

December 16, 2014

MEMORANDUM TO THE TRUSTEES

FROM THE PRESIDENT and CHIEF EXECUTIVE OFFICE

**SUBJECT: Firm Market Power Service Tariff Amendment –
Notice of Adoption**

SUMMARY

The Trustees are requested to take final action to approve the amendment of the Authority's Schedule of Rates for Sale of Firm Market Power, Service Tariff No. 1C ("ST 1C") applicable to three market power customers. The proposed ST 1C is attached as Exhibit "A." The revised tariff would become effective with the January 2015 billing period.

BACKGROUND

At their July 29, 2014 meeting, the Trustees directed the publication of a Notice of Proposed Rulemaking ("NOPR") in the *New York State Register* ("*State Register*"), indicating that the Authority proposed to amend its Schedule of Rates for Sale of Firm Market Power, Service Tariff No. 1C ("ST 1C"). The *State Register* notice was published on August 13, 2014 in accordance with the State Administrative Procedure Act ("SAPA"). Through the formal SAPA notice, members of the public were afforded the opportunity to submit written comments during the 45-day comment period in response to the Authority's proposed amendments. The public comment period closed on September 29, 2014.

As explained in the July 29th Memorandum to the Trustees, the Authority proposed these tariff changes in order to modify the Market Energy Charge methodology to reflect a pass through of actual charges incurred by the Authority in its New York Independent System Operator, Inc. ("NYISO") hourly market energy purchases on the customers' behalf, thereby ensuring there is neither an Authority over or under collection. As staff explained, this proposal would remove the application of the monthly average of the NYISO Day-Ahead Market and Real-Time Market energy rates, which is not the most accurate representation of the costs incurred by NYPA in making market energy purchases on behalf of customers.

DISCUSSION

Timely written comments submitted by Air Products and Chemicals, Inc. ("Air Products"), one of the Authority customers served under ST 1C, are attached as Exhibit "B." No other party filed comments. A summary of these comments, plus Authority staff's analysis and recommendations, are set forth below. Revisions consistent with such recommendations are incorporated in ST 1C for which approval is requested today.

Issue 1: NYPA Price Hedging

Air Products (at p. 2) raised a number of concerns regarding NYPA's potential use of price hedging (or financial hedging) under ST 1C. Air Products first commented that the tariff should explicitly state that NYPA would engage in price hedging only if requested by customers. Air Products further requested that NYPA include a definition of price hedging, and that NYPA incorporate additional processes, including the ability for customers to comment on, and veto, any NYPA-proposed price hedges.

Staff Analysis:

Staff notes that its tariff proposal did not purport to change the manner in which price hedging, if any, would be performed. NYPA currently has full discretion to engage in price hedges under ST 1C, and the language on recovering the costs of price hedges was left unchanged. NYPA would apply its reasonable business judgment when pursuing price hedges, which is the same scrutiny NYPA applies when engaging in price hedges for other customer segments. To date, however, NYPA has not entered into any price hedges for the ST 1C customer group and has no plans to do so. Staff also notes that the total contract demand for the ST 1C load is 95 megawatts ("MW"), of which only about 18 MW is allocated to customers whose load is settled on the upstate NYISO load bus affecting Air Products.¹ This size load is relatively small from NYPA's perspective, and staff's decision so far not to enter into a price hedging program reflects the reasonable assumption that the customer base served under ST 1C is not expected to grow.

Because NYPA does not plan on performing price hedges for these customers and due to Air Products' concerns about any hedging costs being imposed, price hedging is an unnecessary component under ST 1C. Therefore, staff recommends removing all references to price or financial hedging from ST 1C.² Removing these provisions, which will assuage Air Products' concerns, also inflicts no prejudice on any tariff customer. Similarly, staff recommends the deletion of (1) references to "long-term" transactions or power purchase agreement transactions to serve the load of the ST 1C customers in proposed Section III.A.C of the tariff and (2) the reference to "financial products" in Section III.B.3 which covers charges related to NYPA's market transactions. Such references are unnecessary as the Market Energy Charge will be based exclusively on procurements made in the NYISO energy markets.

Issue 2: Market Charge

Air Products commented (at p. 2) that ST 1C needs to clearly state that the Market Energy Charge will be based on the actual costs incurred by NYPA for the Billing Period "based on each customer's hourly load schedule and that customer's actual hourly load (as reported by the NYISO)." Further, Air Products requested a specific formula for the Market

¹ 77 MW of market power sold under ST 1C are allocated to Brookhaven National Laboratory, a customer whose load settles on a bus located in the Long Island Power Authority service territory.

² By removing references to price or financial hedging from ST 1C, Air Products' request to include a definition for this term is rendered moot.

Energy Charge be included, “similar to the one in the current ST 1C tariff (but modified for the hourly concept).”

Staff Analysis:

The proposed amendments to ST 1C state that the Market Energy Charge will be based on the actual costs incurred by the Authority in each Billing Period based on the Authority’s purchases made in the NYISO Day-Ahead Market or Real Time Market which, for reasons previously explained, staff believes is an improvement over the existing formula employing monthly average energy prices. The pass-through of such NYISO energy charges does not lend itself to establishing a “specific formula” as requested by the commenter. In addition, NYPA declines to adopt the suggestion that it base its charges on hourly load schedules of the customers. NYPA does not provide hourly billing for any customer segment. Instead, actual metered monthly usage will be used to determine each customer’s portion of the Market Energy Charges for the month, which is how NYPA’s staff currently assesses Market Energy Charges to tariff customers.

