

## **SCHEDULE 6 Supplemental Reserve**

### **I. GENERAL**

Supplemental Reserve is required to offset deficiencies in Energy supply that result from a Resource contingency or other abnormal event. Supplemental Reserve may be provided by Resources that are Supplemental Qualified Resources that are available to supply Supplemental Reserve. The obligation to maintain this response capability to contingency events lies with the MISO Balancing Authority. The MISO Balancing Authority will procure Supplemental Reserve on behalf of the Load Serving Entities and Exporting Entities from cleared Resource Offers submitted by Market Participants selected in the Energy and Operating Reserve Markets as provided for in Sections 39.2 and 40.2 of this Tariff. Load Serving Entities and Exporting Entities must either purchase this service from the MISO Balancing Authority or make alternative comparable arrangements to satisfy its Supplemental Reserve Obligation, where such Obligation is defined below. The MISO Balancing Authority shall determine whether alternative arrangements proposed by the Load Serving Entities and Exporting Entities are comparable to the provision of this service by the MISO Balancing Authority.

### **II. DESCRIPTION OF SERVICE**

Supplemental Reserve is unloaded resource capacity set aside to be available to offset abnormal supply deficiencies. Supplemental Reserve must be fully deployable within the Contingency Reserve Deployment Period. Supplemental Reserve is a specified percentage of the Contingency Reserve requirement of the MISO Balancing Authority that is provided by Supplemental Qualified Resources. Supplemental Reserve is cleared and priced every Hour in the Day-Ahead Energy and Operating Reserve Market and every Dispatch Interval in the Real-

Time Energy and Operating Reserve Market. Supplemental Reserve is settled on an hourly basis in both the Day-Ahead and Real-Time Energy and Operating Reserve Markets.

**III. PURCHASE OBLIGATIONS WITHIN THE MISO BALANCING AUTHORITY**  
**AREA AND RATES**

Day-Ahead and Real-Time Supplemental Reserve procurement costs are collected from Load Serving Entities and Exporting Entities on a zonal basis using the following rate methodology:

**A. Binding Settlement Zone Supplemental Reserve Charges**

Market Participants, and Carved-Out GFA billing entities associated with Carved-Out GFAs, with Actual Energy Withdrawals and real-time Export Schedules, other than Coordinated Transaction Schedules and Export Schedules for External Asynchronous Resources, within a Binding Settlement Zone shall be charged each Hour, a pro-rata share of the total payments to Market Participants for Resources providing Supplemental Reserve within that Binding Settlement Zone for that Hour as follows:

Cost allocated to Carved-Out GFAs:

$$\begin{aligned} \text{Carved-Out GFA Supplemental Reserve Charge} = & \text{GFA Supplemental Reserve} \\ & \text{Procurement Rate multiplied by the MP} \\ & \text{Actual Energy Withdrawal minus the} \\ & \text{applicable Day-Ahead Ex Post MCP for} \\ & \text{Supplemental Reserve or Hourly Real-Time} \\ & \text{Ex Post MCP for Supplemental Reserve} \\ & \text{multiplied by the Minimum of} \end{aligned}$$

[Supplemental Reserve schedules associated with the Carved-Out GFA, and the MP Carved-Out GFA Supplemental Reserve Obligation] for the Binding Settlement Zone,

Where:

GFA Supplemental Reserve Procurement Rate = Supplemental Reserve Procurement Cost /  
Total Actual Energy Withdrawal in the Binding Settlement Zone;

Supplemental Reserve Procurement Cost = The sum of all credits calculated under Section 39.3.2A.c plus the sum of all charges/credits calculated under Section 40.3.3.3.b.iv specific to Resources providing Supplemental Reserve within the Binding Settlement Zone;

MP Carved-Out GFA Actual Energy Withdrawal = Market Participant Actual Energy Withdrawal, associated with Carved-Out GFA Actual Energy Withdrawal and including real-time Export Schedules, other than Export Schedules for External Asynchronous Resources, within the Binding Settlement Zone; and

