

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

Consolidated Edison Company	)	
of New York, Inc.	)	
	)	
v.	)	
	)	
Public Service Electric and Gas	)	
Company	)	
	)	
and	)	Docket No. EL02-23-000
	)	
PJM Interconnection, L.L.C.	)	
	)	
and	)	
	)	
New York Independent System	)	
Operator, Inc.	)	

**CORRECTED
PHASE II REBUTTAL TESTIMONY OF MICHAEL C. CALIMANO ON
BEHALF OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.**

1 **I. INTRODUCTION**

2 Q: Please state your name and business address.

3 A: My name is Michael C. Calimano. I am employed by the New York Independent
4 System Operator, Inc. (“NYISO”). My business address is 3890 Carman Road
5 Schenectady, New York 12303.

6

7 Q: Are you the same Michael C. Calimano that submitted Reply Testimony in Phase
8 I of this proceeding and Initial Remand Testimony in Phase II?

9 A: Yes. My title and my responsibilities at the NYISO have not changed in the time
10 since I prepared my earlier testimony.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24

Q: What is the purpose of your rebuttal testimony?

A: Primarily to provide the NYISO’s perspective on a proposed operating protocol that Mr. Michael J. Kormos describes in his Phase II Direct Testimony on behalf of the PJM Interconnection, LLC (“PJM”). As I have previously testified, I believe that it is possible for the NYISO and PJM to cooperatively develop a workable operating protocol to govern the implementation of the 1975 and 1978 Agreements. However, I also believe that some aspects of Mr. Kormos’ proposal are fundamentally inconsistent with the purpose and character of the 1975 and 1978 Agreements and that his proposal would therefore not be an appropriate vehicle for implementing them. I think that the “conceptual framework” that I described in my Initial Remand Testimony represents a better solution that is more consistent with Commission policy because it incorporates locational marginal pricing (“LMP”) principles. The NYISO and PJM should work together to develop an operating protocol based on this framework.

I will also address portions of other testimonies that were inaccurate or that otherwise needed clarification. Specifically, I will address: (i) the discussion in the Testimony of Mr. Robert V. Snow on behalf of the Public Service Electric & Gas Company (“PSE&G”) regarding supposed deficiencies of the NYISO’s interconnection study procedures; (ii) the suggestion in the Supplemental Testimony of Mr. Paul M. Cafone on behalf of PSE&G that PJM should have unilateral authority to determine the distribution and curtailment of flows associated with the 1975 and 1978 Agreements; (iii) the recommendations in the

1 Initial Remand Testimony of William Longhi on behalf of the Consolidated
2 Edison Company of New York, Inc. (“ConEd”) regarding the establishment of
3 new proxy buses and joint study procedures; and (iv) the inter-ISO redispatching
4 and market monitoring proposals in the Initial Remand Testimony of Mr. Robert
5 B. Stoddard on behalf of ConEd.

6
7 **II. THE DEVELOPMENT OF AN OPERATING PROTOCOL**

8 Q: In Section IV of Mr. Kormos’ Phase II Direct Testimony he outlines the “general
9 parameters” of an operating protocol for implementing the 1975 and 1978
10 Agreements. Essentially, he proposes to use a net flow methodology based on the
11 “desired flow” calculation that the NYISO and PJM currently use for the 500kV
12 (5018) Branchburg to Ramapo interconnection. Why do you not support this
13 proposal?

14 A: Some aspects of Mr. Kormos’ proposal may be workable but I do not think that
15 the proposal taken as a whole is appropriate. The 5018 interconnection and the
16 associated Ramapo PARS were built for an entirely different reason, and now
17 serve a different function, than were the facilities constructed under the 1975 and
18 1978 Agreements. The 5018 procedure would therefore be a poor foundation
19 upon which to base an operating protocol for implementing those agreements.

