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October 10, 2006

Sent via E-mail

Office of Electricity Delivery
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Attention: 1221 Comments
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Re: Notice of Availability of the National Electric Transmission Congestion Study and Request for Comments

To Whom It May Concern:

Attached, please find the Comments of the New York State Public Service Commission in the above-entitled proceeding. Should you have any questions, please feel free to contact me at (518) 474-7663.

Very truly yours,

Sean Mullany
Assistant Counsel

Attachment

UNITED STATES OF AMERICA
BEFORE THE
DEPARTMENT OF ENERGY

Notice of Availability of the National Electric Transmission Congestion Study and Request for Comments

COMMENTS OF THE PUBLIC SERVICE COMMISSION OF THE STATE OF NEW YORK

BACKGROUND

Pursuant to the Energy Policy Act of 2005, the Secretary of Energy (Secretary) is required to conduct a nationwide study of electric transmission congestion, and issue a report based on the study in which the Secretary may designate "any geographic area experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers" as a National Interest Electric Transmission Corridor [NIETC].[1] If the Secretary designates an area as a NIETC, the Federal Energy Regulatory Commission (FERC or Commission) is authorized to issue permits for the construction and modification of electric transmission within the NIETC, provided certain findings are made.[2]

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[1] 16 U.S.C. §824p(a)(2).

[2] *Id.* FERC must find, *inter alia*, that a state with authority to approve the siting of transmission facilities has withheld approval for more than a year after the filing of an application, or conditioned approval so that the proposed project will not significantly reduce transmission congestion or is not economically feasible.

On August 8, 2006, the United States Department of Energy (DOE) issued a notice in the Federal Register of the issuance of its National Electric Transmission Congestion Study (Congestion Study). DOE has requested comments on the study, on future steps for identifying and addressing electric transmission congestion, and on the possible designation of NIETCs (Notice).

The New York State Public Service Commission (NYPSC) hereby submits its comments pursuant to the Notice. Copies of all correspondence should be addressed to:

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EXECUTIVE SUMMARY

The Federal Power Act does not require the designation of an NIETC. Rather, it provides that the Secretary may designate an NIETC in areas "experiencing electric energy transmission capacity constraints or congestion that adversely affects consumers." 16 U.S.C. §824p(a)(2). While the Congestion Study is an important first step, it does not provide a basis for designating an NIETC in New York State at this time. Although DOE has recently made some data available, a complete review of

the data underlying the conclusions reached in the Congestion Study is still needed. Because a preliminary review of the DOE data shows material discrepancies with data produced by other studies, there is a need to compare and reconcile the DOE data with previously-available data and analyses, such as those performed by the New York Independent System Operator (NYISO).

Further studies are also needed, including detailed full-scale alternating current power flow studies (including thermal, voltage and stability analyses under both normal and contingency conditions). Even more importantly, DOE must develop consistent and generally-applicable methodologies and criteria for identifying and quantifying congestion throughout the Eastern Interconnection. To this end, DOE should convene a technical conference with stakeholders.

New or upgraded transmission is only one possible approach and new generation and/or demand-side reduction within a constrained area may be more cost-effective. The costs of these different approaches can vary widely, and projects built within an NIETC will likely be funded by ratepayers. Therefore, an NIETC should not be designated until a comparative benefit-cost analysis of alternatives, including new or upgraded transmission, new generation and/or demand reduction within the constrained area, is performed. A corridor should not be

designated unless that analysis clearly shows that a transmission-based solution best promotes the public interest.

Before designating an NIETC, DOE should consider the potential market impact of such designation to minimize the disruption of established markets. Prior to designation, DOE should also fully consider already-proposed projects, and information already developed through existing regional and inter-regional planning efforts. Finally, federal involvement should be specifically targeted to those areas which require federal action.