Issue 3: Customer Hourly Load Scheduling

Air Products commented (at p. 2) that the tariff is silent on the need for customers to provide hourly load schedules to NYPA. Further, Air Products requested that staff revise the tariff to include language regarding schedules – specifically, “customers are encouraged to submit day-ahead hourly load schedules, the forecast period for the hourly load schedules, that NYPA can accept daily schedules, and how the customer’s hourly loads are scheduled if they fail to provide NYPA with their own forecasted hourly load schedule.”

Staff Analysis:

Air Products correctly observes that the tariff does not require customers to provide hourly load schedules, although ST 1C already instructs NYPA and its customers to “reasonably cooperate and coordinate” on the scheduling for firm power and firm energy in Section IV.A.

After duly considering the concerns raised by Air Products to improve the accuracy of the scheduling process, staff concludes that it is not advisable to require the submission of daily load schedules for each hour. Such schedules may not always prove accurate, and as Air Products itself notes (at pp. 1 and 3), there is a possibility of cross-subsidization of NYISO energy charges between customers in such circumstances. Because requiring the submission of monthly schedules by hour may unreasonably raise customers’ expectations, staff does not recommend this as a requirement.

However, as reinforced by the current provisions in ST 1C, customers are encouraged to voluntarily provide an hourly load schedule each month to the Authority as this will potentially reduce the level of balancing energy that needs to be purchased in the Real-Time Market, and have the effect of lowering the total NYISO charges that need to be allocated to

customers in their Market Energy Charge. As this is only an informal Authority request for hourly schedules, staff does not recommend including this as a ST 1C requirement.

Issue 4: Customer Billing Information

Air Products commented (at p. 3) that NYPA's proposal be modified so that the kilowatt-hours associated with the Market Energy Charge be reported on each bill, rather than have this information made available to customers upon request.

Staff Analysis:

Authority staff agrees with Air Products that it is appropriate for NYPA to report the customers' kilowatt-hours associated with the Market Energy Charge on their monthly energy bill, and has modified the language in the tariff to reflect this change. Customers should note that these kilowatt-hours are used for the apportionment of the charges between customers that are charged to NYPA at the NYISO bus level. These kilowatt-hours are not the billing determinants for the NYISO energy charges themselves.

Issue 5: Definition of Selected Terms

Air Products requested that the Authority should provide a definition for the term "Locational Based Marginal Pricing," if it will be used in the final version of ST 1C.

Staff Analysis:

Staff recommends that ST 1C refer to the NYISO tariff definition to meet Air Products' request to define the term "Locational Based Marginal Price." Staff notes that this term is used only in the narrow circumstances set forth in Section IV.B. in which an additional charge applies for tariff customers whose usage falls below any concurrent entitlement to NYPA firm hydro power.

Issue 6: Splitting Energy Charges for a Common Bus

Air Products expressed its concerns (at pp. 3-4) on how the NYISO ancillary services and energy charges will be split between customers that share a common load bus, which happens to be the case for Air Products and another ST 1C customer. Air Products requested that the Authority adopt a manual billing process for the market power customers served under ST 1C in order to "minimize any potential cross-subsidization" for the NYISO energy charges. Additionally, Air Products suggested the Authority allocate the NYISO ancillary service charges and any residual between NYISO's energy charges for the common bus, using the Authority's current load share ratio approach and, the utility's metered hourly usage.

Finally, Air Products commented that it would be willing to consider paying a small, "reasonable" monthly fee associated with the aforementioned manual billing process used to separate out the energy portion of the NYISO charges shared by those customers behind a

common NYISO load bus. Air Products notes that it would find this solution attractive only if it could agree that NYPA's monthly fee is, in fact, "reasonable."

Staff Analysis:

As was stated in the Staff Analysis in response to Issue 2 concerning the derivation of the Market Energy Charge, the NYISO energy costs incurred by the Authority on the customers' behalf will be allocated based on each customer's actual metered monthly usage. If customers share a common NYISO bus, each customer's portion of the Market Energy Charge will be based on their portion of the actual metered monthly energy usage for the entire NYISO bus. As previously indicated, the Authority does not perform a manual hourly billing process for any set of its customers, and it is unreasonable to adopt the customer's requested process here. NYPA staff also rejects as unreasonable the suggestion that it develop a monthly fee subject to Air Products' approval designed to cover NYPA's costs of performing the manual billing process proposed by Air Products. Staff believes this would be a time-consuming and impractical endeavor that would unreasonably delay this matter, when a viable billing solution is ready to be implemented.

Staff notes that it arrived at its proposed solution for recovering NYISO energy costs in response to customer concerns to achieve greater billing accuracy, and believes this reform will be accomplished through the elimination of the flawed monthly averaging of energy prices and instead passing through to customers the actual NYISO energy costs incurred by the Authority. Accordingly, staff does not recommend the adoption of Air Products' request to perform manual monthly billing.

With respect to NYISO ancillary service charges incurred by the Authority, these will be allocated to the Firm Market Power customers in the same manner as the Market Energy Charge, *i.e.* based on each customer's actual metered monthly usage. This is in accordance with the load-ratio share approach advocated by Air Products and is already in effect.

