and terminates at the Fraser Substation. The second segment is a single circuit

345KV line, placed in both vertical and horizontal configuration, originating at Fraser and continuing to the Coopers Corner Substation. The third segment begins at Coopers Corner and terminates at Rock Tavern; this portion is double circuited on both vertical and horizontal configured structures. The project then uses existing single circuit 345KV line to the Roseton Substation on the west side of the Hudson River. From Roseton, a 345KV cable is placed across the Hudson River to the east side; on the east side, a single circuit 345KV horizontal configured line was constructed to the Fishkill substation.

**Q. Could the Marcy- South lines be operated at 765KV? Please explain.**

A. No. The distances between the conductors and the distances between the conductors and the structures are not large enough; the structures are not capable of having extensions put on them to accommodate the additional dimensions necessary for 765KV operation. Further, the right of way is not large enough to accommodate the edge of right of way electric and magnetic fields required by Public Service Commission for 765KV operation.

**Q. Would it be possible to convert the Marcy- South transmission lines to operate with DC current and voltage?**

A. Yes.

**Q. How would this be done?**

A. One could use all the existing components on the Marcy-South transmission structures (insulators and conductors) and impress a voltage slightly less than the existing line configuration. Alternatively, one could re-insulate the structure to DC specific insulators, leave the conductors as they are, and achieve a slightly higher voltage than the existing line configuration. The physical distances would be sufficient to accommodate these re-developments.

**Q. So, are you saying that the Power Authority would be able to use its existing Marcy South infrastructures to accomplish this with minimal impact to its right of way or the environment?**

A. Yes. Using the principle of consolidation and conversion, the existing right of way would be used, with little to no impact and significantly reduced cost.

**Q. Why would converting some (or all) of the Marcy-South lines to DC operation (upgrading or expanding) be desirable?**

A. This option would require no additional right of way; the conversion cost would be minimis and there would be substantially more system benefits derived from a tightly integrated DC transmission network.

**Q. What would be the net effect on the power transfers if one of the Marcy-South circuits were converted to DC operations?**

A. The Power Authority is conducting more detailed studies to quantify those results. However, we know that the installed thermal capacity of the Marcy- South circuits is not being utilized because of constraints on the HVAC interfaces. We know that if we interconnect the HVAC system in an optimal way with HVDC lines we can affect improvement on the interfaces during contingencies and reduce the constraints on the remaining Marcy-South circuit, as well on improve the transfer capability of the converted circuit. The degree of that improvement will depend on the conversion approach taken (e.g. bi-pole or tri-pole) and other design parameters.

**Q. Has NYRI approached the Power Authority regarding the redevelopment of the existing Marcy South lines to DC operations?**

A. No

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

A. Yes

**PSC ARTICLE VII  
APPLICATION OF NEW YORK REGIONAL INTERCONNECT, INC.**

**DIRECT TESTIMONY OF**

**ROBERT S. BURTON**

**Q. Please state your name and affiliation, and title.**

A. My name is Robert S. Burton. I am employed by Teshmont Consultants LP of the Province of Manitoba, Canada, as the Vice President of Power Systems.

**Q. Please describe your education background.**

A. I received the following degrees:

- Bachelor of Science degree in Electrical Engineering from the University of Saskatchewan at Saskatoon, Saskatchewan, Canada, in 1968
- Masters of Science degree in Electrical Engineering from the University of Saskatchewan at Saskatoon, Saskatchewan, Canada, in 1970
- Doctor of Philosophy (Ph. D.) degree in Electrical and Computer Engineering from the University of Manitoba at Winnipeg, Manitoba, Canada, in 2004

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

A. I am a member of the following professional organizations:

- Association of Professional Engineers and Geoscientists of Manitoba (APEGM)
- State of Arizona State Board of Registration for Architects, Engineers, Geologists, Landscape Architects and Land Surveyors
- State of Minnesota State Board of Registration for Architects, Engineers and Land Surveyors
- Association of Professional Engineers and Geoscientists of Saskatchewan
- Association of Professional Engineers, Geologists and Geophysicists of Alberta
- I also serve on several working groups for CIGRE (International Council on Large Electric Systems).

**Q. Please describe your professional experience.**

A. I began working with Teshmont in 1970 as an electrical Engineer upon completion of my Masters degree. I was promoted to Senior Supervising Engineer in 1983 and to Vice President of Power Systems in 2008.

My technical experience over the years has been power system planning and studies including the development of transmission strategies for long range planning, application of FACTS devices for voltage and power control, evaluation of transmission alternatives,

and studies for the design and specification of EHV ac and HVDC transmission and cable systems.

I have been involved in the study and design of large and small power systems all over the world, including Canada, USA, China, India, Brazil, New Zealand, Japan, Australia, Norway, Malaysia, Thailand, the UK, and Chile. I worked in Rio de Janeiro, Brazil for several years to study the Itaipu transmission system, which transmits 6300 MW by 765 kV ac and 6300 MW by HVDC. I also worked in Phoenix, Arizona, for several years, leading studies for the Mead-Phoenix dc intertie.

My responsibilities as Vice President of Power Systems with Teshmont include overseeing the day-to-day operations of the company associated with the planning, studies, and HVDC departments. I am charged with ensuring that projects are carried out in full conformance with the contract terms, paying particular attention to agreed deliverables, schedules, and budgets.

