

## **5.4 Transmission Loss Charge Calculation.**

### **5.4.1 Calculation by Office of the Interconnection.**

The Office of the Interconnection shall calculate Transmission Loss Charges for each Network Service User, Market Participant in the PJM Interchange Energy Market, and each Transmission Customer.

### **5.4.2 General.**

(a) The basis for the Transmission Loss Charges shall be the differences in the Locational Marginal Prices, defined as the Loss Price at a bus, between points of delivery and points of receipt, as determined in accordance with Section 2 of this Schedule.

(b) The Office of the Interconnection shall calculate Loss Prices in the form of Day-ahead Loss Prices and Real-time Loss Prices for the PJM Region, in accordance with Section 2 of this Schedule.

(c) If a dollar-per-MW-hour value is applied in a calculation under this section 5.4 where the interval of the value produced in that calculation is less than an hour, then for purposes of that calculation the dollar-per-MW hour value is divided by the number of Real-time Settlement Intervals in the hour.

### **5.4.3 Network Service User and Market Participant Calculations.**

(a) Each Network Service User shall be charged for the increased cost of transmission losses to deliver the output of its firm Capacity Resources or other owned or contracted for resources, its firm bilateral purchases, and its non-firm bilateral purchases.

(b) For each Day-ahead Settlement Interval, Market Participants shall be charged for transmission losses resulting from all Market Participant Energy Withdrawals scheduled in the Day-ahead Energy Market at the Day-ahead Loss Price applicable to each relevant location at which both the Market Participant withdraws energy and such energy is priced.

(c) For each Day-ahead Settlement Interval, Market Participants shall be reimbursed for transmission losses resulting from all Market Participant Energy Injections scheduled in the Day-ahead Energy Market at the Day-ahead Loss Price applicable to each relevant location at which both the Market Participant injects energy and such energy is priced.

(d) The day-ahead component of a Market Participant's Transmission Loss Charge is equal to the difference between the total day-ahead transmission loss withdrawal charge calculated in paragraph (b) and the total day-ahead transmission loss injection credit calculated in paragraph (c).

(e) (i) The amount of energy delivered at each generation bus is determined by revenue meter data, if available, or by the State Estimator, if revenue meter data is not available.

The total load actually served at each load bus is initially determined by the State Estimator. For each Electric Distributor that reports hourly net energy flows from metered Tie Lines and for which all generators within the Electric Distributor's territory report revenue quality, hourly net energy delivered, the total revenue meter load within the Electric Distributor's territory is calculated as the sum of all net import energy flows reported by their tie revenue meters and all net generation reported via generator revenue meters. The amount of load at each of such Electric Distributor's load buses calculated by the State Estimator is then adjusted, in proportion to its share of the total load of that Electric Distributor, in order that the total amount of load across all of the Electric Distributor's load buses matches its total revenue meter calculated load.

(ii) To determine the amount of load served by each LSE in an Electric Distributor's territory, PJM Settlement utilizes the information submitted into PJM's internal energy scheduling tool by LSEs and Electric Distributors for their respective load contracts, including the names of the LSE responsible for serving the load and the Electric Distributor in whose territory the load is located, the number of megawatts of load assigned to the LSE for each hour, the Energy Settlement Area at which load is to be priced, and the start and end dates for the load contract. During the settlements process, load assigned to an LSE at a specified Energy Settlement Area is further assigned to individual load buses included in the Energy Settlement Area, based on the definition for the Energy Settlement Area as defined in Section 31.7 of the PJM Tariff, which specifies the percentage of the Energy Settlement Area that each bus represents, to identify the LSE's hourly megawatts of load at each bus. All megawatts of load assigned to LSEs in an Electric Distributor's territory as described herein are subtracted from the total megawatts of load for which the Electric Distributor is responsible as determined in subsection (e)(i) above.

(iii) Electric Distributors that hold POLR auctions or similar load auctions may direct PJM to automatically assign megawatt hours for which the Electric Distributor is responsible, as determined in subsection (e)(ii) above, to the POLR Suppliers based on the tranches the POLR Suppliers won in the auction, as a billing service, based on their contracts associated with the POLR load programs. In such case, the POLR Supplier's share of load shall be determined by multiplying the megawatt hours at each bus that were not specifically assigned under load contracts by the percentage of load won by the POLR Supplier in proportion to its share of the total POLR load of the Electric Distributor. This billing service may also apply to Electric Distributors and LSEs that mutually agree upon a transfer of load from the EDC to the LSE based upon a specified percentage of the megawatt hours at each bus that were not specifically assigned under load contracts.

