UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

New York Independent System Operator, Inc.	)	**Docket Nos. ER00-3591-000, ER00-3591-001 ER00-3591-002 and ER00-1969-001**
New York Independent System Operator, Inc.	)	**Docket No. ER00-3038-002**
New York State Electric & Gas Corporation v. New York Independent System Operator, Inc.	)	**Docket No. EL00-70-003**

NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.'S
MOTION FOR PERMISSION TO IMPLEMENT
HYBRID FIXED BLOCK GENERATION PRICING RULE

Pursuant to Rule 212 of the Commission's Rules of Practice and Procedure,[1] the New York Independent System Operator, Inc. ("NYISO") respectfully moves for permission to implement a revised "hybrid" pricing rule for "fixed block" generation units that bid into the NYISO-administered energy markets. The NYISO believes that the proposed hybrid pricing rule will ensure that energy prices: (i) are determined in a manner consistent with the NYISO's Commission-approved locational based marginal pricing ("LBMP") methodology; (ii) send the most accurate possible economic signals to market participants; (iii) avoid distorting market participants' incentives; and (iv) minimize the need for "uplift" payments by customers located west of New York's Central-East constraint. The NYISO asks that the Commission permit it to implement the proposed hybrid pricing rule by the beginning of the 2001 Summer Capability

Period, *i.e.*, by May 1, 2001. As discussed below, implementing the hybrid pricing rule will not necessitate any changes to the NYISO's tariffs.

The NYISO first proposed to adopt the hybrid pricing rule in its August 25, 2000 *Request for Partial Rehearing* in Docket Nos. ER00-3038-002 and EL00-70-003 ("Rehearing Request"). In addition to asking FERC to take action on the Rehearing Request's proposal, this motion provides additional detail concerning the hybrid rule's implementation, addresses certain questions that have been asked about its effects and explains that it now enjoys broad support among market participants.

I. COPIES OF CORRESPONDENCE

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II. BACKGROUND

A. "Fixed Block" Resources and Current NYISO Dispatching Procedures

"Fixed block" generation resources, or "block-loaded" resources, are units that, because of their operational characteristics, can only be dispatched in one of two states, *i.e.*, they must either be turned completely off, or turned on and run at their maximum capacity. Most of the individual gas turbine generating units in the New York Control Areas ("NYCA") are fixed block units.[2] The inflexibility of fixed block units introduces a complication into the NYISO's LBMP methodology that could conceivably be addressed by several different pricing rules. All

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[1] 18 C.F.R. § 385.212 (2000).

[2] In addition, certain NYCA generating units bid their capacity in fixed multi-unit blocks.

of these rules involve trade-offs, and none presents a perfect solution. The goal must therefore be to identify and adopt a pricing rule that brings the greatest possible benefits and creates the fewest possible problems. The issue is a significant one in New York because it has a large amount, *i.e.*, approximately 3300 MW, of fixed block capacity which is concentrated predominantly in New York City and on Long Island.[3]

The NYISO's Security Constrained Unit Commitment ("SCUC")[4] and Security Constrained Dispatch ("SCD")[5] software calculate day-ahead and real-time LBMPs and make dispatching decisions pursuant to a two-step process. The first step, generally referred to as the "ideal dispatch," is when the NYISO currently calculates LBMP settlement prices and determines whether fixed block units should be turned on or off. In the ideal dispatch, all dispatchable units that have been scheduled for the relevant period are dispatched based on their bids to meet loads at the lowest possible cost given reliability constraints, but without considering other operating and physical limitations. In particular, in the ideal dispatch, all fixed block units are treated as if they could be dispatched at any level between zero and their maximum capacity. Thus, in the

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This is a carry-over from New York Power Pool operations that has previously posed significant dispatching and scheduling problems for the NYISO. Over the past year, however, the NYISO has successfully negotiated agreements to reduce the size of these blocks and thereby substantially mitigated the problems they pose.

[3] Fixed-block units pose fewer pricing problems in the markets administered by ISO-New England or the PJM Interconnection, Inc. because far few gas turbines that must be block loaded participate in those markets.

[4] SCUC is a computerized algorithm that calculates prices in the NYISO-administered day-ahead markets.

