January 10, 2014

David J. Burnham
Office of Electric Reliability
Federal Energy Regulatory Commission
888 First Street
Washington, D.C. 20426

Re: Data Request for January 2014 Weather Events

Dear Mr. Burnham:

PJM Interconnection, L.L.C. (“PJM”) hereby responds to the Federal Energy Regulatory Commission’s (“Commission”) data request dated January 08, 2014, regarding PJM’s operations during the cold weather events of January 6, 2014, through January 8, 2014 (“January Events”). The responses contained herein are based on PJM’s preliminary review of the January Events and, therefore, are subject to change pending the completion of PJM’s review of the situation.

I. OVERVIEW OF THE JANUARY EVENTS

PJM and most of its neighboring balancing authorities experienced a polar vortex weather phenomenon that resulted in sub-zero temperatures and high-speed wind conditions from January 6 through 8, 2014. As a result, there was a significant increase in the demand for electricity in several transmission zones in the PJM Region. The cold weather negatively impacted some generating plants and transmission facilities. However, with forecasting, prior planning, calling for load reductions by demand response resources, and careful communications with its members and their gas suppliers, PJM was able to take steps to better manage the adverse effects of the weather conditions.
and ultimately keep the bulk electric system reliable and able to deliver power to customers.

During the January Events, there was a significant increase in the demand for electricity in the PJM Region, setting new records for the winter peak load. The previous winter peak load record of 136,675 megawatts (“MW”), set on February 5, 2007, was broken at 8 A.M. on January 7, 2014, when the load of 138,733 MW\(^1\) was reached. That record was short lived because later on the same day, at 7 P.M., a new record was set when load reached 141,312 MW.\(^2\)

PJM managed the effects of the weather by taking emergency actions. One such emergency action was PJM’s January 3\(^{rd}\) request of the Commission for a waiver and expedited relief to enable PJM to better communicate with certain natural gas pipelines operators serving PJM members to ensure reliability during the forecasted extreme weather conditions.\(^3\)

Beginning Sunday, January 5, 2014, PJM declared a Cold Weather Alert for January 6 through 8, 2014. On Monday, January 6, 2014, as reserves grew tighter and due to a combination of high loads and generation outages, PJM called for Maximum Emergency Generation and a Voltage Reduction Warning, leading to a call for public conservation for January 7, 2014. PJM later extended the public appeal to January 8, 2014, to better manage the continuing strain on primary reserves. PJM’s use of emergency procedures (i.e., emergency energy purchases, load management, voltage

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\(^1\) This load amount is based on a preliminary estimate.

\(^2\) This load amount is based on a preliminary estimate.

\(^3\) Request for Waiver and Expedited Relief of PJM Interconnection, L.L.C., Docket No. ER14-952-000 (Jan. 3, 2014).
reduction and public conservation) assisted PJM with the reliable operation of the bulk electric system.

II. DOCUMENTS ENCLOSED

PJM includes with this letter Attachment 1, which contains PJM’s responses to the data request in the Commission’s email dated January 08, 2014.

III. CORRESPONDENCE AND COMMUNICATIONS

The following individuals are designated for receipt of any communications regarding this matter:

Craig Glazer
Vice President – Federal Government Policy
PJM Interconnection, L.L.C.
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Counsel
PJM Interconnection, L.L.C.
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Valley Forge Corporate Center
Audubon, PA 19403
(610) 666-4345
james.burlew@pjm.com

Respectfully submitted,

James M. Burlew
Counsel
PJM Interconnection, L.L.C.
Data Request

1. Weather Conditions In Your Region
   a. How “unusual” were these conditions? (1-in-2, 1-in-10, etc.)

2. Generation
   a. Forced outages and failures to start. How did generation performance during this event compare with historical trends?
   b. Fuel issues (gas curtailments, coal delivery problems, etc.)
   c. Reserve levels during the peaks and any other tight conditions
   d. Planned outages

3. Transmission
   a. Major transmission constraints
   b. Major planned or forced outages
   c. Problems with interchange schedules / actuals (export recalls, etc.)
   d. Substation equipment performance

4. Load
   a. Load forecasts and actual peaks for Jan 6 - 8.
   c. Emergency procedures used (voltage reductions, public appeals, etc.)
   d. Demand response / interruptible load
   e. Firm load shedding

