

ARTICLE 4

MARKET SERVICES: RIGHTS AND OBLIGATIONS

4.1 Market Services

Market Services include all services and functions performed by the ISO under this Tariff related to the sale and purchase of Energy or Capacity, and the payment to Suppliers who provide Ancillary Services in the ISO Administered Markets.

4.2 Independent System Operator Authority

The ISO shall provide all Market Services in accordance with the terms of the ISO Services Tariff and the ISO Related Agreements. The ISO shall be the sole point of Application for all Market Services provided in the NYCA. Each Market Participant that sells or purchases Energy, including Demand Side Resources, sells or purchases Capacity, or provides Ancillary Services in the ISO Administered Markets utilizes Market Services and must take service as a Customer under the Tariff.

4.3 Informational and Reporting Requirements

(Question: *Do we want to revise the Bid/Post system to include demand bids?)*

The ISO shall operate and maintain an OASIS, including a Bid/Post System that will facilitate the posting of Bids to supply Energy and Ancillary Services by Suppliers, and Bids to reduce demand by Demand Side Resources, for use by the ISO and the posting of Locational Based Marginal Prices (“LBMP”) and schedules for accepted Bids for Energy, Ancillary Services and demand reductions. The Bid/Post System will be used to post schedules for Bilateral Transactions. The Bid Post System also will provide historical data regarding Energy

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and Capacity market clearing prices in addition to Congestion Costs.

4.4 Scheduling Prerequisites

Each Customer shall be subject to a minimum Transaction size of one (1) megawatt (“MW”) between each Point of Injection and Point of Withdrawal in any given hour. Each Transaction must be scheduled in whole megawatts. Demand reduction Bids must also be for at least one MW in any given hour.

4.5 Communication Requirements for Market Services

Customers may utilize a variety of communications facilities to access the ISO’s OASIS and Bid/Post System, including but not limited to, conventional Internet service providers, wide area networks such as NERC net, and dedicated communications circuits. Customers shall arrange for and maintain all communications facilities for the purpose of communication of commercial data to the ISO. Each Customer shall be the customer of record for the telecommunications facilities and services its uses and shall assume all duties and responsibilities associated with the procurement, installation and maintenance of the subject equipment and software.

4.6 Load Forecasts, Bids and Bilateral Schedules

By 5 a.m., on the day prior to the Dispatch Day: (i) All LSEs serving Load in the NYCA shall provide the ISO with Day-Ahead and seven (7) day Load forecasts; and (ii) LSEs and

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Suppliers who participate in the Day-Ahead Market shall provide the ISO with:

1. Bids to supply Energy and/or Ancillary Services from Generators;
2. Requests for Bilateral Transaction schedules; ~~and~~
3. ~~3.~~ Bids to purchase Energy in the Day-Ahead Market; and
4. ~~4.~~ Bids to reduce Demand from Demand Side Resources.

In general, the information provided to the ISO shall include the following:

Load Forecasts - The Load forecast shall indicate the predicted level of Load in MW by Point of Withdrawal for each hour of the following seven (7) days.

Bids to Supply Energy and/or Ancillary Services from Suppliers - Bids from Suppliers shall identify the Capacity, in MW, available for commitment in the Day-Ahead Market (for every hour of the Dispatch Day) and the price(s) at which the Supplier will voluntarily enter into dispatch commitments. The Bids shall identify the resource as Dispatchable (On-Dispatch or Off-Dispatch) or non-Dispatchable and will identify the Ancillary Services that are available from the resource. The Bids may separately identify Minimum Generation and Start-Up Bids and variable Energy price Bids.

Bilateral Transaction Schedules - Bilateral Transaction schedules shall identify hourly Transaction quantities (in MW) by Point of Injection and Point of Withdrawal and provide other information (as described in Attachment D).

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Bids to Purchase Energy in the Day-Ahead Market - Each purchaser shall submit Bids indicating the hourly quantity of Energy, in MW, that it will purchase from the Day-Ahead Market for each hour of the following Dispatch Day. These Bids shall indicate the quantities to be purchased by Point of Withdrawal. The Bids may identify prices at which the purchaser will voluntarily Curtail the Transaction.