DISCUSSION

I. The Study Does Not Provide A Basis For Designating An NIETC In New York At This Time.

A. The Underlying Data Must Be Evaluated To Assess The Validity Of The Conclusions Which Have Been Drawn.

The Congestion Study identified the Atlantic Coast region from Metropolitan New York to northern Virginia, and southern California, as Critical Congestion Areas based on its finding that it is "critically important to remedy existing or growing congestion problems because the current and/or projected effects of the congestion [in such regions] are severe." The Congestion Study concluded that the entire region needs billions of dollars of new transmission, generation and demand side management (DSM)

over the next decade, and that planning for siting, financing and construction is urgent.

A meaningful evaluation of the Congestion Study's finding that this region is in "urgent" need of transmission upgrades is not possible without a review of the underlying data and further analysis. DOE has only recently posted quantitative information for the Eastern Interconnection. Because of this, a detailed review of the DOE data and modeling assumptions is needed to verify whether the amount and location of congestion has been accurately identified. Until such a review has been completed, it is not possible to assess with particularity whether the congestion the DOE identified represents an urgent problem.

A limited review of the information DOE has provided for New York State reveals discrepancies with analyses recently performed by the NYISO. For example, Figure 3-7 and Appendix 4-2 Table 3 in the Congestion Study identify significant congestion in at least half a dozen paths across upstate New York (outside the New York Metropolitan area). According to the Congestion Study, these are among the 118 most constrained paths in the Eastern Interconnection, based on measures such as shadow price and congestion rent. However, analyses of recent historical congestion by the NYISO and its Independent Market Advisor show relatively little congestion upstate based on those measures. For example, from May to October 2005, the NYISO

found that congestion (shadow prices) between western New York and the Hudson Valley averaged only $2 per MWh,[3] compared to Table 3 in the Congestion Study which shows an all-hours average of about $8 per MWh ($5-$6 on West-Central and $2 on Central-East). Table 3 forecasts even greater congestion (shadow prices) on Moses South, even though historically this line has not been a major constraint. With respect to congestion rents, the NYISO reported that in 2005, over two-thirds of NYISO's congestion rents were located downstate (New York City and Long Island),[4] while the Congestion Study locates less than 15% of congestion rents downstate.[5] Figure 1 below summarizes the value by location of congestion rents in New York reported in the Congestion Study, and the value by location from the NYISO report. These apparent discrepancies in the amount and location of congestion must be explained before considering the designation of a specific NIETC for New York.[6]