5. What preparations did your region (RC/BA) and members (TOs/GOs) make in advance of the cold snap?

6. Preliminary lessons learned or plans for post-event analysis
I. Weather

Based on forty years of observed weather across the current RTO footprint, PJM estimates the weather conditions on January 7, 2014 were a 1-in-10 event.
### Generation Outages (Planned and Forced) for RTO

<table>
<thead>
<tr>
<th>Date</th>
<th>Time 0800</th>
<th>Time 1900</th>
<th>Time 0800</th>
<th>Time 1900</th>
<th>Time 0800</th>
<th>Time 1900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday 1/6/2014</td>
<td>HE 2000</td>
<td>HE 0800</td>
<td>HE 0800</td>
<td>HE 1900</td>
<td>HE 0800</td>
<td>HE 1900</td>
</tr>
<tr>
<td>ICAP</td>
<td>189,658</td>
<td>189,658</td>
<td>189,658</td>
<td>189,658</td>
<td>189,658</td>
<td>189,658</td>
</tr>
<tr>
<td>Generation Outages (MW)</td>
<td>31,312</td>
<td>36,087</td>
<td>39,136</td>
<td>40,713</td>
<td>28,151</td>
<td></td>
</tr>
<tr>
<td>% Capacity</td>
<td>17%</td>
<td>19%</td>
<td>21%</td>
<td>21%</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>Maintenance / Planned (MW)</td>
<td>1,073</td>
<td>1,018</td>
<td>1,103</td>
<td>1,193</td>
<td>1,107</td>
<td></td>
</tr>
<tr>
<td>Forced (MW)</td>
<td>30,239</td>
<td>35,069</td>
<td>38,033</td>
<td>39,520</td>
<td>27,044</td>
<td></td>
</tr>
<tr>
<td>Outages due to Gas Curtailments</td>
<td>2,160</td>
<td>7,489</td>
<td>6,368</td>
<td>9,046</td>
<td>9,046</td>
<td></td>
</tr>
</tbody>
</table>

### Historical Comparison of Generation Outages

#### Historical Analysis of Generation Outages

<table>
<thead>
<tr>
<th>Date</th>
<th>Time 0800</th>
<th>Time 1900</th>
<th>Time 0800</th>
<th>Time 1900</th>
<th>Time 0800</th>
<th>Time 1900</th>
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<tbody>
<tr>
<td>RTO</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAP</td>
<td>174,586</td>
<td>174,586</td>
<td>174,710</td>
<td>174,710</td>
<td>190,700</td>
<td>193,013</td>
</tr>
<tr>
<td>Peak Load (MW)</td>
<td>132,493</td>
<td>133,844</td>
<td>129,246</td>
<td>132,073</td>
<td>128,593</td>
<td>141,312</td>
</tr>
<tr>
<td>Total Outages (MW)</td>
<td>13,958</td>
<td>15,604</td>
<td>23,281</td>
<td>26,457</td>
<td>13,089</td>
<td>21,403</td>
</tr>
<tr>
<td>Maintenance / Planned Outages (MW)</td>
<td>4,294</td>
<td>3,400</td>
<td>10,225</td>
<td>10,330</td>
<td>3,831</td>
<td>5,609</td>
</tr>
<tr>
<td>Forced Outages (MW)</td>
<td>9,664</td>
<td>12,204</td>
<td>13,056</td>
<td>16,127</td>
<td>9,258</td>
<td>15,794</td>
</tr>
<tr>
<td>Forced Outages (% of ICAP)</td>
<td>6%</td>
<td>7%</td>
<td>7%</td>
<td>9%</td>
<td>5%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Historical analysis of Forced Outage impact for the 1/7/2014 peak (last column) versus the top winter peak hourly demand days that occurred within the last 5 years shows that reported start failures were comparable to previous peak days but % of ICAP due to Forced Outages (20%) was significantly higher than for the previous peak days. (Note: ATSI, DEOK, EKPC coincident MW are included in the load where applicable but outage data pre-integration is not available)

PJM is currently reviewing accuracy of start failure data, however a typical cold weather percentage is in the range of 40%-50% for combustion turbines.
b. Fuel Issues

**Impact of gas curtailments on capacity and generation outages:**

<table>
<thead>
<tr>
<th>Date</th>
<th>% of ICAP</th>
<th>% of Forced Outages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6/2014 Evening Peak</td>
<td>1.1%</td>
<td>7.1%</td>
</tr>
<tr>
<td>1/7/2014 Morning Peak</td>
<td>3.9%</td>
<td>21.3%</td>
</tr>
<tr>
<td>1/7/2014 Evening Peak</td>
<td>3.4%</td>
<td>16.7%</td>
</tr>
<tr>
<td>1/8/2014 Morning Peak</td>
<td>4.8%</td>
<td>22.9%</td>
</tr>
<tr>
<td>1/8/2014 Evening Peak</td>
<td>4.8%</td>
<td>33.4%</td>
</tr>
</tbody>
</table>