20
21 More specifically, the 5018 interconnection was built to handle scheduled energy
22 deliveries between the New York and PJM Power Pools and the 5018 procedure
23 was designed to account for unscheduled parallel path flows between them. That
24 is why the 5018 operating procedure was set up on a net or “targeted” flow basis

1 and why it continues to be the correct procedure for facilitating scheduled inter-
2 ISO transactions today. By contrast, the 1975 and 1978 Agreements were not
3 intended to account for scheduled energy transactions between the ISOs but were
4 meant to establish a controlled circulation of flows through the PSE&G system to
5 provide an additional transmission path into New York City. The A, B, C, J and
6 K lines were all built for the express purpose of supporting this specific
7 circulation. Using a “5018-like” procedure to govern flows over these facilities
8 would therefore be fundamentally inconsistent with the nature and objectives of
9 the 1975 and 1978 Agreements. It would not address the reliability concerns that
10 necessitated the establishment of an alternative transmission path into New York
11 City or ensure that New York City’s needs were met.

12
13 This assessment is reinforced by the fact that the 5018 procedure itself explicitly
14 states that it is not intended to supersede the 1975 and 1978 Agreements, or the
15 rules governing the PARs that control flows on the “PS-Con Ed tie lines.” It also
16 establishes that “the Ramapo PARS [which control the 5018 interconnection]
17 shall not be set such that the resulting flows on the PS-Con Ed tie lines are in
18 violation of the PS-Con Ed agreement and cannot be corrected with adjustments
19 to the PS-Con Ed PARS.” It seems to me that the NYISO and PJM could not
20 faithfully implement the 1975 and 1978 Agreements by using a procedure that
21 was expressly intended not to influence their implementation. We should focus
22 instead on a model that is both workable and in keeping with the intent of the
23 1975 and 1978 Agreements.

1 Q: Mr. Kormos implies that the Commission “found” that the 5018 procedures was a
2 reasonable template for an operating protocol and precluded other alternatives.

3 Do you agree?

4 A: No. It is true that the Commission’s December 9 order “found” that the desired
5 flow circulation model was a reasonable template in the absence of other
6 evidence. Paragraph 64 of that order is clear, however, that all of its guidance
7 regarding the operating protocol was “preliminary, pending further consideration
8 in Phase II” because the record on these issues had not been extensively
9 developed. My understanding is that the Commission has left room to consider
10 other options.

11
12 Q: Please describe the option that you recommend.

13 A: I believe that the conceptual framework described in my Initial Remand
14 Testimony should be the foundation of a future operating protocol. Under this
15 proposal, deliveries from PSE&G to ConEd would always be scheduled up to a
16 “base level” equal to the amount of “firm” transmission service that the
17 Commission ultimately determines ConEd is entitled to receive under the 1975
18 and 1978 Agreements. The only exception would be if critical bulk power
19 outages on the northern portion of the PSE&G system necessitated a lower level
20 of service. Deliveries under the Agreements above the “base level,” *i.e.*, “non-
21 firm” deliveries, would be scheduled in the NYISO’s Day-Ahead Market only
22 when they were required to mitigate New York City transmission constraints and
23 would result in an equalization of locational marginal prices in New York City
24 and in PSE&G’s northern zone.

1
2 Due to the sequential posting and closing times of the NYISO and PJM markets,
3 PSE&G to ConEd deliveries would first be scheduled in the NYISO's Day-Ahead
4 Market ("DAM") and then in PJM's. These day-ahead schedules would then be
5 realized as the "targeted" levels in the real-time operations of both ISOs. Thus,
6 like Mr. Kormos' proposal, the NYISO's conceptual framework would address
7 the "gaming" concerns acknowledged by the Commission. Third party
8 transactions would be scheduled to the extent that they did not interfere with the
9 ISOs' ability to facilitate the "targeted" level of PSE&G to ConEd service. As I
10 have previously explained, such interference would be an unusual occurrence.

11

12 Q Why is this approach superior to the one proposed by Mr. Kormos?

13 A: First, unlike Mr. Kormos' proposal, it is fundamentally compatible with the
14 purpose of the 1975 and 1978 Agreements. It allows consistent scheduling and
15 generation commitment in the day ahead and real time markets of both ISOs to
16 support the delivery of whatever level of "firm" energy service is ultimately
17 required by the Commission. ConEd would receive the service that it is entitled
18 to, but only under economic conditions when it is appropriate.