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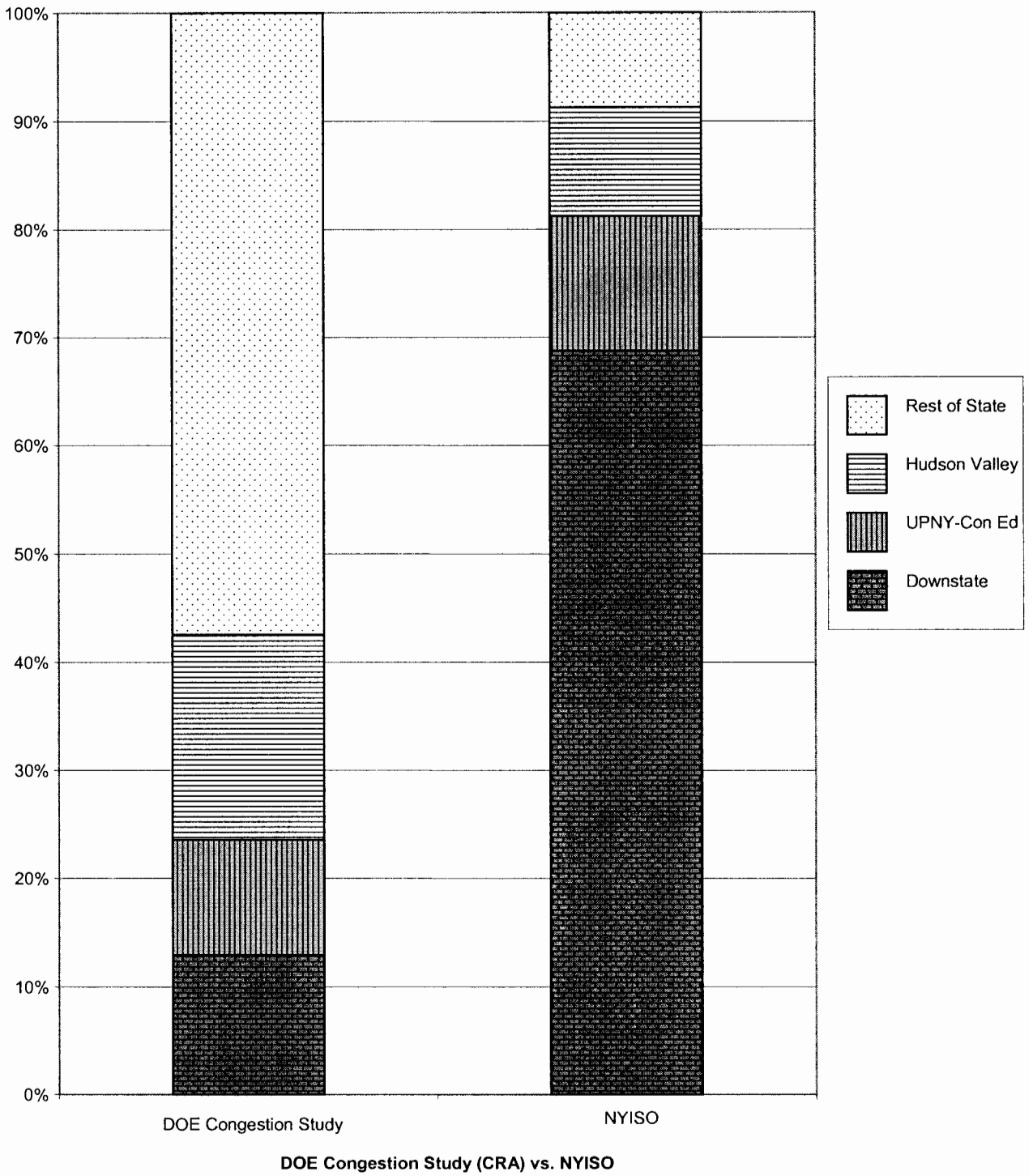
[3] Potomac Economics, Ltd., *New York ISO 2005 State of the Market Report* (August 2006) Figure 41, p. 71. Available at http://www.nyiso.com/public/webdocs/documents/market_advisor_reports/2005_NYISO_SOM_Final.pdf.

[4] *Op cit.*, Figure 36, p. 64.

[5] Congestion Study, at Appendix 4-2, Table 3, "NYPP."

[6] While "congestion rents" are not the same as congestion costs, they provide a reality check of the model outputs.

Figure 1
New York Congestion Rents by Location



DOE Congestion Study (CRA) vs. NYISO

B. Better Modeling And Additional Studies Are Needed.

The DOE employed simulations based on power flow modeling on a decoupled network system, using DC power flow with linear loss estimates. Congestion Report at 9. The DOE simulations, however, were based only on thermal limits, and did not incorporate voltage and stability limits. Congestion Report at 9 & n. 8. While this is an important first step, binding voltage and stability constraints (under both normal and contingency conditions) quite often are a primary source of congestion. Because of this, detailed full-scale AC Power Flow studies (including thermal, voltage and stability analyses under both normal and contingency conditions) are needed before it can be determined whether the designation of a particular NIETC is warranted.[7]

As noted in the NYISO's Comprehensive Reliability Plan 2005, the performance of the transmission system and its elements must be evaluated using thermal, voltage and stability criteria, and transfer limits are established based on the most

[7] The AC Power Flow studies should encompass as large a system as possible, up to the size of the entire Eastern Interconnection, although equivalents can be used if necessary. The emphasis should be on inter-regional studies, which up to this point have been conducted only on a limited basis, compared to planning studies which have been performed within each region.

limiting of these criteria.[8] This is because the dynamic reactive power capability of the transmission system in a given area directly affects transfer limits.[9] The inability of the DOE modeling to consider voltage and stability limits significantly undermines DOE's ability to identify and measure congestion because congestion is a direct function of system capacity.