Summary of gas/electric interface during cold weather event:

In the lead up to the record cold weather experienced in PJM and the resultant record winter peak loads, PJM, with the aid of the timely FERC communication waiver in FERC Order 787, opened up more detailed discussions with the interstate pipelines to improve systems transparency, and share critical operational information as needed.

PJM held two joint calls with interstate pipelines in our footprint, one on Monday evening January 7 prior to our evening ramp and another on Tuesday morning January 8 prior to our morning ramp. These calls enabled PJM and the Interstate pipelines to share their system status. The pipelines, in general, had issued operational flow orders, restricting nominations to non-interruptible transportation customers. The pipelines also issued notices affirming the restriction of customers to their hourly schedules and the penalties that would apply if they went over their ratable amounts. Finally, there was a reduction in supply from the Marcellus due to the cold weather.

As such, gas availability for power generation was tight over the entire footprint. The increased coordination and communication between the pipelines and PJM, and PJM and its generators, allowed PJM to manage the bulk power grid reliably.

PJM held more detailed discussions with a number of pipelines over January 7 and 8 to further review system conditions in order to better ascertain the specific impacts on the grid. PJM plans to conduct follow-up with the pipelines to determine any lessons learned.

**Other fuel issues:**

PJM received reports of coal quality issues related to the heavy rains during the weekend prior to January 6th, and then subsequent icing of coal and coal related equipment during the Jan 6-9 period. There were some forced outages related to coal quality but the majority of coal quality issues resulted in unit de-rates.
c. Reserves

<table>
<thead>
<tr>
<th>Date</th>
<th>Synchronized Reserve</th>
<th>Reserve Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/6/2014 Evening Peak</td>
<td>919*</td>
<td>1372</td>
</tr>
<tr>
<td>1/7/2014 Morning Peak</td>
<td>496*</td>
<td>1385</td>
</tr>
<tr>
<td>1/7/2014 Evening Peak</td>
<td>2285</td>
<td>1373</td>
</tr>
<tr>
<td>1/8/2014 Morning Peak</td>
<td>1960</td>
<td>1384</td>
</tr>
</tbody>
</table>

* PJM was in a NERC Energy Emergency Alert Level 2 (EEA 2) when short on Synchronized Reserves and issued a Maximum Emergency Generation Alert so all generation available could be increased to their emergency maximum output. Additionally, PJM implemented Shortage Pricing to respond to the shortage of reserves. Demand Response was called for 1/7/2014, which helped increase the reserve margin, but based on notification time of 2 hrs, it was not able to be called the evening of 1/6/2014.

d. Planned Outages (see Chart a)
I. Major Transmission Constraints (during peak periods 1/6 PM – 1/8 AM)

Below were the 345kV and up constraints on the PJM system.

1/6/14 Evening Peak:
AEP Breed - CIN Wheatland 345kV Tie Line for the loss of Jefferson-Rockport 765kV Line
AP South Reactive Interface
Bedington-Black Oak Reactive Interface
West Reactive Interface
5004/5005 Reactive Interface

1/7/14 Morning Peak:
DPL Red Lion AT50 500/230kV Transformer for the loss of Red Lion AT51 500/230kV Transformer
Bedington-Black Oak Reactive Interface
West Reactive Interface
5004/5005 Reactive Interface

1/7/14 Evening Peak:
PPL Susquehanna 21 500/230kV Transformer for the loss of Susquehanna Unit 1
DEOK Miami Fort 9 345/138kV Transformer for the loss of Tanners Creek-Dearborn 345kV Line
AP South Reactive Interface
Bedington-Black Oak Reactive Interface
West Reactive Interface
5004/5005 Reactive Interface

1/8/14 Morning Peak:
AEP-DOM Reactive Interface
Bedington-Black Oak Reactive Interface
West Reactive Interface
5004/5005 Reactive Interface
II. **Major Transmission Outages (by kV class)**

### 765kV Forced Outages:
- AEP Kammer-Vassell-Maliszewski 765kV Line 1/6/14 to 1/7/14
- AEP Maliszewski 1 765/138kV Transformer 1/6/14 to 1/8/14