19

20 Second, the NYISO's conceptual framework ensures that any flows associated
21 with the 1975 and 1978 Agreements that are found to be non-firm in character
22 will be scheduled based on an inter-regional economic analysis that fairly
23 balances the economic interests of both the New York and PJM regions.

24

1 Third, although the conceptual framework is a significant departure from existing
2 practices it is basically a conservative approach that works with existing software
3 and market rules. In particular, it takes advantage of, instead of working against,
4 the sequential posting and closing times of the NYISO and PJM markets. As I
5 noted in my Initial Remand Testimony, the sequential nature of these posting and
6 closing times seems unlikely to change in the near future.

7
8 Fourth, the proposed conceptual framework incorporates the Commission's
9 recommendation (in Paragraph 38 and footnote 37 of the December 8 Order) that
10 the full 1000 MW of contract flows not be scheduled without first comparing
11 PSE&G's redispatch costs, as reflected by the PJM locational marginal prices in
12 PSE&G's northern zone, against the cost of other options available to ConEd, as
13 measured by the NYISO locational marginal prices for the New York City area.
14 For example, if there is no New York City area transmission constraint in a given
15 hour, then there would be no need for increased non-firm deliveries because there
16 would be no off cost requirements in New York that could be mitigated by
17 increasing the PSE&G-ConEd circulation. The conceptual framework will
18 automatically reach this result through its comparison of locational marginal
19 prices on the NYISO and PJM ends of the ConEd-PS interconnections, and by
20 virtue of its focus on equalizing locational marginal prices in the two regions in
21 light of congestion.

22
23 Fifth, and finally, because the conceptual framework would promote the
24 equalization of locational marginal prices between New York City and PSE&G's

1 northern zone it would be consistent with a major new market design and seams
2 elimination initiative that is currently being developed by the NYISO, ISO New
3 England Inc. (“ISO-NE”) and the Ontario Independent Electricity Market
4 Operator (together, the “ISOs”). Under this initiative, the ISOs would institute a
5 regional “economy energy exchange” that would allow them to engage in
6 economy transactions by incrementing or decrementing the interchange between
7 them whenever price differentials between their markets exceeded an agreed upon
8 threshold. The proposal has been discussed in the ISOs’ stakeholder processes
9 and has been endorsed by the Independent Market Advisor to both the NYISO
10 and ISO-NE. It is likely to be a key component of the Northeastern markets in the
11 near future and it is therefore important that the implementation of 1975 and 1978
12 Agreements be compatible with it. The NYISO’s conceptual framework has this
13 characteristic.

14

15 Q: It has been suggested that not allowing third party transactions that interfered with
16 flows under the 1975 and 1978 Agreements to flow on the PS-Con Ed tie lines
17 would result in a significant reduction of transfer capability between the NYISO
18 and PJM. Is this correct?

19 A: No. The NYISO’s scheduling practice has always been to reserve sufficient
20 transfer capability across the NYISO-PJM interface to ensure the operation of the
21 1975 and 1978 Agreements but this practice does not ordinarily preclude third
22 party transactions. The NYISO normally schedules up to 2500 MW of third party
23 energy transactions across the interface because experience demonstrates that this
24 level of third party transactions does not compromise the expected 1000 MW of

1 circulation under the 1975 and 1978 Agreements through the PSE&G
2 transmission system. I do not believe that a rule preventing the ConEd-PS ties
3 from being used for service that interfered with contract flows would degrade the
4 transfer capability between the NYISO and PJM.

5
6 Q: In the Initial Remand Testimony of Mr. William Longhi (at 6-10), he argues that
7 the NYISO's and PJM's current practice of using a single proxy bus to represent
8 each other's systems would cause inefficient distortions if third party transactions
9 were allowed to flow across the PSE&G – ConEd tie lines. Would the NYISO's
10 conceptual framework address these concerns?