Miscellaneous Changes

In addition to the tariff changes discussed above, certain miscellaneous and clerical changes were also included to improve the clarity and the readability of the tariff, which do not concern the substantive tariff matters addressed in this proceeding.

FISCAL INFORMATION

Adoption of the proposed amendments to ST 1C will avoid any under or over collection of charges from the customer. Thus, the tariff amendments are net neutral in their fiscal impact to the Authority.

RECOMMENDATION

The Manager – Pricing and Energy Market Analysis recommends that the attached amended Firm Market Power tariff, applicable to the three Firm Market Power customers, be approved and that the Trustees authorize the Corporate Secretary to file a Notice of Adoption

for publication in the *State Register*, in accordance with the State Administrative Procedure Act. It is requested that this tariff become effective with the January 2015 billing period.

It is also recommended that the Senior Vice President – Economic Development and Energy Efficiency, or his designee, be authorized to issue written notice of adoption and the revised tariff leaves, as necessary, to the customers.

For the reasons stated above, I recommend the approval of the above-requested action by adoption of the resolution below.

Gil C. Quiniones
President and Chief Executive Officer

RESOLUTION

RESOLVED, That the Senior Vice President – Economic Development and Energy Efficiency or his designee be, and hereby is, authorized to issue written notice of this final action by the Trustees to the affected Customers as recommended in the foregoing memorandum of the President and Chief Executive Officer; and be it further

RESOLVED, That the Corporate Secretary of the Authority be, and hereby is, directed to file such other notice as may be required with the New York Department of State for publication in the *New York State Register*, and be it further

RESOLVED, That the Chairman, the Vice Chair, the President and Chief Executive Officer, the Chief Operating Officer and all other officers of the Authority are, and each of them hereby is, authorized on behalf of the Authority to do any and all things, take any and all actions and execute and deliver any and all certificates, agreements and other documents to effectuate the foregoing resolution, subject to the approval of the form thereof by the Executive Vice President and General Counsel.

Exhibit “A”

**Firm Market Power Service Tariff Amendment – Notice of
Adoption**

Proposed Service Tariff No. 1C



POWER AUTHORITY OF THE STATE OF NEW YORK
30 SOUTH PEARL STREET
ALBANY, NY 12207

Schedule of Rates for Sale of Firm Market Power

Service Tariff No. 1C
(Supersedes Service Tariff Nos. 1 & 1B)

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Schedule of Rates for Sale of Firm Market Power

I. Applicability

To direct sales of Firm Market Power in total or in part to a Customer for firm Electric Service.

II. Frequently Used Abbreviations and Terms

- kW kilowatt(s)
- kWh kilowatt-hour(s)
- NYISO New York Independent System Operator, Inc. or any successor organization
- OATT Open Access Transmission Tariff
- PAL New York Public Authorities Law
- RY Rate Year
- UCAP Unforced Capacity

Adjusted Energy Usage: This term has the meaning provided for in Section IV.B of this Service Tariff.

Allocation: The amount of Firm Market Power allocated to the Customer by the Authority.

Agreement: An executed agreement between the Authority and a Customer setting forth the terms and conditions applicable to the allocation and sale of Firm Market Power to the Customer, including any amendments made to the agreement.

Authority: The Power Authority of the State of New York, a corporate municipal instrumentality and a political subdivision of the State of New York created pursuant to Chapter 772 of the New York Laws of 1931 and existing and operating under Title 1 of Article 5 of the PAL, also known as the “New York Power Authority” and “NYPA.”

Billing Period: Any period of approximately thirty (30) days, generally ending with the last day of each calendar month but subject to the billing cycle requirements of the local electric utility in whose service territory the Customer’s Facility receiving the Firm Market Power allocation is located.

Contract Demand: The amount of Firm Market Power allocated to the Customer which the Customer agrees to take and pay for in accordance with the Agreement. The Contract Demand shall equal the Allocation.

Customer: A customer that has received an Allocation and who purchases such Allocation from the Authority.

Electric Service: The power and energy provided to the Customer in accordance with the Agreement, this Service Tariff and the Rules.

Facility: The Customer’s place of business specified in the Agreement that will receive or is receiving the Allocation.

Firm Market Energy: Firm energy (kWh) associated with Firm Market Power supplied by Authority to the Customer.

Firm Market Power: Firm capacity (kW) supplied by Authority to the Customer from market sources and/or the Authority's non-Hydro Project-based resources as determined to be available for such use by the Authority.

Locational Based Marginal Price: This term has the meaning provided for in the NYISO Tariffs.

Market Capacity Charge: This term has the meaning provided for in Section III.A.1 of this Service Tariff.

Market Energy Charge: This term has the meaning provided for in Section III.A.2 of this Service Tariff.

NYISO Day-Ahead Market: This term has the meaning provided for in the NYISO Tariffs.

NYISO Real-Time Market: This term has the meaning provided for in the NYISO Tariffs.

NYISO Tariffs: The tariffs of the NYISO, including the NYISO OATT, as such tariffs are amended and in effect from time to time.

NYPA Administrative Charge: This term has the meaning provided for in Section III.A.3 of this Service Tariff.

Rate Year: Rate Year or **RY:** The July Billing Period through the June Billing Period of the following year, beginning July 2012, subject to change based on the Authority's sole discretion.

Rules: The Authority's rules and regulations set forth in Chapter X of Title 21 of the Official Compilation of Codes, Rules and Regulations of the State of New York as may be modified from time to time by the Authority.

