FEBRUARY 2021
WINTER WEATHER EVENT

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LOUISIANA PUBLIC SERVICE COMMISSION
FEBRUARY 24, 2021
A historic winter storm enveloped the SPP region

- 73% of mainland U.S. covered in snow
- 3,000 daily and 79 all-time local low temperature records broken
- “Comparable to the historical cold snaps of Feb. 1899 & 1905.”
- Extreme weather caused generator outages, fuel supply problems and record high gas and electricity use

SPP worked with partners to prevent grid damage and minimize outages

- Prepared in advance: issued alerts and calls to reduce energy use
- Worked with members and neighbors to meet power demand in region
- During five days of energy emergency alerts, SPP and partners minimized grid power interruptions to 260 total minutes
- Actions prevented system from experiencing cascading outages

1 – National Operating Hydrologic Remote Sensing Center
2 – National Weather Service/Weather Prediction Center
3 – National Weather Service/Weather Prediction Center
SPP’S EMERGENCY RESPONSE FRAMEWORK
WHO IS SPP?

501(c)(6) nonprofit corporation

One of 9 regional grid operators

104 member companies in 14 states

“Air traffic control” for high-voltage grid

Balances supply and demand across region

Protects grid from overload and overuse

Operates wholesale energy market
THREE ELECTRIC INTERCONNECTIONS

1,270 MW potential transfer capability from Western to Eastern Interconnection

800 MW potential transfer capability between SPP and ERCOT
2021 WINTER STORM GRID EMERGENCY
SPP REGION IN COLDEST PART OF U.S.

Lowest temperatures forecast for Feb. 14-16, 2021

Sources: National Weather Service, Global Forecast System

- **SPP service territory/balancing authority**
- **Temperatures below 0°F**
- **Between 0° and 32°F**
- **Above 32°F**
# BALANCING AUTHORITY (BA) OPERATING LEVELS

## Levels/alerts defined by SPP operating plans

<table>
<thead>
<tr>
<th>Normal Operations</th>
<th>SPP has enough generation to meet demand, has available reserves and does not foresee extreme or abnormal reliability threats</th>
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</thead>
<tbody>
<tr>
<td>Weather alert</td>
<td>SPP expects extreme weather in its reliability coordination service territory</td>
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<tr>
<td>Resource alert</td>
<td>SPP’s BA area expects severe weather conditions, significant outages, wind-forecast uncertainty and/or load-forecast uncertainty with potential to impact total capacity.</td>
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<tr>
<td>Conservative Operations</td>
<td>SPP determines the need to operate system conservatively to avoid an emergency based on weather, environmental, operational, terrorist, cyber or other events</td>
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<tr>
<td>Maximum emergency generation notification</td>
<td>SPP foresees the need to use emergency ranges of resources for a certain hours.</td>
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## Levels defined* by NERC EOP-011-1

<table>
<thead>
<tr>
<th>Energy Emergency Alert (EEA) Level 1</th>
<th>All available generation resources in use</th>
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<tbody>
<tr>
<td></td>
<td>• All generation is committed, and there is concern about maintaining required reserves for BA</td>
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<td></td>
<td>• Non-firm wholesale energy sales curtailed.</td>
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<tr>
<th>EEA Level 2</th>
<th>Load management procedures in effect</th>
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<td></td>
<td>• BA is no longer able to provide its expected energy requirements and is energy deficient</td>
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<td>• Operating plan implemented, including public appeals and demand response</td>
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<td>• BA is still able to maintain minimum reserves</td>
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<td></td>
<td>• Market participants and other BAs notified</td>
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<td></td>
<td>• Transmission limitations evaluated and revised</td>
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<td>• BA makes use of all available resources</td>
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<tr>
<th>EEA Level 3</th>
<th>Firm load interruption imminent or in progress</th>
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<td></td>
<td>• BA is unable to meet minimum contingency reserve requirements</td>
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<td></td>
<td>• System &amp; reliability limits revaluated and revised</td>
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<td></td>
<td>• Immediate action taken to mitigate undue risk to the Interconnection, including load shedding.</td>
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</tbody>
</table>

**SPP BALANCING AUTHORITY OPERATIONS: FEB. 4-20, 2021**

**Tues. 2/9:** Declared conservative operations until further notice

**Thurs. 2/11:** Committed longer-lead time generating resources for Sat. 2/13 to Tues. 2/16

**Sat. 2/13:** Reminded market participants of emergency cap & offer processes

**Mon. 2/8:** Issued resource alert to grid operators: “Implement resource preparations...ensure resource commitment start-up and run times...report fuel shortages & transmission outages...”

**Tues. 2/16:**
- EEA2 in effect
- 05:00 - Declared EEA1
- 07:22 - Declared EEA2
- 10:08 - Declared EEA3
- New record peak
- 12:10 - Directed interruptions
- 13:00 - EEA3
- Restored service

**Wed. 2/17:**
- EEA2 in effect
- 06:15 - Declared EEA3
- 06:46 - Directed interruptions
- 10:07 - EEA3
- Restored service
- 11:30 - Declared EEA2

**Thurs. 2/18:**
- EEA1 in effect
- 09:30 - Ended EEA and declared conservative operations through 22:00 Sat. 2/20, with appeal for public conservation

**Fri. 2/19:**
- EEA1 in effect
- 09:20 - Ended EEA and declared conservative operations through 22:00 Sat. 2/20, with appeal for public conservation

**Sat. 2/20:**
- Conservative operations in effect
- 22:00 - Declared normal operations

**Time blocks are not to scale**