### 765kV Planned/Ongoing Outages:
- AEP Baker Phase 3 765kV Reactor
- AEP Broadford 765kV Reactors
- AEP Dumont 765kV Reactors
- AEP Kammer 765kV Reactors
- AEP Hanging Rock 765kV D2 CB
- AEP Vassell 765kV Bus 2

### 500kV Forced Outages:
- DOM Mt Storm 500kV G2T554 CB 1/7/14
- PEP Brighton 500kV #6 CB 1/7/14 to 1/8/14
- PPL Alburts 500kV Capacitor 1 1/6/14
- PPL Alburts 500kV Capacitor 2 1/7/14 to 1/8/14
- PPL Juniata 500kv Capacitor 500-2 1/8/14 to 1/9/14
- PPL Juniata Keystone-Alburtis Tie 500kV CB 1/7/14

### 500kV Planned/Ongoing Outages:
- BGE Conastone 500/230kV 500-3 Transformer
- Dom/FE-Fairmont Doubs-Mt Storm 500kV line
- Dom Loudoun-Pleasant View 500kV Line
- Dom Mt Storm 500kV Capacitors
- DPL Red Lion 500kV 502 CB
- FE-Reading Smithburg 500/230kV T1 Transformer
- PE Limerick 500kV Capacitor (Emergency Outage starting on 1/4/14)
- PS Branchburg 500kV 2-15 Tie Bus
PS Deans 500/230kV 500-3 Transformer

### 345kV Forced Outages:
- **FE-Wadsworth** Juniper 345kV Capacitor 1/7/14
- **FE-Wadsworth** Inland 345kV S578 Tie CB 1/7/14 to 1/9/14
- **AEP** Desoto 345kV C2 CB 1/7/14 to 1/28/14
- **AEP** Hayden 345kV C2 CB 1/7/14
- **AEP** HyattCS 345kV 302N CB 1/7/14 to 1/10/14
- **ComEd** 115 Bedford Park 345/138kV TR82 Transformer 1/6/14 to 1/9/14
- **ComEd** 108 Lockport-120 Lombard 345kV Line 10808 1/7/14
- **DEOK** Terminal 345kV 1305 CB 1/7/14 to 1/8/14

### 345kV Planned/Ongoing Outages:
- **FE-Wadsworth** Juniper 345/138kv #3 Transformer
- **FE-Wadsworth** Harding 345/138kV #2 Transformer
- **FE-Wadsworth** Highland 345kV B95 CB
- **AEP** Twinbranch 345/138kV #6 Transformer
- **AEP** Kanawha River 345kV 1 & 2 Series Capacitors
- **AEP** Cook 345kV L & L2 CBs
- **ComEd** 177 Burnham-153 Taylor 345kV Line 17724
- **Dayton** Shelby 345kV HH CB
- **Duquesne** Collier 345/138kV T3 Transformer
- **Duq/FE-Wadsworth** Beaver Valley-Mansfield 1 345kv Line

### III. Substation Equipment Issues (during peak periods 1/6 PM – 1/8 AM)

#### Substation Equipment Issues:
- **AEP** East Elkhart 138kV G CB SF6 gas issues.
Through this event, PJM had no problems with its interchange schedules.

PJM initiated Maximum Emergency Generation actions during the evening of January 6, the morning of January 7, and the late afternoon of January 7. During these events, PJM analyzed current and expected system conditions and discussed the possibility of curtailing export interchange schedules with Neighboring Balancing Authorities. Due to the fact that the curtailment of exports would have negatively impacted PJM’s neighbors, to the point where they too may have had to initiate additional curtailments, PJM decided against limiting export schedules.

A closer look at the PJM Net Interchange schedule on January 7 highlights that PJM was facing high demand and recognized that additional import interchange would be beneficial.