Service Tariff: This service tariff, denominated as "Schedule of Rates for Sale of Firm Market Power," as amended from time to time by the Authority.

Takedown: The portion of an Allocation the Customer requests to be scheduled for a specific period as provided for in the Agreement.

Taxes: This term has the meaning provided for in Section III.C.2 of this Service Tariff.

Zone: Geographical regions within New York State (sometimes referred to as "load zones" or "energy regions") designated by the NYISO and identified by letter (A-K) that are used to facilitate energy transactions and administration of the State's power grid.

Additional terms are defined in the text of this Service Tariff.

Unless otherwise indicated, all other capitalized terms and abbreviations used but not defined in this Service Tariff shall have the meaning as set forth in the Agreement.

III. Monthly Rates and Related Charges

A. Monthly Rates and Charges

Subject to the other provisions of this Service Tariff, the monthly rates and charges to be charged to the Customer by the Authority will be set as follows:

1. Market Capacity Charge

The Market Capacity Charge will be based on the following:

- a) The amount of capacity (kW) the Authority needs to secure on the Customer's behalf as required by the NYISO's rules. This is currently expressed by the NYISO as the Unforced Capacity or "UCAP" obligation. The UCAP obligation is inclusive of any locational requirements and adjustments for reserves needed to meet the installed reserve margin.

Capacity can be secured through a combination of sources consisting of the bilateral contracts, NYISO auctions, or any other means as determined to be most appropriate by the Authority in its sole discretion.

- b) The market capacity rate based on the actual monthly capacity price paid by the Authority in securing the NYISO UCAP obligation for the capacity (kW) or any other market capacity rate determined to be the most applicable by the Authority in its sole discretion.
- c) The market capacity rate multiplied by the monthly capacity (kW) quantity will yield the applicable Market Capacity Charge.

2. Market Energy Charge

The Market Energy Charge will be based on the actual costs incurred by the Authority in each Billing Period, as described below:

- a) The Authority may procure Firm Market Energy from the NYISO Day-Ahead Market or NYISO Real-Time Market, as the Authority deems appropriate.
- b) The Customer shall be responsible for payment of any and all Market Energy Charges incurred by the Authority for procuring Firm Market Energy on the Customer's behalf. Such charges may include, but are not limited to, forward energy purchases (i.e. NYISO Day-Ahead Market purchases), balancing energy transactions (i.e. NYISO Real-Time Market transactions), and any third party costs.
- c) The total number of kilowatt-hours recorded on the Customer's meter for the Billing Period allocated by the Customer's local electric utility for delivery of Firm Market Power and reported to the Authority will be used to determine each Customer's portion of the monthly Market Energy Charges. The Authority will report these kilowatt-hours on the Customer's bill.
- d) If there is firm energy other than Firm Market Power being billed to the Customer, the Authority will determine the apportionment of the kilowatt-hours on a case by

case basis. Generally, the total number of kilowatt-hours recorded on the meter shall be multiplied by a percentage based on

1. The methodology provided for in any agreement between the Authority and the Customer's local electric utility for delivery of Firm Market Energy and/or
2. The methodology provided for in Section IV.B of this Service Tariff.

3. NYPA Administrative Charge

The NYPA Administrative Charge will be based on the following:

- a) The amount of the highest interval integrated demand (kW) during each Billing Period recorded on the Customer's meter multiplied by a percentage based on the value reported to the Authority by the Customer's local electric utility for delivery of Firm Market Power. Demand (kW) may not exceed the amount of the Contract Demand.
- b) Monthly NYPA Administrative rate set by the Authority each Rate Year based on any associated overhead and other assigned costs as determined appropriate by the Authority.
- c) The NYPA Administrative rate multiplied by the demand (kW) allocated to the Customer will yield the applicable NYPA Administrative Charge.

B. Other Charges

The Customer shall be responsible for payment of such other charges (collectively, "Other Charges") as a separate charge from the monthly rates and charges to the extent they apply to such Customer.

1. NYISO Transmission Related Charges ("NYISO Charges")

NYISO Charges for services associated with the Authority's responsibilities as load serving entity for the Customer, provided by the NYISO pursuant to NYISO Tariffs, NYISO-related agreements and NYISO procedures associated with the Authority's provision of Electric Service to the Customer. NYISO Charges to be charged to the Customer by the Authority include:

- a. Charges for Ancillary Services 1 through 6 and any new ancillary services as may be provided in accordance with NYISO Tariffs;
- b. Transmission Usage Charges ("TUC") which are Marginal Losses and Congestion costs;
- c. The New York Power Authority "Transmission Adjustment Charge" or "NTAC";
- d. Congestion costs, less any associated grandfathered Transmission Congestion Contracts ("TCCs") as provided in Attachment K of the OATT.
- e. NYISO wide uplift as provided for in the NYISO Tariffs;
- f. Any and all other charges, assessments, or other amounts associated with delivery of Firm Market Power sold to Customers by the Authority, or otherwise associated with the Authority's responsibilities as a load serving entity for Customers, that the NYISO

assesses on the Authority under the provisions of the OATT or under other applicable NYISO Tariffs;

- g.** Any charges assessed on the Authority with respect to the provision of Electric Service to Customers for facilities needed to maintain reliability and incurred in connection with the NYISO's Comprehensive System Planning Process (or similar reliability-related obligations incurred by the Authority with respect to Electric Service to the Customer), applicable tariffs, or required to be paid by the Authority in accordance with law, regardless of whether such charges are assessed by the NYISO or another third party; and
- h.** For avoidance of doubt, if any NYISO Charges described above are incurred by the Authority for any reason with respect to Electric Service to the Customer when the Authority is not serving as the load serving entity for any of the power or energy that is sold to the Customer under this Service Tariff and the Agreement, the Customer shall reimburse the Authority for all such NYISO Charges.