Bids to Reduce Demand in the Day-Ahead Market - Bids from Demand Side Resources shall: (i) identify the amount of demand, in MW, that the Demand Side Resource is willing to reduce in the Day-Ahead Market; (ii) specify the Day-Ahead LBMP at which the Demand Side Resource is willing to reduce its demand; (iii) state the minimum period of time that the Demand Side Resource is willing to reduce its demand; and (iv) specify the Curtailment Initiation Costs that the Demand Side Resource must incur in order to reduce its demand.

4.7 ISO Responsibility to Establish a State-wide Load Forecast

By 6 a.m., on the day prior to the Dispatch Day, the ISO will verify the Individual Load forecasts from the LSEs. Should the ISO determine that Individual Load forecasts are inconsistent with the ISO's forecast, the ISO will evaluate the discrepancies between them. By 8 a.m., the ISO will develop and publish its statewide Load forecast on the OASIS. The ISO will use this forecast to perform the SCUC for the Dispatch Day.

4.8 Customer Responsibilities

All purchasers in the Day-Ahead or Real-Time Markets who withdraw Energy within the NYCA or at an NYCA Interconnection with another Control Area must obtain Transmission Service under the ISO OATT.

All LSEs serving Load in the NYCA must comply with the Installed Capacity

requirements set forth in Article 5 of the ISO Services Tariff.

All Customers taking service under the ISO Services Tariff must pay the Market Administration and Control Area Services Charge, as specified in Rate Schedule 1.

All Demand Side Resources that submit demand reduction Bids and are scheduled in the SCUC to reduce demand are expected to reduce their real-time Energy consumption. Scheduled Demand Side Resources that fail to reduce their Energy consumption shall forfeit any payments received in connection with the scheduled demand reduction Bid and shall pay a penalty equal to 100% of the higher of the Day-Ahead LBMP or the Real-Time LBMP.

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All Customers shall comply with all applicable federal, state and local laws, regulations and orders.

4.9 Security Constrained Unit Commitment (“SCUC”)

Subject to ISO Procedures and Good Utility Practice, the ISO will develop a SCUC schedule over the Dispatch Day using a computer algorithm which simultaneously minimizes the total Bid Production Cost of: (i) supplying power to satisfy accepted purchasers’ Bids to buy Energy from the Day-Ahead Market; (ii) providing sufficient Ancillary Services to support Energy purchased from the Day-Ahead Market; (iii) committing sufficient Capacity to meet the ISO’s Load forecast and provide associated Ancillary Services; and (iv) meeting Bilateral Transaction schedules submitted Day-Ahead. The computer algorithm shall consider whether accepting demand reduction Bids by Demand Side Resources will reduce the total Bid Production Cost. The schedule will include commitment of sufficient Generators and/or Interruptible Load to provide for the safe and reliable operation of the NYS Power System. In cases in which the sum of all Bilateral Schedules and all Day-Ahead Market purchases to serve Load within the NYCA in the Day-Ahead schedule is less than the ISO’s Day-Ahead forecast of Load, the ISO will commit resources in addition to the reserves it normally maintains to enable it to respond to contingencies. The purpose of these additional resources is to ensure that sufficient Capacity is available to the ISO in real-time to enable it to meet its Load forecast (including associated Ancillary Services). In addition to all Reliability Rules, the ISO shall consider the following information when developing the SCUC schedule: (i) Load forecasts provided to the ISO and adjusted as required by the ISO; (ii) Ancillary Service

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requirements as determined by the ISO; (iii) Bilateral Transaction schedules; (iv) price Bids and operating Constraints submitted for Generator or Demand Side Resources (Mollie: Do you think that this existing language is enough to do the trick for “PRL” purposes); (v) price Bids for Ancillary Services; (vi) Decremental Bids for Bilateral Transactions; (vii) Ancillary Services in support of Bilateral Transactions; and (viii) Bids to purchase Energy from the Day-Ahead Market. The SCUC schedule shall list the twenty-four (24) hourly injections for: (a) each Generator or Demand Side Resource whose Bid the ISO accepts for the following Dispatch Day; and (b) each Bilateral Transaction scheduled Day-Ahead.

In the development of its SCUC schedule, the ISO may commit and decommit Generators based upon any flexible Bids, including Minimum Generation and Start-Up Bids, Energy, and Incremental Bids and Decremental Bids received by the ISO.