**Q. Beside your review of the NYRI application, have you been involved with other electrical engineering work?**

A. Throughout my career, I have lead project teams and carried out power system studies for the following projects and/or clients:

- Aysen-SIC HVDC Transmission System, Chile
- Various projects for the Alberta Electric System Operator, Alberta
- Bakun-Sabah 500 kV Transmission Project, Malaysia
- Various projects for Teck Cominco, British Columbia
- Albchem Sodium Chlorate Plant, Manitoba
- Nelson River HVDC Transmission System, Manitoba
- Isle of Lewis Wind Farm, UK
- Transmission line from Quebec to Highgate HVDC Converter Station, Vermont
- McNeill Back-to-Back Converter Station, Alberta and Saskatchewan
- 3000 MW HVDC system between the Three Gorges Hydro Electric Station and the Province of Guangdong, China
- Northwest Interconnection, Vermont
- Arrowhead-Weston 345 kV transmission line, Minnesota and Wisconsin
- STATCOM, Vermont
- STATCOM, Malaysia
- Three Gorges HVDC Transmission System project to Shanghai, China
- Malaysia-Thailand HVDC Interconnection
- Manitoba HVDC Research Centre Project for CEA on the study of Harmonic Effects on HVDC Control Performances, Manitoba
- Tian-Guang HVDC project, China
- Victoria-Tasmania dc interconnection, Australia
- Upgrade alternatives for Square Butte HVDC system, USA
- Hokkaido Honshu HVDC expansion project, Japan



- South China Power Studies project, China
- Benmore - Haywards HVDC project expansion, New Zealand
- Highgate 200 MW back-to-back converter station, Vermont
- Gezhouba-Shanghai 1200 MW  $\pm 500$  kV HVDC transmission system, China
- Mead-Adelanto/Mead-Phoenix HVDC Project
- Pacific HVDC Intertie
- Sidney and Miles City Back-to-Back Converter Stations, Western Area Power Administration
- Lower Churchill HVDC Project, Newfoundland
- Itaipu HVDC and EHV ac transmission system, Brazil
- 500 kV ac transmission system, Pakistan
- 400 kV interconnected transmission network, India

I have been involved in all aspects of power system studies, including:

- load flow
- short circuit
- transient and dynamic stability
- load rejection overvoltage
- harmonic impedance
- EMTDC
- development of remedial action under-frequency load-shedding, over-frequency generator-tripping schemes
- HVDC cables
- dc and ac filter studies
- development of EMTDC converter and cable models

**Q. Could the Marcy- South lines, as described in the direct testimony of Thomas McDermott, be operated with DC current and voltage?**

A. Yes, the Marcy-South lines could be operated as a HVDC circuit, in either as a bi-pole or a tri-pole configuration. Further studies would be required to identify detail dc power transfer and system benefits of such a conversion.

**Q. Are there advantages to introducing an HVDC transmission circuit(s) within a network of HVAC transmission lines such as found in New York State?**

A. Yes, there are several significant advantages.

First of all with an HVAC circuit, the most frequent cause of an outage is lightning strikes to the circuit resulting in a fault to ground. Even if this only affects one of the three phases, under most circumstances this will result in complete loss of the circuit. With an HVDC circuit, the system controls are designed to reduce the probability of any single event affecting both dc poles. As a result the loss of power transmission as a result of control system problems is typically only 50% of the capacity. Because of this

capability, a dc bipole is often treated in the same way as a double circuit ac system when evaluating the impact of contingencies on power transfer capability of a power transfer path. The impact of a first contingency dc outage would be only ½ of the impact of a corresponding ac circuit. As a result, the maximum power transfer through the path can be greater with dc than a corresponding ac circuit.

For an HVAC circuit, the maximum power that can be transferred is a function of the power angle and as a result is subject to power system load flow and/or stability issues. With a HVDC system, the power transfer limit is usually larger. As a result, the power transfer capacity across a corridor where an ac circuit is converted to dc is more than the capacity with the original ac circuit.

Thirdly, as the power transfer across a dc system is controlled, it can be scheduled, to off-load adjacent ac circuits under emergency conditions.

Fourthly, converting an ac circuit to dc will reduce the fault levels at the two terminating stations as well as stations in the vicinity. Reduction in fault levels will delay the requirement for fault level mitigation or ac breaker replacement as the ac system develops.

Further, with proper engineering of the control systems on an integrated HVDC network with the underlying HVAC network, during contingencies on the HVAC network (i.e. faults), the HVDC network can be modulated in way that would improve the stability performance of the HVAC network. This would improve the transfer capabilities of the HVAC network interfaces.

Lastly, the converter stations of the integrated HVDC network can be designed in a manner that would improve the system voltage performance during contingencies. This would also improve the transfer capabilities of the underlying HVAC network interfaces.

These are only a few of the advantages that have been demonstrated to be achievable by converting an ac circuit to a dc circuit. To quantify these benefits, detailed dc integration studies would be required.

**Q. Would the single circuit HVDC line, from point to point, as proposed by NYRI, realize these benefits?**

A. No. The most significant of these benefits would be realized only when a integrated system approach is taken.

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

A. Yes