11 A: Yes, I believe that it would. Mr. Longhi's proposed solution was that the NYISO
12 and PJM move to a two proxy bus system. The NYISO's conceptual framework
13 would create the functional equivalent of new proxy buses at the Hudson-Farragut
14 and Linden-Goethals interconnections. They would be facilitate the economic
15 decisions that the NYISO and PJM would employ to determine ConEd-PSE&G
16 tie line deliveries under the operating protocol.

17

18 **III. DELIVERABILITY AND IMPAIRMENT ISSUES**

19 Q. Mr. Snow states in his testimony (at 12-23) that the NYISO's interconnection
20 study requirements "...only analyze the impact of generation and merchant
21 interconnections from the standpoint of reliability" and that "there is no attempt to
22 analyze the deliverability of particular transactions or generation sources." Is this
23 statement correct?

1 A. Yes, as far as it goes. But what Mr. Snow fails to mention is the reason for those
2 requirements under the NYISO's interconnection study requirements. The
3 NYISO's System Reliability Impact Study Criteria and Procedures ("SRIS
4 Procedures") provide that such studies shall support a minimum interconnection
5 standard that will "...provide access to the transmission system, and does not
6 necessarily include or require providing service across the transmission system"
7 (*e.g.* – for "deliverability to a load"). (SRIS Procedures at 4). The SRIS
8 Procedures are available on the NYISO's website at
9 <<http://www.nyiso.com/services/planning.html>>.

10

11 Q. What is the reason for SRIS procedures' approach?

12 A. The NYISO's SRIS procedures are properly focused on maintaining system
13 reliability. The criteria utilized in these analyses is based upon NERC Planning
14 Standards, Northeast Power Coordinating Council ("NPCC") criteria and
15 guidelines and New York State Reliability Council Reliability Rules. (SRIS
16 Procedures at 3)

17

18 Q. Is the NYISO's system in compliance with the NPCC's Document A-2 "Basic
19 Criteria For design and Operation of Interconnected Power Systems"?

20 A. Yes. As noted in the NYISO's response to PSEG's Data Request R-26, the
21 NYISO must periodically demonstrate its compliance with Document A-2. Its
22 most recent assessment, entitled "Triennial Review of Resource Adequacy
23 Covering the Northeast Power Coordinating Council's New York Control Area
24 for the Years 2002-2006" was approved by the NPCC.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27

Q. Why isn't there a "deliverability" requirement as part of the NYISO's SRIS procedures?

A. There is no need for such a requirement in a LMP environment which utilizes continuous redispatch based upon financial bids and offers to serve load and schedule bilateral transactions. As the NYISO stated in its response to PSE&G Data Request R-25:

In particular, when it considers resource adequacy, the NYISO focuses on locational capacity requirements rather than the deliverability of individual units. That is, the NYISO's resource adequacy evaluation accounts for not just generator availability but the effects of transmission constraints as well. The objective of the NYISO system is to ensure that a set of Resources will meet its resource adequacy criteria rather than considering the "deliverability" of any one Resource.

Q. Can you elaborate on this?

A. Yes. While the NYISO agrees in concept that generation must be "deliverable" to load in order to ensure reliability, in an LMP system there are various ways to accomplish this. One method is to ensure physical deliverability by requiring that new resources pay for adequate transmission to deliver to any load within the region. This, in theory, would provide an unconstrained transmission system from an adequacy standpoint and effectively remove the need for an entity to acquire "physical" transmission capacity since the system, as a whole, will be reliable because any generation resource can be delivered to any load at all times. While such an entity might want to hedge its congestion costs to support any bilateral energy transactions (*e.g.*, by acquiring Transmission Congestion Contracts ("TCCs") or Firm Transmission Rights), under an LMP regime this

1 would be a purely financial decision, with no impact on the physical
2 “deliverability” of a resource.