The ISO will select the least cost mix of Ancillary Services, ~~and~~ Energy Suppliers and demand reduction Bids by Demand Side Resources. The ISO may substitute higher quality Ancillary Services (i.e., shorter response time) for lower quality Ancillary Services when doing so would result in an overall least cost solution. For example, 10-Minute Non-Synchronized Reserve may be substituted for 30-Minute Reserve if doing so would reduce the total cost of providing Energy and Ancillary Services.

4.10 Reliability Forecast

In the SCUC program, system operation shall be optimized based on Bids over the Dispatch Day. However, to preserve system reliability, the ISO must ensure that there will be

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sufficient resources available to meet forecasted Load and reserve requirements over the seven (7)-day period that begins with the next Dispatch Day. The ISO will perform a Supplemental Resource Evaluation (“SRE”) for days two (2) through seven (7) of the commitment cycle. If it is determined that a long start-up time Generator is needed for reliability, the ISO shall accept a Bid from the Generator and the Generator will begin its start-up sequence. During each day of the start-up sequence, the ISO will perform an SRE to determine if long start-up time Generators will still be needed as previously forecasted. If the Generator is still needed, it will continue to accrue start-up cost payments on a linear basis. If at any time it is determined that the Generator will not be needed as previously forecasted, the ISO shall order the Generator to abort its start-up sequence, and its start-up payment entitlement will cease at that point.

The ISO will commit to long start-up time Generators to preserve reliability. However, the ISO will not commit resources with long start-up times to reduce the cost of meeting Loads that it expects to occur in days following the next Dispatch Day. Supplemental payments to these Generators, if necessary, will be determined pursuant to the provisions of Attachment C and will be recovered by the ISO under Rate Schedule 1 of the ISO OATT.

The ISO shall perform the SRE as follows: (1) The ISO shall develop a forecast of daily system peak Load for days two (2) through seven (7) in this seven (7)-day period (using LSE forecast data, where appropriate) and add the appropriate reserve margin; (2) the ISO shall then

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forecast its available Generators for the day in question by summing the Operating Capacity for all Generators currently in operation that are available for the commitment cycle, the Operating Capacity of all other Generators capable of starting on subsequent days to be available on the day in question, and an estimate of the net Imports from External Bilateral Transactions; (3) if the forecasted peak Load plus reserves exceeds the ISO's forecast of available Generators for the day in question, then the ISO shall commit additional Generators capable of starting prior to the day in question (e.g., start-up period of two (2) days when looking at day three (3)) to assure system reliability; (4) in choosing among Generators with comparable start-up periods, the ISO shall schedule Generators to minimize Minimum Generation and Start-Up Bid costs of meeting forecasted peak Load plus Ancillary Services consistent with the Reliability Rules; (5) in determining the appropriate reserve margin for days two (2) through seven (7), the ISO will supplement the normal reserve requirements to allow for forced outages of the short start-up period units (e.g., gas turbines) assumed to be operating at maximum output in the unit commitment analysis for reliability.

The bidding requirements and the Bid tables in Attachment D indicate that Energy Bids are to be provided for days one (1) through seven (7). Energy Bids are binding for day one (1) only for units in operation or with start-up periods less than one (1) day. Minimum generation cost Bids for Generators with start-up periods greater than one (1) day will be binding only for

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units that are committed by the ISO and only for the first day in which those units could produce Energy given their start-up periods. For example, minimum generation cost Bids for a Generator with a start-up period of two (2) days would be binding only for day three (3) because, if that unit begins to start up at any time during day one (1), it would begin to produce Energy forty-eight (48) hours later on day three (3). Similarly, the minimum generation cost Bids for a Generator with a start-up period of three (3) days would be binding only for day four (4).