2. Taxes

The Authority will charge and collect from the Customer all local, state and federal taxes, assessments or other charges mandated by local, state or federal agencies or authorities that are levied on the Authority or that the Authority is required to collect from the Customer ("Taxes") if and to the extent such Taxes are not recovered by the Authority pursuant to another provision of this Service Tariff.

3. Market Transaction Charges

The Authority will pass through to the Customer any costs incurred from procuring any capacity or energy described in Sections III.A.1 and III.A.2 of this Service Tariff.

4. Transmission, Wheeling and Delivery Charges

Generally, transmission, wheeling and delivery charges are billed directly to the Customer by the local electric utility.

If there are any charges for transmission, wheeling and delivery made applicable to the Customer under other Authority's tariffs and contracts, they will be charged to the Customer by the Authority as provided for in those documents.

5. Local Electric Utility Charges

The Customer shall reimburse the Authority for all charges, assessments, fees and other amounts, if any, the local electric utility imposes on the Authority in any way related to the provision of data and other information the Authority requires from the local electric utility in connection with providing Electric Service to the Customer. In the event that the local electric utility seeks to impose any such charges, assessments, fees and other amounts on the Authority for the provision of data and other information required by the Authority in order to provide Electric Service to the Customer, the Authority shall provide prior notice thereof to the Customer, and the Customer and the Authority will discuss (i) the nature and amount of such charges, assessments, fees and other amounts, and (ii) whether there are alternative means for obtaining and providing such required data and information which are acceptable to the parties, provided that no party shall be required to agree to any alternative means for obtaining and providing such required data and information.

6. New Charges

The Customer shall be responsible for payment of any and all new costs or charges incurred by the Authority in connection with its provision of Electric Service to the Customer, including but not limited to, charges and costs incurred for supplying Firm Market Power, and any new NYISO Charges as may be defined and applied in any NYISO Tariffs, NYISO-related agreements and NYISO procedures from time to time (collectively, "New Charges"). The Authority, in its sole discretion, may include any such New Charges in the monthly rates or the NYPA Administrative rate, or bill the Customer separately for such New Charges.

7. Minimum Demand Charge

In the Authority's sole discretion, the Customer shall be subject to a monthly minimum billing demand charge calculated as follows. If in any given month Customer's monthly demand usage is less than 75 percent of its Contract Demand, a minimum demand charge equal to 75 percent of the Customer's Contract Demand, times the applicable NYPA Administrative Charge rate shall apply for that month. Such minimum monthly charge shall be in addition to all other charges provided for in this Service Tariff, including but not limited to the Market Energy Charge, Market Capacity Charge and Other Charges as provided for in this Service Tariff.

8. Estimated Billing

If the Authority, in its sole discretion, determines that it lacks reliable data on the Customer's actual demand and/or energy usage for a Billing Period during which the Customer receives Electric Service from the Authority, the Authority shall have the right to render a bill to the Customer for such Billing Period based on estimated demand and estimated usage ("Estimated Bill").

For the purpose of calculating demand (kW) for an Estimated Bill, the demand (kW) will be calculated based on an average of the Customer's used and reported demand (kW) values for the previous three (3) consecutive Billing Periods. If such historical data is not available, then the estimated demand (kW) value for the Estimated Bill will equal the Customer's Contract Demand (kW) amount, based on the Authority's sole discretion.

For the purpose of calculating energy (kWh) for an Estimated Bill, the energy (kWh) will be calculated based on an average of the Customer's used and reported energy (kWh) values for the previous three (3) consecutive Billing Periods. If such historical data is not available, then the estimated energy value (kWh) will be equal to the Contract Demand (kW) amount at 75 percent load factor for that Billing Period, based on the Authority's sole discretion.

If data indicating the Customer's actual demand and usage for any Billing Period in which an Estimated Bill was rendered is subsequently provided to the Authority, the Authority will make necessary adjustments to the corresponding Estimated Bill in accordance with Section III.B.9 of this Service Tariff and, as appropriate, render a revised bill (or provide a credit) to the Customer.

The provisions of Section IV.D of this Service Tariff shall apply to Estimated Bills.

The Authority's discretion to render Estimated Bills is not intended to limit the Authority's rights under the Agreement.

9. Adjustments to Charges

In addition to any other adjustments provided for in this Service Tariff, in any Billing Period, the Authority may make appropriate adjustments to billings and charges to address such matters as billing and payment errors, the receipt of actual, additional, or corrected data concerning Customer meter data and NYISO rebills, including adjustments to the Market Capacity Charge and the Market Energy Charge.

IV. General Provisions

A. Scheduling of Firm Market Energy and Firm Market Power

In each Billing Period the Authority shall, in accordance with the NYISO Tariffs, NYISO manuals and NYISO procedures, schedule and provide to the Customer Firm Market Energy associated with Firm Market Power in an amount equal to the product of: (i) Contract Demand; (ii) the number of hours in the Billing Period; and (iii) Estimated Load Factor. Such Firm Market Energy shall be scheduled to the load bus established by the NYISO for the Facility or any successor load bus thereto established by the NYISO.

