

# PJM Winter Operations and Market Performance

Dave Souder  
Senior Director, Operations Planning

FERC Winter Operations Panel  
October 18, 2018



Winter  
Operations



Resilience –  
Fuel Security



Markets

## PJM Studies, Data Requests & Drills

PJM Operating Analysis Task Force (OATF) Winter Operations Study  
November 3, 2018

Resource Winter Testing Exercise  
December 2018

PJM Emergency Procedures Drill  
November 6, 2018

Fuel Inventory Survey  
October 8–November 16, 2018

Generation Owner Cold Weather Resource Preparedness Checklist  
November 1–December 15, 2018

## Reliability Coordinator Winter Preparation Meetings

PJM/DEP/VACAR  
December, 2018

SERC Operating Committee/  
SERC RCWG/VACAR  
October 2-3, 2018

Reliability First  
October 30, 2018

Joint NPCC/PJM/MISO  
November 8, 2018

NYISO/PJM  
October 10, 2018

TVA/PJM  
December, 2018

## Gas/Electric Coordination

Joint INGAA – Inter-RTO Council Meeting  
November 20, 2018

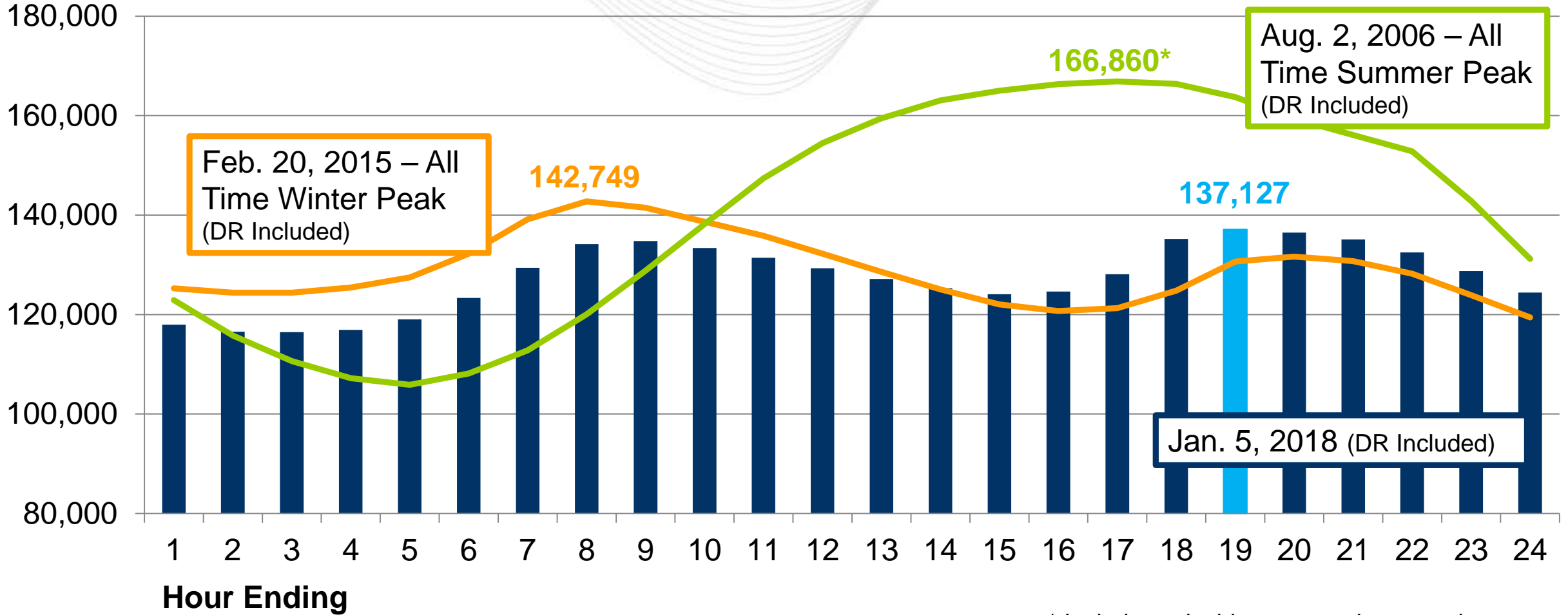
Winter Planning Meetings Major Pipelines Serving PJM Generation  
November 5–9, 2018

Daily, Weekly, Monthly, and Seasonal Communications with Pipelines in PJM Footprint

Data Sharing Agreements and Communication Protocols

Enhanced Markets Gateway To Assist in Effort to Automate Gas Pipeline Contingency Analysis  
December 2018

**Megawatts**



\* Includes coincident not-yet-integrated zones

## 50/50 Non-Diversified Peak Load Base Case

<b>Load Forecast</b>	135,506 MW
<b>Preliminary RTO Net Interchange</b>	4,400 MW** (Importing)
<b>PJM RTO Installed Capacity</b>	185,611 MW (as of 07/20/2018)
<b>Discrete Generator Outages</b>	15,722 MW

## Peak Load Analysis

- No reliability issues were identified.
- Re-dispatch and switching was required to control local thermal or voltage violations in some areas.
- All networked transmission voltage violations were controlled by capacitors. All other voltage violations were caused by radial load.



