Day-Ahead Energy Market Overview
**Day Ahead Market Time Line**

**Up to 12:00 noon**
- PJM receives bids and offers for energy next Operating Day

**12:00 noon**
- Day-ahead market is closed for evaluation by PJM

**12:00 - 4:00 pm**
- Day-ahead market is closed for evaluation by PJM
- Participant can submit data for future market days, only

**4:00 pm**
- PJM posts day-ahead LMPs & hourly schedules
- Participant can modify data for next market day during re-bidding period

**4:00 - 6:00 pm**
- Re-bidding period

**6:00 pm**
- Throughout Operating Day
- PJM continually re-evaluates and sends out individual generation schedule updates, as required
First Commitment

- determines commitment profile that satisfies fixed demand, cleared price sensitive demand bids, cleared dec bids, and PJM Operating Reserve Objectives
- minimizes total production cost

Day-Ahead Market closes

Day-ahead Results Posted & Balancing Market Bid period opens

Second Commitment

- focus is reliability
- analysis includes updated offers, unit availabilities, and PJM load forecast information
- minimizes startup and cost to run units at minimum

Supplemental Commitments

- focus is reliability
- performed as necessary
- minimize start-up and cost to run at minimum for additional units committed

Balancing Market Bid period closes
• 1200  Day-ahead market bid period closes
• 1600  Day-ahead hourly schedules and LMPs posted
• 1600  Real-time market bid period opens
• 1800  Real-time market bid period closes

• 1800 thru Operating Day
  PJM communicates individual generation schedule updates via telephone as required (to specific generation owner only)
**Daily Tasks**

<table>
<thead>
<tr>
<th>Time</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000:</td>
<td>Submit Load Forecast to EDC</td>
</tr>
<tr>
<td>1200:</td>
<td>Submit Gen Offers in eMKT             Submit Demand Bids in eMKT             Submit External Transactions in EES Submit Virtual Transactions in eMKT</td>
</tr>
<tr>
<td>1200 - 1600:</td>
<td>Submit Market Info for FUTURE market Days in eMKT</td>
</tr>
<tr>
<td>1600:</td>
<td>Day Ahead Market Results in eMKT</td>
</tr>
<tr>
<td>1600 - 1800:</td>
<td>Modify Gen Offers in eMKT</td>
</tr>
<tr>
<td>Every 10 Second Scan</td>
<td>Dispatch Signal Sent via UDS</td>
</tr>
<tr>
<td>Every 5 Minutes</td>
<td>LMPs are calculated &amp; posted on web</td>
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<tr>
<td>Continuously</td>
<td>Report Gen Hourly Updates in eMKT Submit Outage Tickets in eDart</td>
</tr>
<tr>
<td>20 minutes Prior to Transaction Start</td>
<td>Report External Transactions Changes in EES</td>
</tr>
<tr>
<td>1200:</td>
<td>Submit revenue quality MWh in eMTR \Submit Internal Energy Schedules in eSchedules RT LMPs are posted on Web</td>
</tr>
</tbody>
</table>

**All times shown are Eastern Prevailing Time**
1. **Submit Generation Offers in Day Ahead Market**
   - Day Ahead Market Deadline: 1200 EPT
   - Application: eMKT
   - Each Generator should have at least one COST schedule and one PRICE schedules
   - Generation Schedules **REQUIRED** for all Installed Capacity Resources
   - Between 1600 and 1800, Generator Resources **NOT** committed in Day Ahead Market, you may rebid generator resource
   - At 1800, Generator Schedules are **LOCKED** for Real Time Operation
2. **Submit Demand Bids in Day Ahead Market**
   - Day Ahead Market Deadline: 1200 EPT
   - Application: eMKT
   - Load Servers are **NOT REQUIRED** to submit Demand Bids in Day Ahead Market
   - Demand Bids can be **FIXED** or **PRICE SENSITIVE**
   - At 1200, Demand Bids for next operating day are **LOCKED**
   - LSE may submit Load Forecast to EDC
   - PJM receives Load Forecasts for each EDC
   - Day Ahead Cleared Demand and Real Time Load (Forecast & Instantaneous) for RTO can be seen on eDATA and eMKT
   - Day Ahead Demand for PJM RTO is typically underhedged.
3. **Submit External Energy Transactions in Day Ahead Market**
   - Day Ahead Market Deadline: 1200 EPT
   - Application: EES
   - At 1200, External Energy Transactions have been entered
     - Source or Sink is External to PJM
4. **Submit Virtual Transactions in Day Ahead Market**
   - Day Ahead Market Deadline: 1200 EPT
   - Application: eMKT
   - Inc Offers
     - Look like Generators that physically aren’t there
     - Agree to sell at DA prices and buy at RT prices
   - Dec Bids
     - Look like Load that physically isn’t there
     - Agree to buy at DA prices and sell at RT prices
Midwest ISO DA Energy Market Overview
Day Ahead Market
Time Line

11:00 AM

Up to 11:00 AM
Midwest ISO receives bids and offers for energy next Operating Day