[5] SCD is a computerized algorithm that performs the NYISO's real-time dispatch by evaluating the New York Control Area contingency set against the system conditions expected for the next five minutes, or a shorter period under certain circumstances. SCD's results are a key input in the NYISO's calculation of real-time market clearing prices.

ideal dispatch, a fixed block unit that must be run to meet load can set the market-clearing price even if only a portion of its maximum output is actually needed.

The second LBMP calculation step is known as the "final dispatch," which determines actual generator operating schedules. In this step, the NYISO software accounts for the reality that fixed block units are not fully dispatchable. It therefore dispatches fixed block units that must be run at their maximum capacity, and adjusts the ideal dispatch schedules of other units to accommodate the block-loading of the fixed block units.

At the time that the NYISO commenced operations, its practice was to permit a fixed block unit that was chosen to run in the ideal-dispatch to set the market-clearing price even when a less expensive unit was backed down to make room for it in the final dispatch. By contrast, fixed block units that are not dispatched in the ideal dispatch, *i.e.*, units running because of minimum run-time constraints or some other inflexibility, were not permitted to set the clearing price. The NYISO's policy has been to compensate units that are backed down to accommodate fixed block units, and that were scheduled to operate during a particular hour in the day-ahead market, a limited form of lost opportunity cost payment to ensure that they are not penalized for following the NYISO's dispatch signal.

B. Previous Commission Proceedings Involving Fixed Block Pricing

In an April 24, 2000 complaint in Docket No. EL00-70-000,[6] the New York State Electric & Gas Corporation challenged the NYISO's original fixed block pricing methodology. NYSEG complained that it was inappropriate for a fixed block unit to set LBMP when a more economic unit had to be backed down to accommodate it, and for the backed down unit to be paid its lost

[6] *See Complaint of New York State Electric & Gas Corporation to Suspend Market Based Rates for Energy Markets and Request for Emergency Technical Conference*, Docket No. EL00-

opportunity costs.[7] NYSEG also worried that block loading was "over-alleviating" congestion and artificially increasing prices, which it argued could happen when the NYISO's selection of a fixed block unit on the congested side of an interface resulted in decreased generation on the uncongested side, thereby reducing congestion and permitting the fixed block unit to set LBMP on both sides of the interface.

In a July 26, 2000 order on fixed block bidding and various other NYISO issues ("July 26 Order"),[8] the Commission directed the NYISO to revise its fixed block generation pricing methodology. The Commission noted that the NYISO's Market Administration and Control Area Services Tariff ("Services Tariff"), defined LBMP as:

> A pricing methodology under which the price of Energy at each location in the NYS Transmission System is equivalent to the cost to supply the next increment of Load at that location (*i.e.*, short-run marginal cost). The short-run marginal cost takes Generation Bid Prices and the physical aspects of the NYS Transmission System into account. The short-run marginal cost also considers the impact of Out-of-Merit Generation (as measured by its Bid Price) resulting from the Congestion and Marginal Losses occurring on the NYS Transmission System which are associated with supplying an increment of load . . . .[9]

Interpreting this definition, the Commission concluded that "fixed block generation resources should be allowed to set the market price for energy so long as that resource reflects the marginal cost of supplying one more unit of energy."[10] However, the Commission also reasoned that "[i]f it is the case that generation resources, with lower bid prices, are dispatched downward to accommodate more expensive fixed block resources, then the marginal cost of supplying the

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70-000 at 16-19 (April 24, 2000).

7 NYSEG's assumption that the NYISO was paying the lost opportunity costs of backed down units was erroneous. *See infra* n. 12.

8 *New York Independent System Operator, Inc., et al*, 92 FERC ¶ 61,073 (2000).