4.11 Post the Day-Ahead Schedule

By 11 a.m. on the day prior to the Dispatch Day, the ISO shall close the Day-Ahead scheduling process and post on the Bid/Post System the Day-Ahead schedule for each entity that submits a Bid or Bilateral Transaction schedule. Schedules for Energy consumption, reductions of demand by Demand Side Resources and Generator output shall be considered proprietary, with the posting only visible to the appropriate scheduling Customer and Transmission Owners subject to the applicable Code of Conduct (See Attachment F to the ISO OATT). The ISO will post on the OASIS the statewide aggregate resources (Day-Ahead Energy schedules and total operating capability forecast) and Load (Day-Ahead scheduled and forecast) for each Load Zone, and the Day-Ahead LBMP prices (including the Congestion Component and the Marginal Losses Component) for each Load Zone in each hour of the upcoming Dispatch Day. The ISO shall conduct the Day-Ahead Settlement based upon the Day-Ahead schedule determined in accordance with this Section. The ISO will

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provide the Transmission Owner with the Load forecast (for seven (7) days) as well as the ISO security evaluation data to enable local area reliability to be assessed. A Transmission Owner may request commitment of additional Generators (including specific output level(s)) if it determines that additional generation is needed to ensure local area reliability in accordance with the Local Reliability Rules. The ISO will use SRE to fulfill a Transmission Owner's request for additional units. Any requests by Transmission Owners to commit generators not otherwise committed by the ISO in the Day-Ahead Market will be posted upon receipt on OASIS.

4.12 Commitment for Local Reliability

Generating units committed by the ISO for service to ensure local reliability will recover startup and minimum generation costs not recovered in the Dispatch Day. Payment for such costs shall be determined pursuant to the provisions of Attachment C. With the exception of Storm Watch, such payments shall be recovered by the ISO from the local customers for whose benefit the Generation was committed in accordance with Rate Schedule 1 of the ISO OATT. Payments made by the ISO to those Generators shall be in accordance with Attachment C.

4.13 In-Day Scheduling Changes

After the Day-Ahead schedule is published, the ISO shall evaluate any events, including, but not limited to, the loss of significant Generators or transmission facilities that may cause the

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system dispatch to be inadequate to meet the requirements established in the Reliability Rules.

The ISO shall modify, as necessary, the Day-Ahead commitment schedules via SRE to achieve a reliable next-day schedule while minimizing total Bid Production Cost over the remainder of the day to meet Load scheduled Day-Ahead. The ISO may use the following resources in order to prevent or address an Emergency: (i) Bids submitted to the ISO that were not previously accepted but were designated by the bidder as continuing to be available; (ii) new Bids from all Suppliers, including neighboring systems; and (iii) cancellation of/or rescheduling of transmission facility maintenance outages when possible. Actions taken by the ISO in performing supplemental commitments will not change any financial commitments that resulted from the Day-Ahead SCUC.

The ISO will not recall Energy produced by a Generator serving External Load if that Generator is not providing Installed Capacity (and has not indicated that it wishes to qualify as a provider of Installed Capacity) in the NYCA, except that any transaction may be Curtailed in response to the invocation of Transmission Loading Relief procedures by the ISO or by operators of other Control Areas. Energy from non-Installed Capacity providers in New York which is being sold outside the NYCA could be purchased by the ISO, pursuant to ISO Procedures, should an emergency exist in the NYCA.

4.14 Balancing Market Evaluation (Hour-Ahead)

After the Day-Ahead schedule is published, and up to ninety (90) minutes prior to each dispatch hour, Customers may: (i) submit additional Bids to the ISO for Energy from (a) Generators or other resources that are Dispatchable within five (5) minutes and that can be included in, and respond to, the ISO's SCD program and (b) Generators or other resources that provide fixed block Energy (non-Dispatchable) Bids available for the next hour; (ii) lower their Bid Price for Energy from Generators committed by the ISO in the Day-Ahead Market; (iii) change their Bid Price for additional Energy from Generators that were committed by the ISO in the Day-Ahead Market; (iv) propose new Bilateral Transactions; and (v) submit Bids to purchase Energy from the Real-Time Market. The Bids submitted up to ninety (90) minutes before the dispatch hour shall be referred to as Hour-Ahead Bids. The ISO will use the Balancing Market Evaluation ("BME") to determine which Transactions, including External Transactions affecting the NYCA, are permitted in each hour. The ISO shall use the BME ninety (90) minutes before each dispatch hour to determine schedules for the Real-Time Market and Bilateral Transactions including Exports, Imports and Wheels Through. In developing these schedules, the BME will consider updated Load forecasts and evaluate the impact on reliability of the proposed schedules and commitments. The BME will adjust firm Bilateral Transaction schedules based on Incremental Bids and Decremental Bids and all Generator schedules, based

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on their Bids, to maintain reliability. The BME will not determine any prices but will schedule on a least total Bid Production Cost basis. Minimum run-time Constraints will be honored by BME only until midnight of the Dispatch Day.

