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# 5.2 Energy Imbalance Service Charges/Credits

The Transmission Provider shall calculate each Market Participant's Energy Imbalance Service Charge/Credit for each hour at each Settlement Location as follows.

- (a) A Market Participant's Energy Imbalance Service Charge/Credit at each Settlement Location shall be equal to that Market Participant's Imbalance Energy at that Settlement Location multiplied by the Locational Imbalance Price for that Settlement Location.
- (b) A Market Participant's Net Energy Imbalance Service Charge/Credit shall be equal to the sum of that Market Participant's Settlement Location specific Energy Imbalance Service Charges/Credits.

### 5.3 Under Scheduling Charges

During any hour, if Locational Imbalance Prices diverge and a Market Participant's load Imbalance Energy is more than 4% (but at least 2 MW) of Reported Load at an applicable Settlement Location in that hour, that Market Participant may be subject to an Under-Scheduling Charge. If the Reported Load is greater than the Scheduled Load by more than 4% of Reported Load (but at least 2 MW) at any Settlement Location, Under-Scheduling Charges will be determined as follows:

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- (a) For Resource Settlement Locations, the Transmission Provider shall sort the Market Participant's negative Imbalance Energy amounts in ascending order according to each Resource's Locational Imbalance Price, with a secondary sort in ascending alphanumeric order of the Resource name for any Resources that have the same Locational Imbalance Price.
- (b) For Load Settlement Locations at which Scheduled Load is less than 96% of Reported Load and the imbalance is at least 2 MW, the Transmission Provider shall sort the Market Participant's positive Imbalance Energy amounts in ascending order according to each load's Locational Imbalance Price.
- (c) Utilizing the sorted lists developed under Sections 5.3(a) and 5.3(b) above, and starting with the Resource with the lowest Locational Imbalance Price, the Transmission Provider shall match each Resource's Imbalance Energy against that Market Participant's load Imbalance Energy, starting with the load Imbalance Energy with the lowest associated Locational Imbalance Price, until all of the load Imbalance Energy has been accounted for or until no additional Resources remain.

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> (d) The following calculation is performed only for Resources that have a Locational Imbalance Price greater than the Locational Imbalance Price for the associated load Settlement Location. A Market Participant's Under-Scheduling Charge, for each Resource identified under Section 5.3(c) as being required to match that Market Participant's Load Imbalance Energy, shall be calculated as follows:

> > Resource Under-Scheduling Charge = (LLIP – RLIP) \* Resource Imbalance Energy, where

- RLIP = Locational Imbalance Price of the Resource Settlement Location,
- LLIP = Locational Imbalance Price of the associated Load Settlement Location,

Resource Imbalance Energy = the amount of that Resource's Imbalance Energy required to offset the Market Participant's load Imbalance Energy as calculated under Section 5.3(c).

5.4 Over Scheduling Charges During any hour, if Locational Imbalance Prices diverge and a Market Participant's load Imbalance Energy ismore than 4% (but at least 2 MW) of Reported Load at an applicable Settlement Location in that hour, that Market Participant may be subject to an Over-Scheduling Charge. If the Scheduled Load is greater than the Reported Load by more than 4% of Reported Load (but at least 2 MW), Over-Scheduling Charges will be determined as follows.

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- (a) For Resource Settlement Locations, the Transmission Provider shall sort the Market Participant's positive Imbalance Energy amounts in descending order according to each Resource's Locational Imbalance Price, with a secondary sort in ascending alphanumeric order of the Resource name for any Resources that have the same Locational Imbalance Price.
- (b) For Load Settlement Locations at which Scheduled Load is greater than 104% of Reported Load and the absolute value of the imbalance is at least
  2 MW, the Transmission Provider shall sort the Market Participant's negative Imbalance Energy amounts in descending order according to each load's Locational Imbalance Price.
- (c) Utilizing the sorted lists developed under Sections 5.4(a) and 5.4(b), and starting with the Resource with the highest Locational Imbalance Price, the Transmission Provider shall match each Resource's Imbalance Energy against that Market Participant's load Imbalance Energy, starting with the load Imbalance Energy with the highest associated Locational Imbalance Price, until all of the load Imbalance Energy has been accounted for or until no additional Resources remain.

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> (d) The following calculation is performed only for Resources that have a Locational Imbalance Price less than the Locational Imbalance Price for the associated load Settlement Location. A Market Participant's Over-Scheduling Charge, for each Resource identified under Section 5.4(c) as being required to match that Market Participant's load Imbalance Energy, shall be calculated as follows:

> > Resource Over-Scheduling Charge = (LLIP-RLIP) \* Resource Imbalance Energy, where

RLIP = Locational Imbalance Price of the Resource Settlement Location,

LLIP = Locational Imbalance Price of the associated Load Settlement Location,

Resource Imbalance Energy = the amount of that Resource's Imbalance Energy required to offset the Market Participant's load Imbalance Energy as calculated under Section 5.4(c).

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### 5.5 Uninstructed Deviation Charges

The Transmission Provider shall calculate Uninstructed Deviation Charges for each hour in which a Resource has been determined to have failed to follow the Transmission Provider's dispatch instructions. For each Resource, whether a Dispatchable Resource or Self-Dispatched Resource, that failed to follow dispatch instructions in accordance with the procedures set forth under Section 4.1(d) of this Attachment AE, the Transmission Provider shall calculate an Uninstructed Deviation Charge as follows:

- (a) For each Dispatch Interval in an Operating Hour, if a Resource's actual output is greater than (EOL + RH), then that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to the actual output (EOL + RH), where EOL and RH are as defined under Section 4.1(d) of this Attachment AE;
- (b) For each Dispatch Interval in an Operating Hour, if a Resource's actual output is less than (EOL - RL), then that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to the actual output -(EOL - RL), where EOL and RL are as defined under Section 4.1(d) of this Attachment AE;
- (c) For each Dispatch Interval in the Operating Hour, if a Resource's actual output is within the acceptable operating range as defined in Section 4.1(d) that Resource's Uninstructed Deviation Megawatt in that Dispatch Interval is equal to zero;

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- (d) For each Operating Hour, the Transmission Provider shall calculate an Hourly Uninstructed Deviation Megawatt for each Resource that is equal to the average of the absolute value of the Uninstructed Deviation Megawatts calculated for each Dispatch Interval for each Resource in that Operating Hour.
- (e) For each Operating Hour and for each Resource, the Transmission Provider shall calculate an Uninstructed Deviation Charge:

Uninstructed Deviation Charge = (Min (Hourly Uninstructed Deviation Megawatt, 25) \* 10 % + (Max (0, Hourly Uninstructed Deviation Megawatt - 25) \* 25 %)) \* the absolute value of the Resource Locational Imbalance Price.

(f) For each Operating Hour, a Market Participant's Uninstructed Deviation Charge shall be equal to the sum of that Market Participant's Resources' related Uninstructed Deviation Charges.

### 5.6 Revenue Neutrality

To the extent that the sum of all charges calculated under Sections 5.2, 5.3, 5.4 5.5 and Section IV.B.2 of Attachment M is not equal to the sum of all credits calculated under Sections 4.5(d), 5.2 and Section IV.B.2 of Attachment M for any hour in the Operating Day, the Transmission Provider shall perform the following calculations for each applicable hour of the Operating Day for each Market Participant such that the total charges are equal to the total credits in each applicable hour.

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