9 Services Tariff at § 2.97.

10 92 FERC at 61,306.

next increment of load is equal to the bid price of the least expensive unit that has been backed down."[11] Thus, the Commission essentially required the NYISO to calculate LBMPs in the final dispatch rather than the ideal dispatch. The Commission also stated that under its proposed pricing rule, there would be no need to make "lost opportunity cost" payments to backed down units. Fixed block units that were required to run would receive a guarantee payment to make up the difference between the market clearing price, set by the backed down unit, and their bid production costs.[12]

On August 25, 2000, the NYISO filed the Rehearing Request which agreed that there were situations where the NYISO's original fixed block pricing rule would result in LBMPs being set at levels above the actual market clearing level, which would be inconsistent with the NYISO's market design. The NYISO concluded that the Commission's proposed pricing rule would be superior in these instances. At the same time, the Rehearing Request explained that the Commission's proposed fixed block generation pricing rule would likely have a number of unintended adverse effects that the NYISO's original rule would avoid. Under certain conditions, the Commission's proposed rule would artificially depress real-time prices and could: (i) discourage real-time imports from external resources that had been scheduled in the day-ahead market; (ii) impede the development of price-responsive real-time loads in New York; and (iii) give loads a disincentive to participate in the day-ahead market. The NYISO was also concerned

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11 *Id.*

12 It appears that this aspect of the July 26 Order was based on a misunderstanding of the NYISO's pricing methodology. As was noted in Section II.A above, the NYISO policy has been to pay certain backed down units a limited form of opportunity costs to ensure that they are not penalized for following the NYISO's dispatch signal. The NYISO has never made full-fledged lost opportunity cost payments to all backed down units. *See* Harvey-Hartshorn Affidavit at 32-33 for additional detail.

that that the Commission's rule would give one market participant an incentive and opportunity to create potentially substantial uplift costs and, more generally, that it might create a number of other inefficient bidding incentives for generators. The NYISO therefore asked that the Commission allow it to implement a hybrid fixed block pricing rule that would combine the best features of the Commission's proposal and the NYISO's original rule, while minimizing the disadvantages otherwise associated with each.

Specifically, the Rehearing Request demonstrated that it would be more efficient to use the Commission's pricing rule to calculate all day-ahead LBMPs, and to calculate real-time LBMPs when fixed block units were not actually required to meet load, but were operating due to minimum run time constraints or similar inflexibilities. However, it would also be more efficient to use the NYISO's original pricing rule when the operation of fixed block units was economic and necessary, *i.e.*, when they were actually needed to: (i) meet load; (ii) avoid the operation of higher cost units; or (iii) satisfy NERC reserve targets.[13] The Rehearing Request did not describe exactly how this proposal would be implemented.

In its November 8, 2000 order in Docket No. ER00-3591-000, *et al.* ("November 8 Order"), the Commission stated that it believed there was "merit in the 'hybrid' proposal suggested by NYISO for pricing fixed block generation when a lower cost unit is backed down."[14] The November 8 Order suggested that the proposed hybrid pricing rule should be

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[13] The Rehearing Request's analysis was supported by a detailed affidavit prepared by Dr. Scott M. Harvey and Mr. Andrew Hartshorn of LECG ("Harvey-Hartshorn Affidavit"). The Harvey-Hartshorn Affidavit is hereby incorporated by reference into this motion.

[14] *New York Independent System Operator, Inc.*, 93 FERC ¶ 61,142 (2000).

discussed at a technical conference the Commission was convening, and later placed the hybrid rule on the agenda of the January 22-23 technical conference.[15]

C. Recent Developments

There was a NYISO staff presentation and some discussion of the NYISO's proposed hybrid pricing rule at the January 22-23 technical conference. Towards the end of the conference, the Commission's staff asked conference participants to submit comments on the hybrid rule, which was still the subject of active discussions at the time.

Starting in early February, the NYISO's Generation Issues Task Force ("GITF"), which is comprised of NYISO staff and New York market participants, began to review, and develop, the hybrid pricing proposal. In the NYISO's initial post-technical conference comments, the NYISO explained that it was working through the GITF to build consensus support for a hybrid pricing rule.[16] At the time of its initial comments, the GITF was considering two different hybrid pricing rule variations.[17] When the NYISO submitted its reply comments, it announced that NYISO staff had decided to support a slightly modified version of the second variation, and that the GITF had

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[15] 93 FERC at 61,442; *New York Independent Systems Operator, Inc.*, Supplemental Notice of Technical Conference, Docket Nos. ER00-3591-000, *et al.* (January 11, 2001).