4.15 ISO Real-Time Dispatch

The ISO shall dispatch the NYS Power System consistent with the Bids that are submitted by Suppliers and accepted by the ISO, while satisfying the actual system Load. The ISO shall use Day-Ahead and Hour-Ahead Bids and shall accommodate Bilateral Transaction schedules and schedule changes to the maximum extent possible consistent with reliability and the Decremental Bids of Bilateral Transaction parties. The ISO shall run a SCD nominally every five (5) minutes to minimize the total Bid Production Costs of meeting the system Load and maintaining scheduled interchanges with adjacent Control Areas over the next SCD interval. Bid Production Costs, for this purpose, will be calculated using accepted Day-Ahead and Hour-Ahead Bids submitted into the Real-Time Market. This dispatch may cause the schedules of Generators providing Energy under Bilateral Transaction schedules to be modified, depending upon the Decremental Bids submitted (or assigned) in association with these schedules.

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4.16 Day-Ahead LBMP Market Transactions

The ISO shall calculate the Day-Ahead LBMPs for each Load Zone and at each Generator bus as described in Attachment B. (Mollie: I will revise Attachment B to clarify that demand reduction Bids may set DA LBMP when I get my hands on it.) Each Supplier that bids a Generator into the ISO Day-Ahead Market and is scheduled in the SCUC to sell Energy in the Day-Ahead Market will be paid the product of: (a) the Day-Ahead hourly LBMP at the applicable Generator bus; and (b) the hourly Energy schedule. Each Demand Side Resource that submits a demand reduction Bid into the ISO Day-Ahead Market and is scheduled in the SCUC to reduce demand will be paid the product of: (a) the higher of the Day-Ahead hourly zonal LBMP (??) or its demand reduction Bid (including its Curtailment Initiation Costs); and (b) the amount of its demand reduction (in MW). The ISO shall allocate the costs of all demand reduction payments to Demand Side Resources in excess of the hourly zonal LBMP on a zonal basis in proportion to the benefits that the demand reduction brings to each zone pursuant to the methodology set forth in (the ISO Procedures? Attachment __ ??) Demand Side Resources shall be solely responsible for making payments to the end-users whose demand reductions they arrange. (Mollie: I think that the cost-allocation language can probably be left for the manual – but I’ve added the preceding sentence for purposes of this draft. Do we want language specifying that end users have no recourse against the NYISO if the Demand Side Resources fail to pay them?). Each LSE that bids into the ISO Day-Ahead Market and has a schedule accepted by the ISO to purchase Energy in the Day-Ahead Market will pay the product of: (a) the Day-Ahead hourly Zonal LBMP at each Point of Withdrawal; and (b) the scheduled

Energy at each Point of Withdrawal. Prior to October 31, 2003 each Demand Side Resource that is scheduled in the SCUC to reduce demand shall not be required to pay for a quantity of Energy (in MW) equal to the amount of its demand reduction (in MW) to the extent that its demand reduction was accomplished by Curtailing Load. The cost of such Energy shall be allocated on a zonal basis in proportion to the benefits that the demand reduction brings to each zone pursuant to the methodology set forth in (the ISO Procedures? Attachment ??) Demand Side Resources that reduce demand by activating Local Generators (??) shall be required to pay for the full amount of Energy needed to serve their Load, despite their demand reduction. The ISO shall publish the Day-Ahead Settlement Load Zone LBMPs for each hour in the scheduling horizon (nominally twenty-four (24) hours). The ISO shall then close the Day-Ahead Settlement.

4.17 Real-Time LBMPs

The ISO shall calculate Real-Time LBMPs at each Generator bus based on data generated by the SCD program and for each Load Zone in accordance with the procedures set forth in Attachment B.