(f) For each real-time Settlement Interval, Market Participants shall be assessed for transmission losses charges (positive or negative) in accordance with the following equation:

$$[(A - B) * C] - [(D - E) * C]$$

Where:

A = The Market Participant Energy Withdrawal megawatts in real-time at the location at which both the Market Participant withdraws energy and such energy is priced;

B = The Market Participant Energy Withdrawal megawatts in day-ahead at the location at which both the Market Participant withdraws energy and such energy is priced;

C = Real-time Loss Price;

D = The Market Participant Energy Injection megawatts in real-time at the location at which both the Market Participant injects energy and such energy is priced; and

E = The Market Participant Energy Injection megawatts in day-ahead at the location at which both the Market Participant injects energy and such energy is priced.

(g) The Revenue Data for Settlements determined for each Real-time Settlement Interval in accordance with section 3.1A of this Schedule shall be used in determining the real-time Market Participant Energy Withdrawals and Market Participant Energy Injections used to calculate transmission losses charges under subsection (f).

#### **5.4.4 Transmission Customer Calculation.**

Each Transmission Customer using Firm Point-to-Point Transmission Service (as defined in the PJM Tariff), each Network Customer, and each Transmission Customer using Non-Firm Point-to-Point Transmission Service (as defined in the PJM Tariff), shall be charged for the increased cost of transmission losses for the delivery of energy using such Transmission Service.

- (a) For each Day-ahead Settlement Interval, Transmission Loss Charges shall be assessed for transmission use scheduled in the Day-ahead Energy Market, calculated as the scheduled amount to be delivered multiplied by the difference between the Day-ahead Loss Price at the delivery point or the delivery interface at the boundary of the PJM Region and the Day-ahead Loss Price at the source point or the source interface at the boundary of the PJM Region.
- (b) For each Real-time Settlement Interval, Transmission Loss Charges shall be assessed for real-time transmission use in excess of the amounts scheduled for the applicable interval in the Day-ahead Energy Market, calculated as the excess amount multiplied by the difference between the Real-time Loss Price at the delivery point or the delivery interface at the boundary of the PJM Region, and the Real-time Loss Price at the source point or the source interface at the boundary of the PJM Region. For each Real-time Settlement Interval, a Transmission Customer shall be paid for Transmission Loss Charges for real-time transmission use falling below the amounts scheduled for the applicable interval in the Day-ahead Energy Market, calculated as the shortfall amount multiplied by the difference between the Real-time Loss Price at the delivery point or the delivery interface at the boundary of the PJM Region, and the Real-time Loss Price at the source point or the source interface at the boundary of the PJM Region or the source Interface Pricing Point at the boundary of the PJM Region.

#### **5.4.4A Transaction Calculation.**

Each Market Participant entering into transactions in the PJM Interchange Energy Market shall be charged for the increased cost of transmission losses on the scheduled path for the applicable interval.

- (a) For each Day-ahead Settlement Interval, Transmission Loss Charges shall be assessed for the transaction MWh scheduled in the Day-ahead Energy Market, calculated as the scheduled amount to be delivered multiplied by the difference between the Day-ahead Loss Price at the sink point and the Day-ahead Loss Price at the source point.
- (b) For each Real-time Settlement Interval, Transmission Loss Charges shall be assessed for real-time MWh in excess of the amounts scheduled for the applicable interval in the Day-ahead Energy Market, calculated as the excess amount multiplied by the difference between the Real-time Loss Price at the sink point and the real-time Loss Price at the source point. Such Market Participant shall be paid for Transmission Loss Charges for real-time MWh falling below the amounts scheduled for the applicable interval in the Day-ahead Energy Market, calculated as the shortfall amount multiplied by the difference between the Real-time Loss Price at the sink point and the Real-time Loss Price at the source point. The Revenue Data for Settlements determined for each Real-time Settlement Interval in accordance with section 3.1A of this Schedule shall be used in determining the real-time transactions used to calculate Transmission Loss Charges under this subsection (b).

#### **5.4.5 Total Transmission Loss Charges.**

The total Transmission Loss Charges collected by PJM Settlement each hour will be the aggregate net amounts determined as specified in this Schedule and in accordance with the PJM Manuals.