3

4 Q. Is this the only method to ensure reliability?

5 A. No. The NYISO does not agree that it is necessary to take steps to ensure that a
6 particular generator be physically deliverable to particular loads. From a
7 reliability viewpoint, it is important that generation not be “bottled up” and that an
8 area have sufficient generation to be able to withstand some loss of transmission.
9 The NYISO has both Control Area-wide and internal locational capacity
10 requirements that ensure the reliability of its system; whereas PJM has a
11 deliverability requirement that is imposed on generators. Either practice will
12 ensure reliability.

13

14 Q. How does the NYISO’s SRIS methodology address the issue of “impairments” of
15 service due to the interconnection of additional generation in constrained areas
16 such as in the New York City region?

17 A. This question addresses the existence of load pockets within a region, a situation
18 that exists in the New York City area. The NYISO has developed locational
19 requirements for ensuring resource adequacy in load pockets. The locational
20 requirements address the issue of “impairment” by requiring that a predetermined
21 amount of resources furnishing a resource adequacy product (backed by
22 generation or demand response) to the load pocket be physically sited within the
23 load pocket. This is an acceptable alternative to ensure the reliability of the

1 system from a resource adequacy point of view, and recognizes the constraints
2 imposed by the existing transmission infrastructure.

3

4 Q. So then, as long as the locational requirements are met by the appropriate siting of
5 capacity resources, there is no impairment problem?

6 A. Right. As long as the reliability and resource adequacy criteria are met, there is
7 no meaning to the term “impairment” other than the economic consideration
8 determined by the redispatch of the system under LMP in order to select the least
9 bid production cost solution to meeting system load and bilateral transaction
10 scheduling requirements.

11

12 Q. What if a generator does not want to be restricted in its ability to serve load in
13 areas other than a load pocket—in effect to choose not to have its output
14 “impaired” by transmission constraints that may exist from time to time?

15 A. While, as noted above, the focus of the NYISO’s Commission-approved
16 interconnection study process is on ensuring system reliability, any Customer
17 proposing an interconnection “may separately request a System Impact Study
18 under Sections 19.1 or 32.1 of the OATT to evaluate a transmission expansion or
19 upgrade but this would not be considered part of the SRIS for the
20 interconnection.” (SRIS Procedures at 4)

21

22 Q. In other words, under the NYISO procedures, the interconnecting customer has
23 several options available?

1 A. That's correct. Under the NYISO's OATT and interconnection procedures the
2 interconnecting customer can choose to accept the minimum interconnection
3 standard design (at the corresponding reduced cost) if he is willing to compete in
4 the LMP market with other sources of supply at his interconnection location. In
5 addition, such interconnecting customer is also free to acquire TCCs to hedge the
6 cost of congestion in order to facilitate sales to other areas of the system. On the
7 other hand, an interconnection customer who wants to have unfettered access to
8 serve other regions has the choice to apply for a transmission expansion under the
9 NYISO's Tariff as noted above.

10

11 Q. Can you explain the relevance of these options to the issues in dispute in this
12 docket?

13 A. Yes. Let me first preface my comments by restating that the NYISO does not
14 take a position on the contractual rights afforded under the 1975 and 1978
15 Agreements. Therefore, my response to this question is from the standpoint of the
16 NYISO's SRIS procedures and operational protocols under its congestion
17 management system. Contrary to Mr. Snow's allegations that the SRIS
18 Procedures will impair PSE&G's ability to wheel power under the 1975 and 1978
19 Agreements, ConEd witnesses Jaeger and Rusowicz have indicated that ConEd
20 would agree to reduce the amount of power transfers that it would request under
21 the Agreements if more economical energy supplies are available from local
22 generation or other sources. This is entirely consistent with the NYISO's
23 minimum interconnection standards and with its operation of the New York
24 system at the least bid production cost. Importantly, reliability will be maintained

1 as long as the NYISO's locational capacity requirements are met. As stated
2 above, this does not require the "deliverability" of every available supply source
3 to every load within the NYCA. Mr. Snow's criticism of the NYISO's
4 procedures is therefore without merit.

5
6 Q: What about Mr. Snow's claims that the System Reliability Impact Study for the
7 PG&E Liberty Project was inadequate?