[16] *Initial Comments of the New York Independent System Operator, Inc.*, Docket No. ER00-3591-000, *et al.*, at 6-9 (February 8, 2001).

[17] The two variations had common features. In particular, both would have established a preliminary "commitment decision ideal dispatch," during which the NYISO would determine whether fixed block units should be turned on or off. The differences between the two are in their approach to price calculation. Under the first variation, SCD would be modified so that it could operate in one of two states, depending on a human operator's assessment of the system's needs. If the operator determined that all committed capacity was necessary to meet load, SCD would set real-time prices in the ideal dispatch (*i.e.*, pursuant to the NYISO's original pricing rule). If the operator determined that committed capacity was not needed, SCD would set real-time prices in the "commitment decision ideal dispatch," which would prevent the fixed block unit from setting the market clearing price and thus comply with the Commission's proposed pricing rule. By contrast, under the second variation, the operator's discretion would be replaced,

endorsed this proposal.[18] Subsequently, the NYISO made another minor change to its proposal at a February 21, 2001 meeting of the Scheduling and Pricing Working Group ("S&PWG").[19] Finally, on March 1, the NYISO's Management Committee voted unanimously in favor of the revised hybrid pricing rule.

In addition, the NYISO's reply comments clarified that the dispatching of fixed block units would not result in the artificial "over-alleviation" of congestion, or cause high LBMPs on the constrained side of an interface to be generalized across an interface.[20] The NYISO continues to believe that the supposed over-alleviation related price increases identified by NYSEG are actually attributable to other causes, generally changes in western and eastern import schedules.

III. IMPLEMENTATION OF THE NYISO'S PROPOSED HYBRID PRICING RULE

The NYISO proposes to implement a hybrid fixed block pricing rule starting on May 1, 2001. For the reasons referenced above, and as set forth in detail in the Rehearing Request,[21] the proposed hybrid rule is designed to ensure that fixed block units that force more economic units to be backed down: (i) will never set day-ahead LBMPs; (ii) will not set real-time LBMPs when

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and an additional automated dispatch step would be added to SCD, in which uneconomic and unnecessary fixed-block units that had to be scheduled on account of minimum run-times and other inflexibilities would be blocked on, but prevented from setting the clearing price.

18 *Reply Comments of the New York Independent System Operator, Inc.*, Docket No. ER00-3591-000, *et al.*, at 11-12 (February 21, 2001).

19 At the S&PWG meeting, the NYISO staff recommended that a "tolerance band" feature be dropped from the hybrid fixed block pricing system. The tolerance band was intended to prevent inefficient price setting at times when several fixed block units were priced very close to one another. The NYISO staff ultimately concluded, however, that it would be impractical to implement a tolerance band.

20 *Id.* at 12.

21 *See* Harvey-Hartshorn Affidavit at 6.

they are scheduled solely due to their minimum run-times or other inflexibilities; but (iii) can set real-time LBMPs when their operation is economic and necessary, *i.e.*, when they were actually needed to meet load, displace higher cost units, or satisfy NERC reserve targets. As was discussed in the Rehearing Request, the NYISO does not believe that this proposed hybrid pricing rule is "perfect" in the sense that it will always result in LBMPs providing the most efficient possible incentives for every market participant. On the other hand, the operational inflexibilities associated with fixed block units make it impossible to devise a rule that provides perfect incentives in all instances. The NYISO has concluded that its proposed rule will work better, *i.e.*, it will calculate LBMPs that provide efficient incentives more often and inefficient incentives less often, than any practically implementable alternative rule,[22] including the Commission's proposed rule and the NYISO's original pricing rule.[23]

The NYISO will implement the hybrid rule by modifying SCD's current two-step price calculation methodology to include four discrete price calculation steps. Specifically, the first price calculation step, *i.e.*, the "commitment decision ideal dispatch," is intended to determine whether it is necessary to turn fixed block units on or off, and to ensure that new fixed block units are not scheduled at times when other more expensive fixed block units have not yet met their minimum run-times. In this step, SCD blocks on all fixed block units that must be scheduled because of their minimum run-times.