11:00 - 5:00 pm
Day-ahead market is closed for evaluation by Midwest ISO

5:00 pm
Midwest ISO posts day-ahead LMPs & hourly schedules

5:00 - 6:00 pm
Re-offer period for FRAC

Throughout Operating Day
Midwest ISO continually re-evaluates and sends out individual generation schedule updates, as required

Real Time offers may be entered or modified at any time up to 30 minutes prior to the operating hour

midnight
Day Ahead Market closes

Day-ahead Results Posted & Forward RAC Re-Offer period opens

DAM Commitment
- determines commitment profile that satisfies fixed demand, cleared price sensitive demand bids, and cleared dec bids
- minimizes total production cost

FRAC Re-Offer period closes

FRAC Commitment
- focus is reliability
- analysis includes updated offers, unit availabilities, and Midwest ISO load forecast information
- minimizes startup and cost to run units at minimum

Intra-Day Commitments
- focus is reliability
- performed as necessary
- minimize start-up and cost to run at minimum for additional units committed
Day Ahead Scheduling Timeline

- 1100  Day-ahead market bid period closes
- 1700  Day-ahead hourly schedules and LMPs posted
- 1700  RAC re-offer period opens
- 1800  RAC re-offer period closes

- 1800 thru Operating Day
  Midwest ISO communicates new start and stop signals to generation as required
### Daily Tasks

<table>
<thead>
<tr>
<th>Operating Day - 1</th>
<th>Operating Day</th>
<th>Operating Day +n</th>
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</thead>
<tbody>
<tr>
<td><strong>1100:</strong></td>
<td><strong>Every 10 Second</strong></td>
<td>Submit revenue quality MWh by noon day prior to any settlement run (OD+6, OD+13, OD+54, OD+104)</td>
</tr>
<tr>
<td>Submit Gen Offers via Portal</td>
<td>Ramped NSI sent to Balancing Authorities</td>
<td>Submit Financial Bilateral Schedules Currently OD+1, changing to OD+6</td>
</tr>
<tr>
<td>Submit Demand Bids via Portal</td>
<td><strong>Every 5 Minutes</strong></td>
<td>Final RT LMPs are posted on Web no later than OD+5</td>
</tr>
<tr>
<td>Submit GFA Schedules via Portal/PSS</td>
<td>LMPs and dispatch instructions are calculated &amp; sent to MPs</td>
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<tr>
<td>Submit External Transactions via PSS</td>
<td><strong>30 Minutes Prior to Transaction Start</strong></td>
<td></td>
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<tr>
<td>Submit Virtual Transactions via Portal</td>
<td>Report External Transactions Changes in PSS</td>
<td></td>
</tr>
<tr>
<td><strong>1700:</strong></td>
<td><strong>30 Minutes Prior to Operating Hour</strong></td>
<td></td>
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<tr>
<td>Day Ahead Market Results via Portal</td>
<td>Submit updated Generation Offers</td>
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</tr>
<tr>
<td><strong>1700 - 1800:</strong></td>
<td><strong>30 Minutes Prior to Transaction Start</strong></td>
<td></td>
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<tr>
<td>Modify RT Gen Offers in Portal for use in FRAC</td>
<td>Report External Transactions Changes in PSS</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>30 Minutes Prior to Operating Hour</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Submit updated Generation Offers</td>
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</tr>
</tbody>
</table>

**All times shown are Eastern Standard Time**
1. **Submit Generation Offers in Day Ahead Market**
   - Day Ahead Market Deadline: 1100 EST
   - Application: Portal
   - Generation Offer/Schedules **REQUIRED** for all Network Resources
   - Between 1700 and 1800, Generator Resources **NOT** committed in Day Ahead Market, may re-offer generator resource for Forward RAC
2. **Submit Demand Bids in Day Ahead Market**
   - Day Ahead Market Deadline: 1100 EST
   - Application: Portal
   - Load Servers are **NOT REQUIRED** to submit Demand Bids in Day Ahead Market
   - Demand Bids can be **FIXED** or **PRICE SENSITIVE**
   - At 1100, Demand Bids for next operating day are **LOCKED**
   - Day Ahead Cleared Demand and Real Time Load (Forecast & Instantaneous) for RTO can be seen at Price Transparency Portal (midwestmarket.org)
3. Submit External Energy Transactions in Day Ahead Market
   - Day Ahead Market Deadline: 1100 EST
   - Application: PSS
   - At 1100, External Energy Transactions have been entered
4. Submit Virtual Transactions in Day Ahead Market

- Day Ahead Market Deadline: 1100 EST
- Application: Portal
- Inc Offers
  - Look like Generators that physically aren’t there
  - Agree to sell at DA prices and buy at RT prices
- Dec Bids
  - Look like Load that physically isn’t there
  - Agree to buy at DA prices and sell at RT prices
Identified Differences

- **Market Timelines**
  - During DST, DA market closing lines up, but MISO re-bid period closes an hour later than PJM
  - During standard time, MISO DA market closes an hour earlier than PJM, but re-bid period closing lines up
- **Others?**