8 A: These claims essentially amount to repeated complaints that the NYISO does not
9 use a physical deliverability requirement. While it appears that PSE&G has its
10 own reasons for favoring a physical deliverability requirement the NYISO, for the
11 reasons I've set forth above does not agree. The Commission has likewise not
12 required the NYISO to adopt a physical deliverability standard.

13

14 **IV. THE CURTAILMENT AND DISTRIBUTION OF FLOWS ASSOCIATED**
15 **WITH THE 1975 AND 1978 AGREEMENTS**

16

17 Q: In his discussion of his proposed operating protocol, Mr. Cafone recommends (at
18 4-5) that PJM have unilateral discretion to distribute power deliveries among the
19 A, B and C lines and to curtail service under the 1975 and 1978 Agreements. Do
20 you agree with this proposal?

21 A: No. As a general matter I favor the NYISO's conceptual framework over Mr.
22 Cafone's proposed operating protocol. That said, most of the elements of his
23 proposal correctly emphasize that the NYISO and PJM should make decisions
24 and develop protocols in a cooperative manner. The major exception is his

1 curtailment and distribution proposal. I understand Mr. Cafone's rationale for
2 concluding that PJM should have the same level of flexibility in operating the
3 PSE&G system that PSE&G had before the advent of ISOs. Nevertheless, in the
4 current LMP environment it would be inappropriate to give either ISO unilateral
5 authority over any part of the operating protocol. Doing so would create an
6 inappropriate opportunity for that ISO to favor the economic interests of its own
7 region over its neighbor's. The Commission should insist that the two ISOs are
8 on an equal footing in every phase of the operating protocol's development.

9

10 Q: In a similar vein, Mr. Longhi states (at 21) that certain outage and curtailment
11 studies should be performed in the first instance by PJM and PSE&G and then
12 shared with the NYISO and ConEd for their consideration in the development of
13 an operating protocol. Do you agree with his review.

14 A: No. For the same reasons stated above I believe that it is important that the
15 NYISO be involved in conducting those studies.

16

17 **V. INTER-ISO REDISPATCHING AND MARKET MONITORING**
18 **PROTOCOLS**

19 Q: Mr. Stoddard recommends (at p.5) that the existing NYISO-PJM Interregional
20 Congestion Management Pilot Program could be expanded into a mechanism for
21 reducing redispatch costs arising under the 1975 and 1978 Agreements. What do
22 you think of this proposal?

23 A: I do not think that the current pilot program could be adapted in the manner that
24 Mr. Stoddard describes. The pilot program is intended solely as a special

1 reliability procedure, which is used just prior to the implementation of NERC
2 TLR procedures to meet reliability criteria, and is only invoked after other
3 economic actions have been taken. The pilot program relies on dispatching
4 resources out-of-merit and does not use LMP to represent transmission
5 congestion. A more comprehensive operating protocol that uses LMP to identify
6 the value of different redispatching options is needed. The NYISO's proposed
7 conceptual framework has this characteristic and would be a better model.

8

9 Q: Mr. Stoddard also recommends that the NYISO and PJM incorporate certain
10 market power monitoring procedures into an operating protocol. What do you
11 think of his proposal?

12 A: I agree that because the NYISO and PJM will need to coordinate their activities in
13 order to implement an operating protocol governing inter-ISO transactions they
14 will also need to coordinate their market monitoring activities. I do not think that
15 Mr. Stoddard's specific proposals should be imposed on the ISOs at this time.
16 Instead, the NYISO and PJM should be encouraged to use them as a starting point
17 in their discussions and to adopt whatever monitoring protocols best suit the
18 operating protocol they create. I do, however, agree with Mr. Stoddard's
19 recommendation that the NYISO and PJM should be authorized to share market
20 monitoring information more freely. I believe that this cannot occur absent a
21 Commission order revising the ISOs' tariffs to allow greater information sharing
22 and I would support such an action by the Commission.

23

24 Q: Does this complete your rebuttal testimony?

1 A: Yes.

Michael C. Calimano

SUBSCRIBED AND SWORN to

before me this 20th day of February, 2003

Notary Public

My Commission expires: _____