- 01:53 EST – PJM issued a request to purchase emergency energy from 06:00 EST to 11:00 EST.
- 13:30 EST – PJM issued a request to purchase emergency energy from 17:00 EST to 21:00 EST

The chart below shows these events along with the published PJM energy market prices on January 7, which are an indicator that PJM was correctly providing signals to the market to increase the amount of interchange being imported to PJM. The last time PJM actually purchased emergency energy was in December 2004.
Load
a. Load forecasts and actual peaks for January 6th thru January 8th

<table>
<thead>
<tr>
<th>Date</th>
<th>Actual Peak (MW)</th>
<th>Forecasted Peak (MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 6, 2014</td>
<td>131,841</td>
<td>125,122</td>
</tr>
<tr>
<td>Jan. 7, 2014</td>
<td>141,396</td>
<td>131,954</td>
</tr>
<tr>
<td>Jan. 8, 2014</td>
<td>134,021</td>
<td>130,613</td>
</tr>
</tbody>
</table>

b. New Winter Peak

![Graph showing data]

c. Emergency Procedures used during the January 2014 Polar Vortex

**Tuesday, December 31st**

10:00 Cold Weather Alert issued for 1/3/14 – RTO (except Dom)  
Canceled 1/4/14 03:24

**Friday, January 3rd**

10:55 Cold Weather Alert issued for 1/6/14 – RTO (except MidAtl & Dom)  
Canceled 1/7/14 04:10

11:00 Cold Weather Alert issued for 1/7/14 – RTO  
Canceled 1/7/14 22:56
Monday, January 6th

11:25  EEA1 & Max Emergency Generation Alert for 1/7/14 – RTO  Canceled 1/7/14 22:56
17:01  Spinning Reserves in RTO  Canceled 1/6/14 18:09
17:02  Shared Reserves Scheduled from NPCC – 775 MW  Canceled 1/6/14 17:15
19:50  Voltage Reduction Action – RTO  Canceled 1/6/14 20:45
21:18  Shared Reserves Scheduled to NPCC – 163 MW  Canceled 1/6/14 21:56
21:20  Spinning Reserves in MIDATL  Canceled 1/6/14 21:45
23:18  Shared Reserves Scheduled from NPCC – 800 MW  Canceled 1/6/14 23:52
23:21  Shared Reserves Scheduled to VACAR – 200 MW  Canceled 1/6/14 23:34

Tuesday, January 7th

00:55  Primary Reserve Warning – RTO  Canceled 1/7/14 12:14
01:53  Emergency Energy Request for 06:00 through 11:00  Canceled 1/7/14 12:12
  Total Bids: 1105 MW / Loaded: 1100 MW
02:51  Voltage Reduction Warning – RTO  Canceled 1/7/14 12:14
04:30  Emergency Mandatory Load Management – RTO  Canceled 1/7/14 11:00
  Long Lead & EEA Level 2
04:30  Emergency Mandatory Load Management – RTO  Canceled 1/7/14 11:00
  Short Lead & EEA Level 2
04:30  Maximum Emergency Generation Action – RTO  Canceled 1/7/14 12:14
06:27  Shared Reserves Scheduled to VACAR – 200 MW  Canceled 1/7/14 07:30
06:27  Spinning Reserves in RTO  Canceled 1/7/14 06:38
08:14  Shared Reserves Scheduled to VACAR – 200 MW  Canceled 1/7/14 08:25
08:20  Spinning Reserves in RTO  Canceled 1/7/14 09:01
08:45  Shared Reserves Scheduled to VACAR – 200 MW  Canceled 1/7/14 21:28
09:38  Cold Weather Alert issued for 1/8/14 – RTO  Canceled 1/8/14 18:35
13:30  Emergency Energy Request for 17:00 through 21:00  Canceled 1/7/14 18:16
  Total Bids: 1635 MW / Loaded: 1410 MW
15:00  Maximum Emergency Generation Action – RTO  Canceled 1/7/14 18:16
15:00  Emergency Mandatory Load Management – RTO  Canceled 1/7/14 18:16
Long Lead & EEA Level 2

15:00  Emergency Mandatory Load Management – RTO  Canceled 1/7/14 18:16
Short Lead & EEA Level 2

**Wednesday, January 8th**

05:00  Emergency Mandatory Load Management – RTO  Canceled 1/8/14 07:02
Long Lead & EEA Level 2

05:00  Emergency Mandatory Load Management – RTO  Canceled 1/8/14 07:02
Short Lead & EEA Level 2