Total Actual Energy Withdrawal = the sum of all Market Participant Actual Energy Withdrawals, including Carved-Out GFA Actual

Energy Withdrawals and including real-time Export  
Schedules, other than Coordinated Transaction  
Schedules and Export Schedules for External  
Asynchronous Resources, within the Binding  
Settlement Zone; and

MP Carved-Out GFA Supplemental Reserve Obligation = MP Carved-Out GFA Actual Energy  
Withdrawal divided by Total Actual Energy  
Withdrawal within the Binding Settlement Zone  
multiplied by the sum of all Supplemental Reserve  
schedules within the Binding Settlement Zone.

Costs allocated to Non-GFA Withdrawals:

Supplemental Reserve Charge non-GFA = Non-GFA Supplemental Reserve  
Procurement Rate \* MP Actual Energy  
Withdrawal for the Non-Binding Settlement  
Zone,

Where:

Non-GFA Supplemental Reserve Procurement Rate = The difference between the Non-GFA  
Supplemental Reserve Procurement Cost and the  
aggregate sum of all Carved-Out GFA  
Supplemental Reserve Charges divided by Total  
Actual Non-GFA Energy Withdrawals within the  
Binding Settlement Zone;

Non-GFA Supplemental Reserve Procurement Cost = The sum of all credits calculated under Section 39.3.2A.c plus the sum of all charges/credits calculated under Section 40.3.3.3.b.iv specific to Resources providing Supplemental Reserve minus the aggregate sum of the applicable Day-Ahead Ex Post MCP for Supplemental Reserve or Hourly Real-Time Ex Post MCP for Supplemental Reserve multiplied by the Minimum of [Supplemental Reserve schedules associated with the Carved-Out GFA, and the MP Carved-Out GFA Supplemental Reserve Obligation] for all GFA billing entities within the Binding Settlement Zone;

MP Actual Energy Withdrawal = Market Participant Actual Energy Withdrawal, excluding Carved-Out GFA Actual Energy Withdrawal including real-time Export Schedules, other than Coordinated Transaction Schedules and Export Schedules for External Asynchronous Resources, within the Binding Settlement Zone; and

Total Actual Non-GFA Energy Withdrawals = The sum of all Market Participant Actual Energy Withdrawals, excluding Carved-Out GFA Actual Energy Withdrawals and including real-time Export

Schedules, other than Coordinated Transaction  
Schedules and Export Schedules for External  
Asynchronous Resources, within the Binding  
Settlement Zone.

**B. Non-Binding Settlement Zone Supplemental Reserve Charge**

Market Participants, and Carved-Out GFA billing entities associated with Carved-Out GFAs, with Actual Energy Withdrawals and real-time Export Schedules, other than Coordinated Transaction Schedules and Export Schedules for External Asynchronous Resources, within a Non-Binding Settlement Zone shall be charged each Hour, a pro-rata share of the total payments to Market Participants for Resources providing Supplemental Reserve within that Non-Binding Settlement Zone for that Hour as follows:

Costs allocated to Carved-Out GFAs:

Carved-Out GFA Supplemental Reserve Charge = GFA Supplemental Reserve  
Procurement Rate multiplied by the MP  
Actual Energy Withdrawal minus the  
applicable Day-Ahead Ex Post MCP for  
Supplemental Reserve or Hourly Real-Time  
Ex Post MCP for Supplemental Reserve  
multiplied by the Minimum of  
[Supplemental Reserve schedules associated  
with the Carved-Out GFA, and the MP  
Carved-Out GFA Supplemental Reserve

Obligation] for the Non-Binding Settlement  
Zone,

Where:

GFA Supplemental Reserve Procurement Rate = Supplemental Reserve Procurement Cost /

Total Actual Energy Withdraw in the Non-Binding  
Settlement Zone;

Supplemental Reserve Procurement Cost = The sum of all credits calculated under Section  
39.3.2A.c plus the sum of all charges/credits  
calculated under Section 40.3.3.3.b.iv specific to  
Resources providing Supplemental Reserve within  
the Non-Binding Settlement Zone;