4.18 Real-Time Market Settlement

Transmission Customers taking service under the Tariff, shall be subject to the Real-Time Market Settlement. All withdrawals and injections not scheduled on a Day-Ahead

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basis, including Real-Time deviations from any Bilateral Transaction schedules, shall be subject to the Real-Time Market Settlement. Transmission Customers not taking service under this Tariff shall be subject to balancing charges as provided for under the ISO OATT. Settlements with External Suppliers or External Loads will be based upon hourly scheduled withdrawals or injections. (Real-Time Market Settlements for injections by resources supplying Regulation service follow the rules which are described in Rate Schedule 3.)

For the purposes of this section, the scheduled output of each of the following Generators in each SCD interval shall retroactively be set equal to its actual output in that SCD interval:

- (i) Generators providing Energy under existing contracts (including PURPA contracts) in which the power purchaser does not control the operation of the supply source but would be responsible for penalties for being off-schedule, with the exception of Generators under existing must-take PURPA contracts who have not provided telemetering to their local TO and historically have not been eligible to participate in the NYPP market, which will continue to be treated as TO load modifiers under the ISO-administered markets;
- (ii) Existing topping turbine Generators and extraction turbine Generators producing electric Energy resulting from the supply of steam to the district

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steam system located in New York City (LBMP Zone J) and/or topping or extraction turbine Generators utilized in replacing or repowering existing steam supplies from such units (in accordance with good engineering and economic design) that cannot follow schedules, up to a maximum total of 365 MW of such units; and

- (iii) Existing intermittent (i.e., non-schedulable) renewable resource Generators within the NYCA, plus up to an additional 50 MW of such Generators;

This procedure shall not apply to a Generator at times when it has been scheduled to provide Regulation or Operating Reserves.

A. Settlement When Actual Energy Withdrawals Exceed Scheduled Energy Withdrawals

When the Actual Energy Withdrawals by a Customer over an SCD interval exceed the Energy withdrawals scheduled over that SCD interval, the ISO shall charge the Real-Time LBMP for Energy equal to the product of: (a) the Real-Time LBMP calculated in that SCD interval for each applicable Load Zone; and (b) the difference between the Actual Energy Withdrawals and the scheduled Energy withdrawals at that Load Zone.

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B. Settlement When Actual Energy Injections are Less Than Scheduled Energy Injections

When the actual Energy injections from a Generator over an SCD interval is less than the Energy injections scheduled over that SCD interval, the Supplier shall pay for the Energy imbalance in a charge equal to the product of: (a) the Real-Time LBMP calculated in that SCD interval for the applicable Generator bus; and (b) the difference between the scheduled Energy injections and the lesser of: (i) the actual Energy injections at that bus; or (ii) the SCD Base Point Signals sent to the Supplier in that SCD interval.

C. Settlement When Actual Energy Withdrawals are Less Than Scheduled Energy Withdrawals

When a Customer's Actual Energy Withdrawals over an SCD interval are less than its Energy withdrawals scheduled Day-Ahead over that SCD interval, the Customer shall be paid the product of: (a) the Real-Time LBMP calculated in that SCD interval for each applicable Load Zone; and (b) the difference between the scheduled Energy withdrawals and the Actual Energy Withdrawals at that Load Zone.

D. Settlement When Actual Energy Injections Exceed Scheduled Energy Injections

When actual Energy injections from a Generator over an SCD interval exceeds the Energy injections scheduled the Supplier shall be paid the product of: (1) the

Real-Time LBMP calculated in that SCD interval for the applicable Generator bus and the difference between the scheduled Energy injections and the actual Energy injections up to the SCD Base Point Signals sent to that Supplier by the ISO; unless payment that the Supplier would receive for such injections would be negative (i.e., unless the LBMP calculated in that SCD interval at the applicable Generator's bus is negative). Suppliers shall not be compensated for Energy in excess of the SCD Base Point Signals communicated by the ISO except when the ISO initiates a reserve pick-up, as provided for in the ISO Procedures, or a Transmission Owner initiates a reserve pick-up in accordance with a Reliability Rule, including a Local Reliability Rule. When there is no reserve pick-up or when there is a reserve pick-up but a Supplier is not located in the area affected by the reserve pick-up, that Supplier shall not be compensated for Energy in excess of the SCD Base Point Signal. The Supplier shall be paid based on the product of: (1) the Real-Time LBMP in that SCD interval for the applicable Generator bus; and (2) the difference between (a) the lesser of (i) the actual Energy injection or (ii) the SCD Base Point Signals sent to the Supplier in that interval, and (b) the scheduled Energy injection. When there is a reserve pick-up and a Supplier is located in the area affected by the pick-up, and the Supplier was either scheduled to operate as a result of the BME or subsequently was directed to operate by the ISO, that Supplier shall be paid based on the

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product of: (1) the Real-Time LBMP calculated in that SCD Interval for the applicable Generator bus; and (2) the actual Energy injection minus the Energy injection scheduled Day-Ahead. Generators will not be compensated for Energy produced during their start-up sequence.