With respect to each month in which Electric Service is provided to the Customer by the Authority, the Authority shall, in accordance with the NYISO Tariffs, NYISO manuals and NYISO procedures, ensure that it does not schedule to the Customer in any hour more energy than the lesser of Customer's load in such hour, or Customer's Contract Demand.

With respect to each month in which Electric Service is provided to the Customer by the Authority, the Authority shall, in accordance with the NYISO Tariffs, NYISO manuals and NYISO procedures, schedule and provide UCAP in an amount equal to the applicable value calculated in accordance with NYISO rules, as stated in Section III.A.1 of this Service Tariff.

The Customer and Authority shall reasonably cooperate and coordinate, as necessary, to effectuate the required scheduling and provision of Firm Market Energy and Firm Market Power as required by this Service Tariff and the Agreement. The Authority acknowledges and agrees that the Customer may, from time to time, utilize the services of a third party agent, authorized by the NYISO, to assist the Customer with respect to such scheduling activities. In the event that the Customer appoints such a third party agent, the Authority shall reasonably cooperate and coordinate with such agent, and the Customer shall ensure that its agent reasonably cooperates and coordinates with the Authority, in the same manner as the Parties are required to cooperate in connection with such scheduling activities.

B. Reconciliation of Adjusted Energy Usage and Billing Energy

Where Firm Market Energy is delivered under this Service Tariff in conjunction with other firm energy, including but not limited to firm hydro energy, the amounts supplied by the Authority hereunder shall be reconciled as follows.

In any Billing Period in which the Customer's Adjusted Energy Usage is less than the amount of Firm Energy scheduled in accordance with firm hydro power service tariff and/or Agreement applicable to the Customer (hereinafter referred to as an "Under Consumption"), the Authority will bill the Customer and the Customer shall pay an additional charge (*i.e.* in addition to any other amounts due under this Service Tariff and/or the Agreement) in an amount equal to the amount of the Under Consumption (measured in kWh) multiplied by the positive difference, if any, between (i) the average of the applicable NYISO Day-Ahead Market Locational Based Marginal Price for the Zone for the Billing Period and (ii) the monthly base rate for billing energy applicable to the Customer under the firm hydro power service tariff.

For purposes of this provision, “Adjusted Energy Usage” means the product of (i) the Contract Demand (or, if applicable and less than the Contract Demand, the Takedown), (ii) the Load Factor for the Billing Period, and (iii) the number of hours in the Billing Period (i.e., Adjusted Energy Usage (kWh) = Contract Demand [or, if applicable and less than the Contract Demand, the Takedown] (kW) x Load Factor for the Billing Period (a percentage) x hours in the Billing Period).

The Authority will perform reconciliations for each Billing Period in accordance with this Section after the Authority obtains actual metered demand and energy data recorded on the Facility’s meter from the local electric utility or as otherwise provided for in any Agreement.

C. Delivery of Firm Market Power

The Customer’s local electric utility shall be responsible for delivering Firm Market Power to the Customer. The Authority shall have no responsibility for delivering any Firm Market Power to the Customer.

For the purpose of this Service Tariff, Firm Market Power and Firm Market Energy will be deemed to be offered when the Authority is able to supply Firm Market Power and Firm Market Energy to the Authority’s designated NYISO load bus. If despite such offer, there is a failure of delivery caused by the Customer, NYISO or local electric utility, such failure will not be subject to a billing adjustment pursuant to Section 454.6(d) of the Rules.

D. Rendition and Payment of Bills

1. Specific Customer billed dates will be determined by the Authority on a case by case basis. Generally the Authority will render bills to the Customer for Electric Service no later than the 20th calendar day of the month for charges due for the previous Billing Period. Bills will reflect the amounts due and owing, and are subject to adjustment as provided for in this Service Tariff and the Rules. Unless otherwise agreed to by the Authority and the Customer in writing, the Authority shall render bills to the Customer electronically.
2. Specific Customer payment dates will be determined by the Authority on a case by case basis. Generally the payment of bills by the Customer shall be due and payable by the Customer no later than the 1st business day of the following month.
3. Except as otherwise agreed by the Authority in writing, if the Customer fails to pay any bill when due, an interest charge of two percent of the amount unpaid will be added thereto as liquidated damages, and thereafter, as further liquidated damages, an additional interest charge of one and one-half percent of the sum unpaid shall be added on the first day of each succeeding Billing Period until the amount due, including interest, is paid in full.
4. Unless otherwise agreed to by the Authority and the Customer in writing, in the event the Customer disputes any item of a bill rendered by Authority, the Customer shall pay such bill in the time provided for by this Service Tariff, and adjustments, if necessary, will be made thereafter.
5. If at any time after commencement of Electric Service the Customer fails to make complete payment of any two (2) bills for Electric Service when such bills become due pursuant to this

Service Tariff, the Authority shall have the right to require that the Customer deposit with the Authority a sum of money in an amount equal to all charges that would be due under this

Service Tariff for Electric Service for two (2) consecutive calendar months as estimated by the Authority. Such deposit will be deemed security for the payment of unpaid bills and/or other claims of the Authority against the Customer upon termination of Electric Service. The failure or refusal of the Customer to provide the deposit within thirty (30) days of a request for such deposit will be grounds for the Authority in its sole discretion to suspend Electric Service to the Customer or terminate this Service Tariff.