The NYPSC recommends that DOE employ the methodology used by the NYISO in its Comprehensive Reliability Planning Process. That methodology is a "sequential and iterative process" which involves both (1) a transmission screening analysis using the Power Systems Simulator for Engineering (PSS/E) software, in conjunction with the NYISO's voltage contingency analysis program ("VCAP"); and (2) a resource adequacy assessment employing GE Energy's Multi-Area Reliability Simulation program ("MARS"). This approach considers the electrical properties of the system in conjunction with a probabilistic resource adequacy assessment.[10]

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[8] *See* NYISO, The Comprehensive Reliability Plan 2005: A Long-term Reliability Assessment of New York's Power System, p.28 (August 22, 2006) ("CRP 2005"). Available at http://www.nyiso.com/public/index.jsp.

[9] CRP 2005, at p.7 [In establishing the baseline for the ten-year study period, concerns over the voltage performance of the New York transmission system were "a major factor" in significant reductions in transfer limits in order to maintain system security. This, in turn, translated into increased resource requirements].

[10] CRP 2005, at 16-17.

In addition, DOE must review the input assumptions which were used by CRA International in the GE MAPS simulation of the Eastern Interconnection. The New York State Department of Public Service staff has identified a number of corrections that are needed for future analysis, which are identified in Appendix A. When verifying and correcting its input assumptions, DOE should also consult with established planning authorities.

C. Better Methods Are Needed To Measure Congestion.

Consistent and generally-applicable methodologies and criteria are essential to accurately identify and quantify transmission congestion and ensure consistency across the entire interconnection. The Congestion Study relied upon the following criteria: the number of hours constrained path is loaded to its limit; the number of hours a constrained path is loaded above 90% of its limit; the shadow price averaged over all hours in a year; the average shadow price over only those hours during which the constraint was binding (shadow price is zero when constraint is not binding); and the shadow price times flow over all hours the constraint is binding (*i.e.*, "congestion rent").

These criteria do not provide an accurate measure of the cost(s) of congestion. For example, "congestion rent," which is defined as the shadow price for a path multiplied by the flow across the path, is used as a measure of economic congestion.

This is misleading because, at least in New York, congestion rents are paid to loads, typically to offset the embedded costs of the transmission system. Thus, congestion rents represent a benefit to loads, rather than a cost to loads.

A more appropriate measure of the cost of congestion would be the additional cost of local generation required to serve customers in a load pocket. For example, suppose New York City load totals 5,000 MW, while transmission into the City is limited to 4,000 MW. The remaining 1,000 MW of load must be served by local generation. If the local generation's marginal cost is $70/MWh, while the marginal cost of generation outside the load pocket is $50/MWh, then, under this example, the shadow price for the path is $20/MWh, and the total cost of congestion could be estimated as $20,000 per hour (*i.e.*, 1,000 MW x $20/MWh). This represents the additional cost of having to serve the last 1,000 MW of load with local generation at the higher price of $70 per MWh. This is far less than the "congestion rent" approach used in the Congestion Study.[11]

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[11] By comparison, "congestion rent," as that term is defined in the Congestion Study, would total $80,000 per hour (4,000 MW x $20/MWh). This rent would be paid to load, offsetting congestion on 4,000 MW of New York City load, effectively allowing that load to be served at a net cost of $50 instead of $70 per MWh. Thus, congestion rent reflects the market value of the existing transmission system (4,000 MW) rather than the cost of the remaining congestion (1,000 MW).

However, it more accurately reflects the costs of the congestion.

The DOE should convene a technical conference to develop, and secure general acceptance of, methodologies and criteria for accurately measuring congestion and transmission constraints. We endorse DOE's call for the use of state-of-the-art, verifiable, quantitative methods, and publicly-available data which is developed through a publicly-accessible process which allows for ongoing input and involvement.

II. Cost/Benefit Analyses Must Be Performed Before Designation.

The Congestion Study correctly recognizes that "[i]t is not always cost-effective ... to make the additional investments that would be required to alleviate congestion." Congestion Study at 3. New generation, new or upgraded transmission, and demand reduction are three distinct approaches which "can be used singly or in combination to solve a transmission constraint problem flexibly and cost-effectively." Congestion Study at 4.