05:00  Maximum Emergency Generation Action – RTO  Canceled 1/8/14 08:00

05:30  Emergency Energy Request for 07:00 through 10:00  Canceled 1/8/14 07:43

Total Bids: 100 MW / Loaded: 0 MW

d. **Demand Response**

The following table provides a summary of the DR dispatched on January 7th and 8th, 2014. DR was not required to respond since DR is currently not an annual resource. Curtailment Service Providers report to PJM the “CSP expected reduction” in near real time since the expected energy reduction may be significantly different than the capacity nominations. PJM will not know final energy load reductions until approximately 70 days after the event but from a qualitative standpoint believes the amount received is less than the amount initially estimated by CSPs. Note that DR deployed on 1/8/14 event was cancelled prior to actual start time based on system conditions.
<table>
<thead>
<tr>
<th>Event</th>
<th>07JAN AM</th>
<th>07JAN PM</th>
<th>08JAN AM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Short Lead Time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAP (MW)</td>
<td>463</td>
<td>463</td>
<td>463</td>
</tr>
<tr>
<td>CSP Expected Reduction (MW)</td>
<td>5</td>
<td>20</td>
<td>5</td>
</tr>
<tr>
<td>Notice Time</td>
<td>04:30</td>
<td>15:00</td>
<td>05:00</td>
</tr>
<tr>
<td>Start Time</td>
<td>05:30</td>
<td>16:00</td>
<td>06:00</td>
</tr>
<tr>
<td>End Time</td>
<td>11:00</td>
<td>18:15</td>
<td>07:00</td>
</tr>
<tr>
<td><strong>Long Lead Time</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAP (MW)</td>
<td>7,229</td>
<td>7,229</td>
<td>7,229</td>
</tr>
<tr>
<td>CSP Expected Reduction (MW)</td>
<td>1,715</td>
<td>2,905</td>
<td>1,950</td>
</tr>
<tr>
<td>Notice Time</td>
<td>04:30</td>
<td>15:00</td>
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<tr>
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<td>07:00</td>
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<tr>
<td>End Time</td>
<td>11:00</td>
<td>18:15</td>
<td>07:00</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICAP (MW)</td>
<td>7,692</td>
<td>7,692</td>
<td>7,692</td>
</tr>
<tr>
<td>CSP Expected Reduction (MW)</td>
<td>1,720</td>
<td>2,925</td>
<td>1,955</td>
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<tr>
<td>Notice Time</td>
<td>04:30</td>
<td>15:00</td>
<td>05:00</td>
</tr>
<tr>
<td>Start Time</td>
<td>05:30</td>
<td>16:00</td>
<td>06:00</td>
</tr>
<tr>
<td>End Time</td>
<td>11:00</td>
<td>18:15</td>
<td>07:00</td>
</tr>
</tbody>
</table>

Not included above is an interruptible contract implemented by EKPC on January 8.

e. **Firm Load Shedding**

No firm load was shed through the event.
I. Preparations

PJM began preparing for the cold weather on December 31, with a focus on the temperatures and load forecasts for January 6 through January 8. PJM initiated the Cold Weather Alert procedure on Friday January 3 for January 6 through January 7. As part of the Cold Weather Alert, all planned generation and transmission outages were cancelled and any existing outages that were recallable were recalled. In addition, under the Cold Weather Alert the PJM members have a set of actions to follow that are outlined in PJM Manual M-13 Section 3.3. Reinforcing the Alert, PJM held a conference call with all generation and transmission owners to notify them of the frigid temperatures expected, load projections, and system conditions. PJM further instructed asset owners to validate cold weather unit preparations, fuel inventories, fuel delivery schedules, and notify PJM of any concerns. PJM Generators with dual fuel capability, impacted by gas restrictions, were directed to switch to their alternative fuel.

With regard to the natural gas units, PJM held a conference call with the Natural Gas Pipelines to review their projections and system conditions for the following week. Individual calls were held with the pipelines to review projected natural gas supplies to the specific generators that PJM was committing to serve the load on January 6 through January 8. Calls with the members and pipelines continued to be held daily throughout the event.

Not only did PJM focus internally, but PJM also participated in conference calls with all neighbors to ascertain their system conditions and projected emergency conditions. PJM brought in extra staffing to assist with system operations on a day to day basis, as well as additional support staff to help with communications to members and media. PJM issued several public statements including appeals for conservation.
1. Proactive communication with the states was helpful in notifying and clarifying Emergency Procedures and expectations.

2. Demand Response can have greater operational value throughout the year.

3. Cold weather preparations, such as seeking an Operating Agreement waiver from FERC for Order 787 further enabled Gas / Electric coordination, were helpful in securing additional data PJM needed to improve operations.

4. Distribution of lessons learned to PJM’s Operating Committee from the southwest / Texas cold weather event from years ago were helpful in preparing PJM and its members for the cold weather. Future events may benefit from an earlier distribution.

5. Implementation of PJM’s September Hot Weather event lessons learned on load forecast error and performance and scheduled/planned accordingly.