E. Conflicts

In the event of any inconsistencies, conflicts, or differences between the provisions of this Service Tariff and the Rules, the provisions of the Service Tariff will govern. In the event of any inconsistencies, conflicts or differences between the Service Tariff and any provisions of the Customer Agreement, the provisions of the Agreement will govern.

F. Resale

No customer shall resell any of the power supplied by Authority under this Service Tariff.

Exhibit “B”

**Firm Market Power Service Tariff Amendment – Notice of
Adoption**

Customer Comments

Air Products and Chemicals, Inc.
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www.airproducts.com



23 September 2014

Ms. Karen Delince, Corporate Secretary
Power Authority of the State of New York
123 Main Street, 11-P
White Plains, NY 10601
secretarys.office@nypa.gov

Dear Ms. Delince:

Air Products offers the following comments on NYPA's proposed amendment of the Schedule of Rates (Service Tariff No. 1C or "ST1C") for the Sale of Firm Market Power Applicable to its Market Power Customers. It is our understanding that NYPA is proposing to modify its market energy charge methodology to reflect actual charges incurred by NYPA based on its New York Independent System Operator ("NYISO") hourly market energy purchases on behalf of these customers.

Interpretation of Proposed Tariff Changes

Currently NYPA charges ST1C customers the average monthly Day-Ahead (DA) LBMP energy price for the calendar month times the total kWh consumed in the month regardless of when this energy was actually consumed during the month. While customers have the opportunity to provide monthly hourly load schedules, there is no requirement for them to actually provide these schedules.

The proposed tariff changes seek to more clearly define how NYPA will act as a Load Serving Entity (LSE) for the ST1C customers. Although the proposed tariff language still contains no customer hourly load scheduling requirement, under the proposed tariff changes NYPA would begin bidding the customer's projected hourly loads into the NYISO day-ahead market to procure DA LBMP-priced hourly energy for the customer's scheduled hourly loads. To the extent that the customer takes more or less energy during an hour (as reported by National Grid to NYISO) than they scheduled, the differences from the hourly DA scheduled energy for that hour are net-settled at the Real-Time (RT) LBMP for that hour. NYPA also appears to have included the concept of having the ability to put price hedges in place, but it is not clear how this process might work.

Finally, NYPA seems to assume that each of the three customers supplied under this tariff is connected to separate NYISO buses. However, two of the ST1C customers are behind the same NYISO bus in National Grid's service area. The tariff is silent on what happens if customers supplied under this tariff happen to share a common bus. NYPA staff has informally indicated that they currently plan to simply take the NYISO charges for the common bus and allocate them between the customers on that bus based on their load share ratio of the bus' total load for the month (as determined by the monthly National Grid metered kWh for each customer). We are very concerned that if this is the case the two customers could end up subsidizing each other at various times throughout the month based on them having different usage patterns.

Position on Proposed Tariff Changes

Air Products is one of three customers supplied under this tariff and we happen to share a bus with another ST1C customer. While Air Products supports the basic intent of the proposed ST1C change, we would oppose the change if NYPA cannot come up with a better way to separate the charges for each customer behind a common bus based on their actual hourly load schedule and consumption. If this common bus issue can be addressed (perhaps by a separate manual monthly energy charge allocation procedure) then Air Products would generally support the proposed ST1C changes. However, as currently drafted the proposed ST1C language changes lack

sufficient clarity on concepts like hourly load scheduling, NYPA's process for utilizing hedges for energy purchases under this tariff, and what happens if two customer's share a common bus. To enable customers to minimize their energy costs under ST1C it is important for the ST1C language to address (at least in general terms) the above issues.

Specific Comments

From our perspective there is a gap between how NYPA staff contemplates the monthly energy market charge will be determined and how the proposed ST1C language describes this charge will be determined that needs to be closed. To help NYPA close this gap, Air Products offers the following comments:

NYPA Price Hedging

- Explicitly state that NYPA will put price hedges in place for ST1C only if requested to by ST1C customers. The tariff needs to be clear as whether NYPA would put a hedge in place for an individual ST1C customer or if all ST1C customers supplied under the tariff would need to agree to a NYPA hedge.
- Include a definition of a hedge in Section II. The definition should describe in very general terms the tools NYPA can use for a hedge. The language applicable to defining a hedge is currently inappropriately placed in Section III.A.2.a. Also, the customer(s) needs the ability to at least generally specify the type of hedge that they are comfortable with NYPA using and perhaps the maximum amount they were willing to pay for a hedge. If NYPA could not put a hedge in place for this maximum price then they would not do it.
- If a hedge is put in place then NYPA should provide the customer(s) requesting the hedge with a high-level summary of the type of hedge they put in place and the expected cost. Ideally the customer(s) should have the opportunity to approve/comment on the proposed type of hedge and cost of the hedge before NYPA locks it in.
- Generally explain how the costs of the hedge are passed back to those customers requesting it.
- Specify what customers are responsible for if they want an early termination of a hedge.

Market Charge

- Section III.A.2 needs to explicitly state that the Market Energy Charge will be based on the actual costs incurred by NYPA for the Billing Period based on each customer's hourly load schedule and that customer's actual hourly load (as reported by NYISO) and include a specific formula for the Market Energy Charge similar to the one in the current SC1C tariff (but modified for the hourly concept).