# Winter 2018/19 Sensitivity Studies

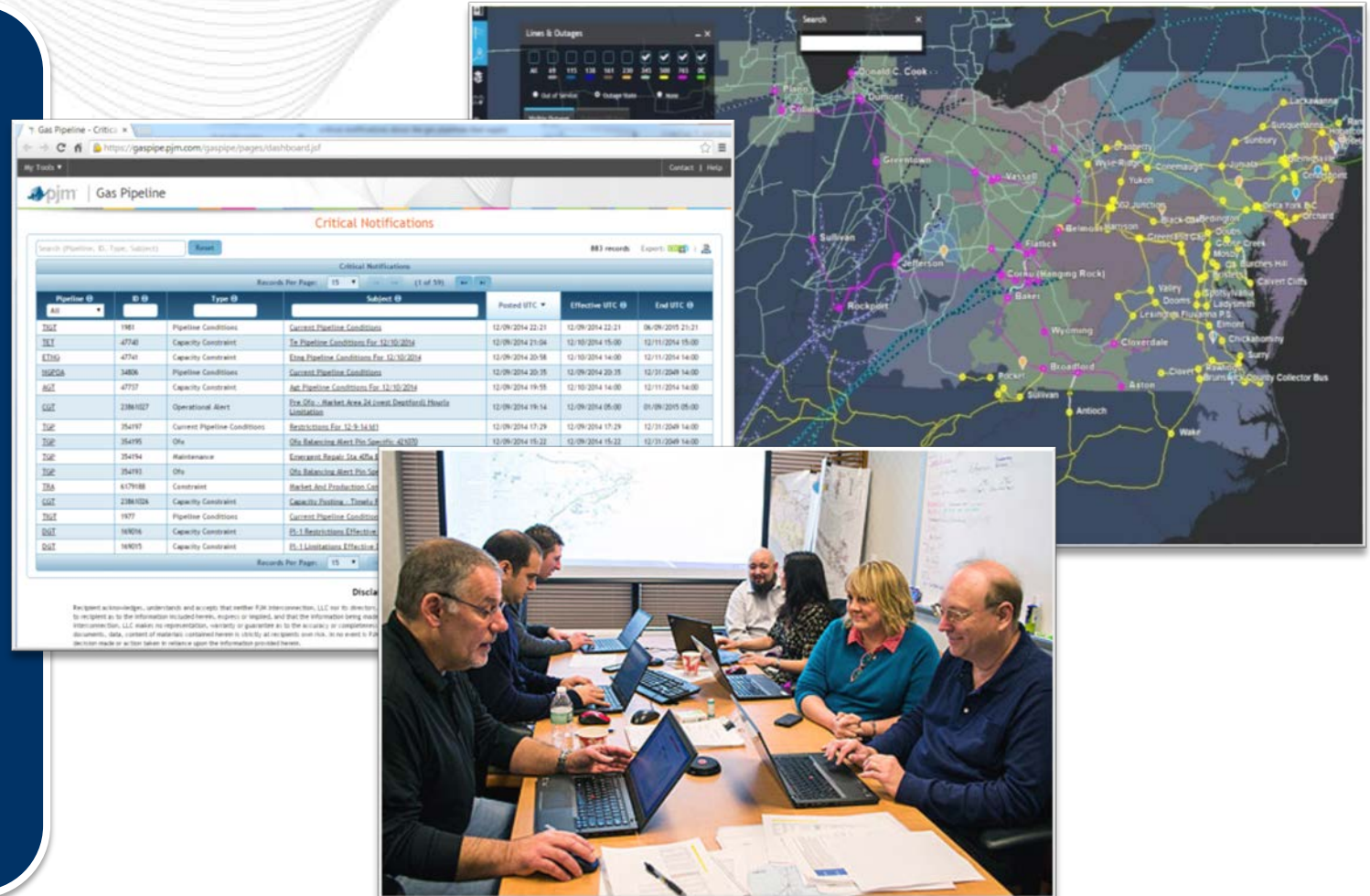
## Sensitivity Studies

## Impact

Sensitivity Studies	Impact
External Contingencies	No reliability concerns
N-1-1 Relay Trip Conditions	No cascading outage concerns identified <ul style="list-style-type: none"><li>• Majority of the overloads were created by radial load, only controlling action is post-contingency load dump.</li><li>• All networked transmission overloads were controlled pre-contingency.</li></ul>
Gas-Pipeline Contingency Analysis	No reliability concerns
Maximum Credible Contingencies	No reliability concerns
Transfer Interface Analysis	No reliability concerns
BGE/PEPCO Import Capability	No reliability concerns
90/10 Load Forecast (138,515 MW)	No uncontrollable or unexpected issues observed at the elevated load levels
Extreme Winter Peak (145,914 MW)	In progress

## PJM team

- Analyze data related to gas delivery to units.
- Provide operational info that allows operators to make better decisions.
- Improve coordination with pipelines and LDCs.
- Develop tools to support processes.



## FOCUS

1. Define fuel security **as risks in fuel supply and delivery** to critical generators.
2. Reaffirm the **value of markets for** achieving a cost-effective, fuel-secure fleet of resources.
3. **Identify fuel security risks** with a primary focus on resilience.
4. Establish **criteria to value fuel security** in PJM markets.

## APPROACH

- 1 Phase 1: Analysis**  
Identify potential system vulnerabilities and develop criteria to address them.
- 2 Phase 2: Modeling**  
Model of incorporation of vulnerabilities into PJM's markets.
- 3 Phase 3: Ongoing Coordination**  
Address specific security concerns identified by federal and state agencies.

## TIMING

**May – Nov. 2018:**  
Analysis

**2019**  
Modeling/Market Design

**May 2018 – 2019:**  
Ongoing Coordination

## Recent Activities

**5 Minute Settlement**

**30 Minute Reserve Requirement  
Calculation Defined**



## Future Initiatives

**Energy Price Formation**

**Day-Ahead Market Timing**