4.19 Payments to Suppliers for Regulation Service (“Regulation Service”)

Suppliers of Regulation Service shall receive an Availability payment that is calculated as the product of: (a) the Regulation Market Clearing Price for regulating Capacity; (b) the time in hours or fraction thereof the Supplier is providing Regulation Service; and (c) the regulating Capacity in MW. The methodologies for determining the Regulation Market Clearing Price are set forth in Rate Schedule 3.

4.20 Payments to Suppliers of Reactive Supply and Voltage Support Service (“Voltage Support Service”)

Suppliers of Voltage Support Service shall receive a Voltage Support Service payment in accordance with the criteria and formula in Rate Schedule 2.

4.21 Payments to Generators for Operating Reserves

Suppliers of each type of Operating Reserve will receive Availability payments for each MW of reserve that they provide as requested by the ISO, pursuant to Rate Schedule 4.

Availability payments shall be determined separately for each of the three categories of Operating Reserves: spinning reserve, 10-minute non-synchronized reserve and 30-minute

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reserve. The ISO shall pay Suppliers of each category an Availability payment calculated as the product of: (a) the market clearing price for the applicable reserve; and (b) the MW to be provided by the Suppliers, as selected by the ISO, in the associated reserve category.

Additionally, Class A Units providing spinning reserves shall receive a payment whenever the ISO restricts the output of a Generator for the purpose of creating spinning reserve. The payment that any such provider receives in each SCD interval shall be calculated as the product of: (a) the MW of out-of-merit output reduction as dispatched by the ISO to provide spinning reserves, in that SCD interval; and (b) the maximum Lost Opportunity Cost incurred by any Generator providing spinning reserves in that SCD interval.

Additionally, providers of Operating Reserves shall receive a payment for Energy when the ISO requests Energy under a reserve activation. The Energy payment shall be calculated as the product of: (a) the Energy provided; and (b) the Real-Time Market LBMP.

4.22 Payments to Generators for Black Start Capability

Black Start Capability providers shall receive a payment for Black Start Capability as set forth in Rate Schedule 5.

4.23 Payments for Start-up and Minimum Generation Bids

The ISO shall determine, on a daily basis, if any Generator committed by the ISO in the Day-Ahead Market will not recover its Minimum Generation and Start-Up and Energy Bid Price through Day-Ahead LBMP and Day-Ahead Ancillary Services revenues. If a Generator's

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Minimum Generation and Start-Up Bid plus its net Energy Bid Price over the twenty-four (24) hour day exceeds its Day-Ahead LBMP revenue over the twenty-four (24) hour day, its Day-Ahead LBMP revenue may be augmented by a supplemental payment. However, the amount of the shortfall will be compared to the margin that the Generator receives from being scheduled to provide Ancillary Services that it can provide only if scheduled to operate. The Generator's Ancillary Service margin is equal to the revenue it would have received for providing these Ancillary Services prior to any reductions based on a failure to provide these services less its Bid to provide these services, if any. If, and only to the extent that, the shortfall exceeds these Ancillary Service margins, the Generator will receive a payment pursuant to the provisions of Attachment C. This process will be repeated separately for Dispatch-Day operation. Generators not committed by the ISO to operate in a given Dispatch Day, but which continue to operate due to minimum run time Constraints, shall not receive such a supplemental payment.

Each Generator committed by the ISO in the Real-Time Market whose Real-Time LBMP payments for Energy produced are less than its Minimum Generation and Start-Up Bids to produce that Energy will be compensated by the ISO for the shortfall, in accordance with Attachment C. The ISO shall recover any supplemental payments to Generators through the Rate Schedule 1 charge under the ISO OATT.

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