Currently the Market Energy Charge is defined as:

the Market Energy rate (i.e. avg. of the monthly NYISO DA market and the RT energy price based on Customer's location as determined by NYPA) x kWh recorded on the Customer's meter for the Billing Period (adjusted by NYPA if there is more than Firm Market Power being supplied by NYPA to the Customer).

Customer Hourly Load Scheduling

- The tariff is silent on the need for ST1C customers to provide hourly load schedules to NYPA. For the proposed tariff change to work customers need to be able to submit daily hourly load schedules. and the need for the customer to provide hourly load forecasts to NYPA. According to NYPA staff, NYPA can accept daily hourly load schedules from customers. The revised tariff should at least state that customers are encouraged to submit day-ahead hourly load schedules, the forecast period for the hourly load schedules (e.g., on Friday need to submit schedules for Saturday through Monday), that NYPA can accept daily schedules, and how the customer's hourly loads are scheduled if they fail to provide NYPA with their own forecasted hourly load schedules.

Customer Billing Information

- The customer under proposed Section III.A.2.c should not have to request NYPA to provide the kilowatt hours associated with the Market Energy Charge, NYPA needs to supply this information as part of the monthly energy bill.

Definition of Selected Terms

- NYPA needs to review the terms used in the proposed ST1C language change to determine which ones also need to be defined in Section II. For example, hedging (discussed above) needs to be defined in Section II. Additionally, if the term hourly Locational Based Marginal Pricing (LBMP) were to be used then it should be defined in Section II.

How NYPA Splits Energy Charges For a Common Bus

- NYPA staff has informally indicated that it apparently receives monthly NYISO charges for each NYISO bus and not each customer if they happen to share a common bus. There is a difference between the customer's hourly metered kWh that National Grid currently provides to NYPA and the customer's hourly kWh that they report to NYISO (which NYISO uses to determine the hourly NYISO ancillary and energy charges for the market priced power). The NYISO charges for each applicable NYISO bus are the ones that NYPA is now apparently proposing (although the proposed tariff changes are silent on this issue) to pass directly back to each ST1C customer.
- NYPA staff has also informally indicated that for ST1C customers behind a common bus they currently intend to allocate the monthly NYISO energy and ancillary service charges among the customers behind that bus based on the monthly National Grid metered kWh for each customer regardless of how either customer scheduled (or didn't schedule) their hourly loads with NYPA and how that customer actually consumed energy for that hour. Thus, it is likely that there will be some amount of inadvertent cross subsidization taking place between these two customers.
- NYPA staff has informally indicated that one of the reasons they are planning to allocate NYISO charges for customers behind a common bus using National Grid monthly metered kWh is that they are unsure how the National Grid hourly interval data is converted to the NYISO hourly interval data. National Grid Schedule 220 in Section 39.18 details how they adjust hourly interval meter data that they send to NYISO (<https://www2.dps.ny.gov/ETS/jobs/display/download/5526908.pdf>). This document indicates that National Grid uses the following formula:

$\text{Retail load kWh} \times \text{the Local Transmission Efficiency Factor (which is 1.021 for 115 KV transmission)} \times (1 + \text{average UFE Factor which is updated each month})$

National Grid has indicated to Air Products that they would be willing to provide NYPA with the applicable hourly UFE factors for its customers receiving Fitzpatrick power.

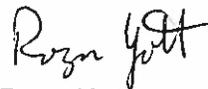
- NYPA can minimize any potential cross-subsidization at least for the NYISO energy charges between ST1C customers that happen to be behind the same NYISO bus by utilizing a manual billing process for these customers. NYPA has the customer's DA hourly load schedules and they can access the applicable DA LBMP energy rates from NYISO. Based on the National Grid hourly metered kWh for each customer and the methodology National Grid uses determine the customer's hourly kWh reported to NYISO NYPA should have a good estimation of the customer's RT hourly loads. Thus, NYPA essentially has the customer's RT hourly loads and they can access the applicable RT LBMP energy rates from NYISO to be able to calculate net settlement costs. Air Products believes that this approach would minimize the amount of hourly energy charge subsidization that could be taking place between the two customers and better assign NYPA's true cost to serve to each customer behind the same NYISO bus.
- With respect to NYISO ancillary service charges and any residual between NYISO's energy charges for the common bus and NYPA's estimate of these charges, NYPA should be able to allocate those to customers behind a common NYISO bus using NYPA's current load share ratio approach using National Grid hourly metered kWh.

- Air Products would be willing to consider paying a small, "reasonable" monthly fee for the manual billing that would be required to separate out the energy portion of the NYISO charges for ST1C customers behind a common NYISO bus. However, Air Products would like to know what any monthly manual billing charge might be before agreeing to accept it.

Conclusion

Air Products respectfully requests the that the NYPA Board of Trustees consider ways to close the gaps discussed above in approving any changes to the ST1C tariff to insure that there is not inadvertent energy charge rate cross-subsidization taking place between ST1C customers behind a common NYISO bus. Ideally, the NYPA Board of Trustees should ask NYPA staff to meet with the ST1C customers to work out mutually acceptable changes to ST1C that better insure NYPA's ability to recover all costs associated with providing ST1C energy to ST1C customers and then bring back a revised set of proposed ST1C changes for the NYPA Board of Trustees to consider.

Sincerely,



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