The cost/benefit ratio for these different options can vary widely. For example, Con Edison's study found that construction of new transmission lines from upstate into New York City can be five times more expensive than building local generation. However, building new transmission to the west of New York City can be half the cost of new local generation. Con. Edison Co.

of N.Y., Inc., *System Reliability Assurance Study* (December 30, 2005) at p. 12.

Because of this, and because projects built pursuant to a NIETC designation will likely be funded by ratepayers, an NIETC should not be designated until it has been determined that a transmission solution best serves the public need. More specifically, a comparative benefit-cost analysis of new or upgraded transmission, and/or new generation and/or demand reduction within the congested area is necessary before designation of an NIETC. A corridor should not be designated unless a benefit-cost analysis shows that (1) the long-run benefits of greater energy imports into high-cost load centers downstream of the congestion, including savings in energy production costs and the reduced need for generators in the high-cost areas, exceed the long-run costs of constructing new or upgraded transmission; and (2) the savings to be achieved would exceed those which could be realized through demand reduction.

Although a cost-benefit analysis must be performed for each identified constraint, the analysis should examine costs and savings to the system as a whole, rather than merely benefits to downstream load. An NIETC should only be designated if the cost/benefit analysis shows a transmission solution will <u>clearly</u> yield a net positive benefit to the system. The alternative,

i.e., requiring new or upgraded transmission even where costs exceed benefits, could interfere with market signals and unnecessarily raise costs to consumers.

III. The Designation Of National Interest Electric Transmission Corridors Should Minimize The Impacts Of Designation On Competitive Markets.

A. The Criteria Used to Designate A NIETC Should Include The Market Impact Of Such A Designation.

The Congestion Study identifies the following criteria to be used in designating NIETCs: Reliability, Reduced Electricity Supply Costs, Diversification of Generation Sources and/or Generation Fuels, and National Energy Policy and National Security. Congestion Study at 61. The designation criteria should also include the potential market impact of the designation itself. The very act of designating a specific NIETC could cause downstream project developers to abandon already-planned facilities. Such impacts should be considered before an NIETC is designated in order to minimize disruption of existing markets.

B. DOE Should Consider Information Developed Through Already-Existing Regional And Inter-regional Planning Processes.

We endorse DOE's support for inter-regional planning efforts, where necessary. Much work has already been done at the regional, and inter-regional levels. DOE should coordinate its designation of NIETCs with already-in-place regional and

inter-regional planning processes.[12] For example, at the regional level, the NYISO currently utilizes a Comprehensive Reliability Planning Process to identify long-term reliability needs for the bulk transmission system looking ten years ahead. The NYISO's Planning Process starts with clearly defined reliability rules, and provides a well-defined process for determining reliability needs on the bulk transmission system. This process affords an opportunity for market participants to present proposed solutions, such as generation, transmission or demand-response, which meet the identified needs. Where the NYISO identifies any reliability concerns, its regional planning process encourages market participants to step forward with solutions, shifting the risk for these types of investments from ratepayers to developers. If no market-based solutions materialize, the affected utility is responsible for facilitating a regulated solution, considering generation, transmission, and/or demand-response solutions that may address the reliability need.[13]

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[12] The Congestion Study notes that the Independent System Operators (ISO) and Regional Transmission Operators (RTO) in the Eastern Interconnection routinely conduct public and well-vetted transmission planning and reliability studies which provide extensive data that are useful for identifying congestion and associated costs. Congestion Study at 15.

[13] The regulated back-stop solutions are overseen by the NYISO and implemented by traditional investor-owned utilities, with costs allocated on the basis of "beneficiaries pay."

At the inter-regional level, the Northeast Coordinated System Plan ("NCSP") was developed by a Task Force of all Northeast Power Coordinating Council members and PJM, which was formed to develop the first region-wide coordinated planning process for the Northeast since the issuance of Order 888. This effort will supplement each ISO or RTO's individual and more detailed transmission planning processes. In December 2004, the Task Force finalized the NCSP. Although the IESO, Hydro Quebec (Transenergie) and New Brunswick Power are not parties to the protocol, they have agreed to participate on a limited basis.