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[22] The price calculation methodology described below is based on the second of the two hybrid pricing rule variations described above in n. 17. The NYISO concluded that although there were potential benefits to adopting the "first variation," under which different SCD pricing methodologies would be used based on a human operator's view of the state of the system, this approach could not, as a practical matter, be implemented.

[23] *See* Harvey-Hartshorn Affidavit at 37-40.

The second step is a "scheduling dispatch" that actually determines operating schedules based on the commitment decision ideal dispatch. In this step, all fixed block units that have not been turned off by the operator, and any that were scheduled in the commitment decision ideal dispatch, are blocked on at their maximum capacity. Five-minute basepoint signals for generators are set in this step.

The third step, "the flexible ideal dispatch" treats all fixed block units as if they were capable of running flexibly regardless of their minimum run-times. It includes all units that were not started in the first step, *i.e.*, fixed block units that are not required to run because of minimum run times. This step identifies fixed block units that are not needed to economically meet load so that they can be blocked on in the final price calculation step.

The fourth and final step is the "pricing pass" where final prices are actually determined. In this step, all uneconomic minimum run-time units that cannot be turned off are blocked on at their maximum capacity.

No tariff changes are required in order to modify SCD's price calculation methodology to include the four steps described above. This level of detail about the workings of the NYISO's software has never been included in the NYISO tariffs for practical reasons. Moreover, the purpose of the NYISO's software changes is simply to comply with the intent of the Commission's July 26 Order, which directed the NYISO to make its price calculation methodology more consistent with the definition of LBMP set forth in Section 2.97 Services Tariff. As was explained in detail in the Rehearing Request, the proposed hybrid pricing rule does this by ensuring that prices most accurately reflect "the marginal cost of supplying one more unit of energy." In most instances, the hybrid rule will operate exactly like the Commission's proposed pricing rule, with the two differing only insofar as the hybrid rule calculates more

accurate real-time LBMPs in certain circumstances. The proposed hybrid pricing rule also permits the NYISO to more accurately account for the cost of out-of-merit generation, as Section 2.97 of the Services Tariff requires.

Once the proposed hybrid rule is implemented, the NYISO staff will carefully monitor its performance to ensure that it comports with NYISO staff's expectations and does not have unintended consequences. The NYISO staff proposes to report back to the NYISO's Business Issues Committee on the hybrid rule's effects no more than one year after its introduction, and will recommend any changes that it deems necessary.

IV. MOTION

WHEREFORE, for the foregoing reasons, the New York Independent System Operator, Inc. hereby respectfully moves for permission to implement the hybrid fixed block generation pricing rule described herein and first proposed in its August 25, 2000 *Request for Partial Rehearing* in Docket Nos. ER00-3038-002 and EL00-70-003, by May 1, 2001.

Respectfully submitted,

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March 20, 2001

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in the above-captioned proceedings in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure 18 C.F.R. § 2010 (1999).

Dated at Washington, D.C. this 20th day of March, 2001.

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UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

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New York State Electric & Gas Corporation **v.** New York Independent System Operator, Inc.	)	Docket No. EL00-70-003

NOTICE OF FILING

Take notice that on March 20, 2001, the New York Independent System Operator, Inc. ("NYISO") filed a motion requesting permission to implement a proposed hybrid fixed block generation pricing rule by May 1, 2001. The NYISO first proposed to adopt the hybrid pricing rule in its August 25, 2000 *Request for Partial Rehearing* in Docket Nos. ER00-3038-002 and EL00-70-003.

The NYISO has served a copy of this filing upon each person designated on the official service list compiled by the Secretary in the above-captioned proceedings.

Any person desiring to be heard or to protest this filing should file a motion to intervene or protest with the Federal Energy Regulatory Commission, 888 First Street, NE, Washington, DC 20426, in accordance with Rules 211 and 214 of the Commission's Rules of Practice and Procedure (18 C.F.R. §§ 385.211 and 385-214). All such motions or protests should be filed on or before _____. Protests will be considered by the Commission in determining the appropriate action to be taken, but will not serve to make protestants parties to the proceeding. Any person wishing to become a party must file a motion to intervene. Copies of this application are on file with the Commission and are available for public inspection.

David P. Boergers
Secretary

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