MP Carved-Out GFA Actual Energy Withdrawal = Market Participant Actual Energy  
Withdrawal, associated with Carved-Out GFA  
Actual Energy Withdrawal and including real-time  
Export Schedules, other than Export Schedules for  
External Asynchronous Resources, within the Non-  
Binding Settlement Zone;

Total Actual Energy Withdrawal = the sum of all Market Participant Actual Energy  
Withdrawals, including Carved-Out GFA Actual  
Energy Withdrawals and including real-time Export  
Schedules, other than Coordinated Transaction  
Schedules and Export Schedules for External

Asynchronous Resources, within the Non-Binding  
Settlement Zone; and

MP Carved-Out GFA Supplemental Reserve Obligation = MP Carved-Out GFA Actual Energy  
Withdrawal divided by Total Actual Energy  
Withdrawal within the Non-Binding Settlement  
Zone multiplied by the sum of all Supplemental  
Reserve schedules within the Non-Binding  
Settlement Zone.

Costs allocated to Non-GFA Withdrawals:

Supplemental Reserve Charge non-GFA = Non-GFA Supplemental Reserve  
Procurement Rate \* MP Actual Energy  
Withdrawal for the Non-Binding Settlement  
Zone,

Where:

Non-GFA Supplemental Reserve Procurement Rate = The difference between the Non-GFA  
Supplemental Reserve Procurement Cost and the  
aggregate sum of all Carved-Out GFA  
Supplemental Reserve Charges divided by Total  
Actual Non-GFA Energy Withdrawals within the  
Non-Binding Settlement Zone;

Non-GFA Supplemental Reserve Procurement Cost = The sum of all credits calculated under  
Section 39.3.2A.c plus the sum of all



charges/credits calculated under Section  
40.3.3.3.b.iv specific to Resources providing  
Supplemental Reserve minus the aggregate sum of  
the applicable Day-Ahead Ex Post MCP for  
Supplemental Reserve or Hourly Real-Time Ex Post  
MCP for Supplemental Reserve multiplied by the  
Minimum of [Supplemental Reserve schedules  
associated with the Carved-Out GFA, and the MP  
Carved-Out GFA Supplemental Reserve  
Obligation] for all GFA billing entities within the  
Non-Binding Settlement Zone;

MP Actual Energy Withdrawal = Market Participant Actual Energy Withdrawal,  
excluding Carved-Out GFA Actual Energy  
Withdrawal and including real-time Export  
Schedules, other than Coordinated Transaction  
Schedules and Export Schedules for External  
Asynchronous Resources, within the Non-Binding  
Settlement Zone; and

Total Actual Non-GFA Energy Withdrawals = The sum of all Market Participant Actual Energy  
Withdrawals, excluding Carved-Out GFA Actual  
Energy Withdrawals and including real-time Export  
Schedules, other than Coordinated Transaction

Schedules and Export Schedules for External  
Asynchronous Resources, within the Non-Binding  
Settlement Zone.

#### **IV. PROVISIONS TO SATISFY SUPPLEMENTAL RESERVE OBLIGATIONS VIA SELF-SCHEDULES**

A Market Participant may Self-Schedule from their Supplemental Qualified Resources in the Energy and Operating Reserve Markets to meet their hourly Market-Wide Supplemental Reserve Obligation. A Market Participant's hourly Market-Wide Supplemental Reserve Obligation shall be equal to the Market-Wide Supplemental Reserve Requirement multiplied by the ratio of the Market Participant's Actual Energy Withdrawals, including real-time Export Schedules, other than Coordinated Transaction Schedules and Export Schedules for External Asynchronous Resources, to MISO Balancing Authority Load, including real-time Export Schedules, other than Coordinated Transaction Schedules and Export Schedules for External Asynchronous Resources. Such Self-Scheduled Supplemental Reserve shall be compensated at the applicable Supplemental Reserve Market Clearing Price for that Resource pursuant to Sections 39 and 40 of this Tariff.