The ISOs prepared a Scope of Work for the NCSP for 2006, sought stakeholder input, and final results are expected later this year. The NCSP addresses standardizing data and information exchanges, developing a coordinated plan, and initiating a joint stakeholder process. It is anticipated that the NCSP also will address fuel diversity, resource adequacy, transmission adequacy and environmental/air impacts and will identify and foster development of solutions.[14]

A formal mechanism through which the DOE will take into consideration already-proposed projects (*i.e.*, projects developed through existing FERC-approved planning processes)

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[14] Potential inter-regional cost impacts associated with inter-regional planning studies will be addressed in future meetings of the Inter-area Planning Stakeholder Advisory Committee.

will also minimize the market impacts of an NIETC designation. Such a process will provide developers of bona fide market-based generation or demand-response projects greater certainty that such projects will be not be summarily supplanted by the designation of an NIETC.

IV. Federal Involvement Should Be Tailored To Specific Issues Which Require Federal Action.

The Congestion Study seeks input on whether, and when, federal action is needed. Federal action may be appropriate to promote regional planning, for example, by inducing RTOs/ISOs to research and address transmission issues which cross state boundaries. Federal involvement may also be appropriate if necessary to resolve cost-allocation issues between states, and ensure that beneficiaries bear costs. Finally, federal involvement may be warranted when issues transcending state jurisdictions remain unresolved. However, to the greatest extent possible, federal action should be carefully tailored to address specific issues which require federal intervention, and the states' role in the siting and construction of transmission facilities should be preserved whenever possible.

CONCLUSION

More must be done before DOE may designate NIETCs in New York under the Federal Power Act. The data underlying the conclusions reached in the Congestion Study must be reviewed and

compared with other studies. Additional studies are needed, including full-scale AC Power Flow studies with thermal, voltage and stability analyses under both normal and contingency conditions, and benefit/cost analyses for each identified constraint. DOE must develop consistent and generally-applicable criteria for identifying and quantifying congestion.

Designation should only take place if it has been determined that new or upgraded transmission is the appropriate solution, and, to the greatest extent possible, the markets should first be allowed to provide appropriate solutions. The designation process should consider the potential market impacts of the designation itself, and, before designating a specific corridor, DOE should fully consider information developed by already-existing regional planning processes. Finally, federal involvement should be tailored to only those specific issues which require federal action.

Respectfully submitted,

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Dated: October 10, 2006
Albany, New York

APPENDIX A

DOE Congestion Study
GE MAPS Input Assumptions: Eastern Interconnect
Corrected Assumptions for New York

In a March 13, 2006 memo to DOE staff, CRA International identified the input assumptions that it used in the GE MAPS simulation of the Eastern Interconnection. Staff of the New York State Department of Public Service has identified the following corrections that need to be made in future analysis. This list is not intended to be exhaustive.

* Appendix I (Capacity Balance) and Section 12B appear to misrepresent the NYISO's 118% ICAP requirement. It applies that requirement only to upstate load instead of to statewide load. Thus, it assumes New York City (NYC) load only has to procure NYC capacity equal to 80% of NYC peak load ignoring that the remaining 38% requirement must come from upstate resources. Similarly, the Long Island requirement is capped at its local requirement without recognizing that additional capacity resources are required from upstate New York.

* Section 7 (Capacity Additions and Retirements) employs a $65/kW-year cost for GTs, which appears to be very low.

* Section 9 (Environmental Regulations) is not clear on whether the Clean Air Interstate Rule provisions are modeled.

* Section 10 (External Region Supply) models "scheduled" flows from Hydro Quebec to New York, New England and Ontario on 12 months of historical data that might not be typical. CRA international should work with local planners to develop a more realistic schedule.

* Section 12C (Market Model Assumptions - ISO Boundaries) cites high hurdle rates between the NYISO and ISO-New England even though wheeling charges between the two areas were eliminated.

* Section 12D (Market Model Assumptions - Operating Reserves) misstates how New York determines Operating Reserves. New York uses one and a half times the largest single contingency (in MWs).