



Severe Weather Event – Jan 28 to Feb 1, 2019
Electric Operations

Minnesota Public Utilities Commission
Planning Meeting

February 28, 2019

Pre-Event Planning – Electric Overall

- Extreme weather forecasting and planning
 - Winterization process for power plants
 - Preparations to run on backup fuel if needed
 - Anticipated wind and solar capacity reductions
- Supplemental Transmission and Distribution staffing
 - *Goal:* limit impacts to customers and ensure employee and public safety
 - Higher volumes of outages NOT expected
- Coordination between electric and natural gas operations

Electric – Customer Impacts

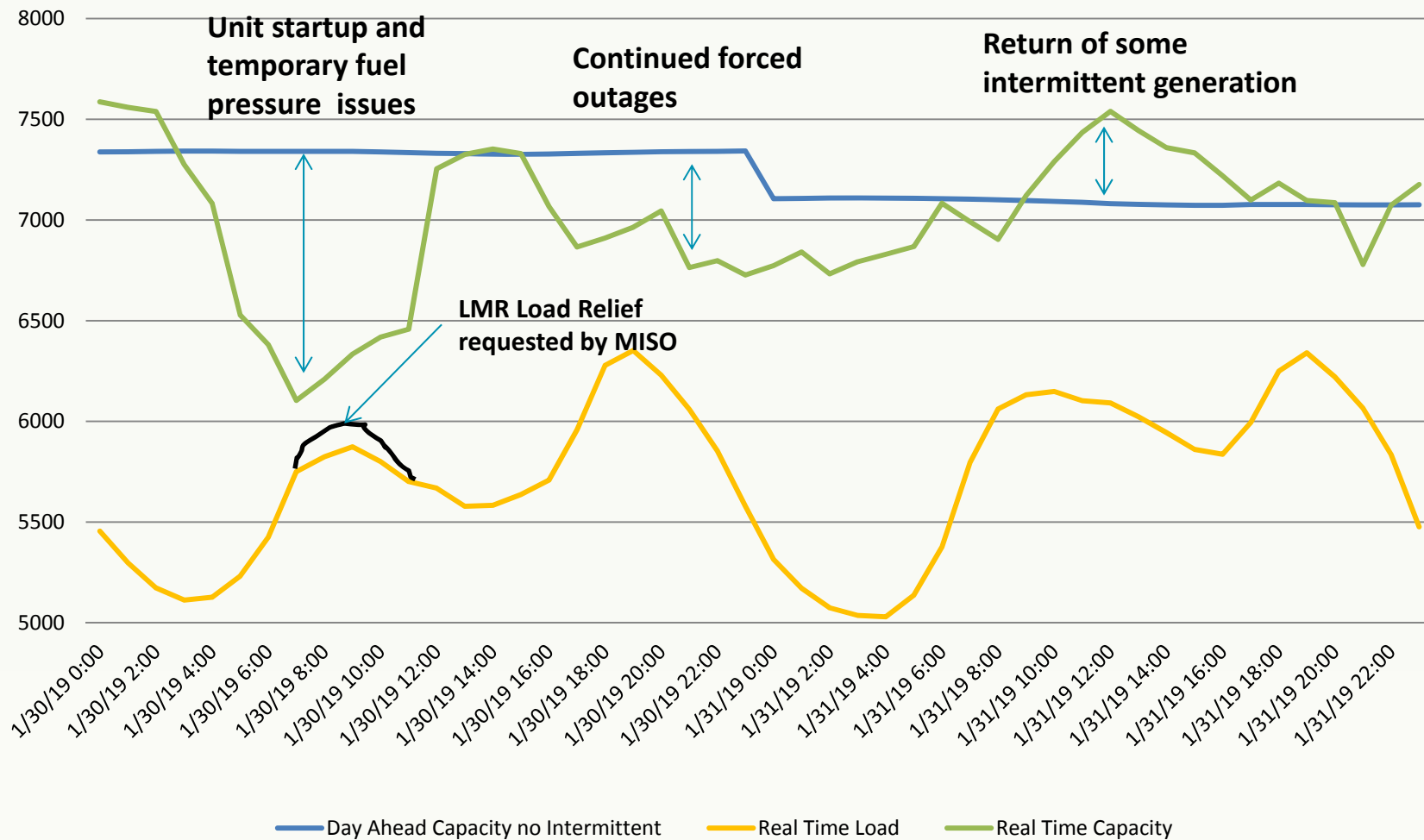
- No customer impacts at Transmission Level
- Typical volume of distribution-level outages for this time period
- Interruptible customer curtailments
 - Responsive to MISO

Electric – Transmission and Distribution

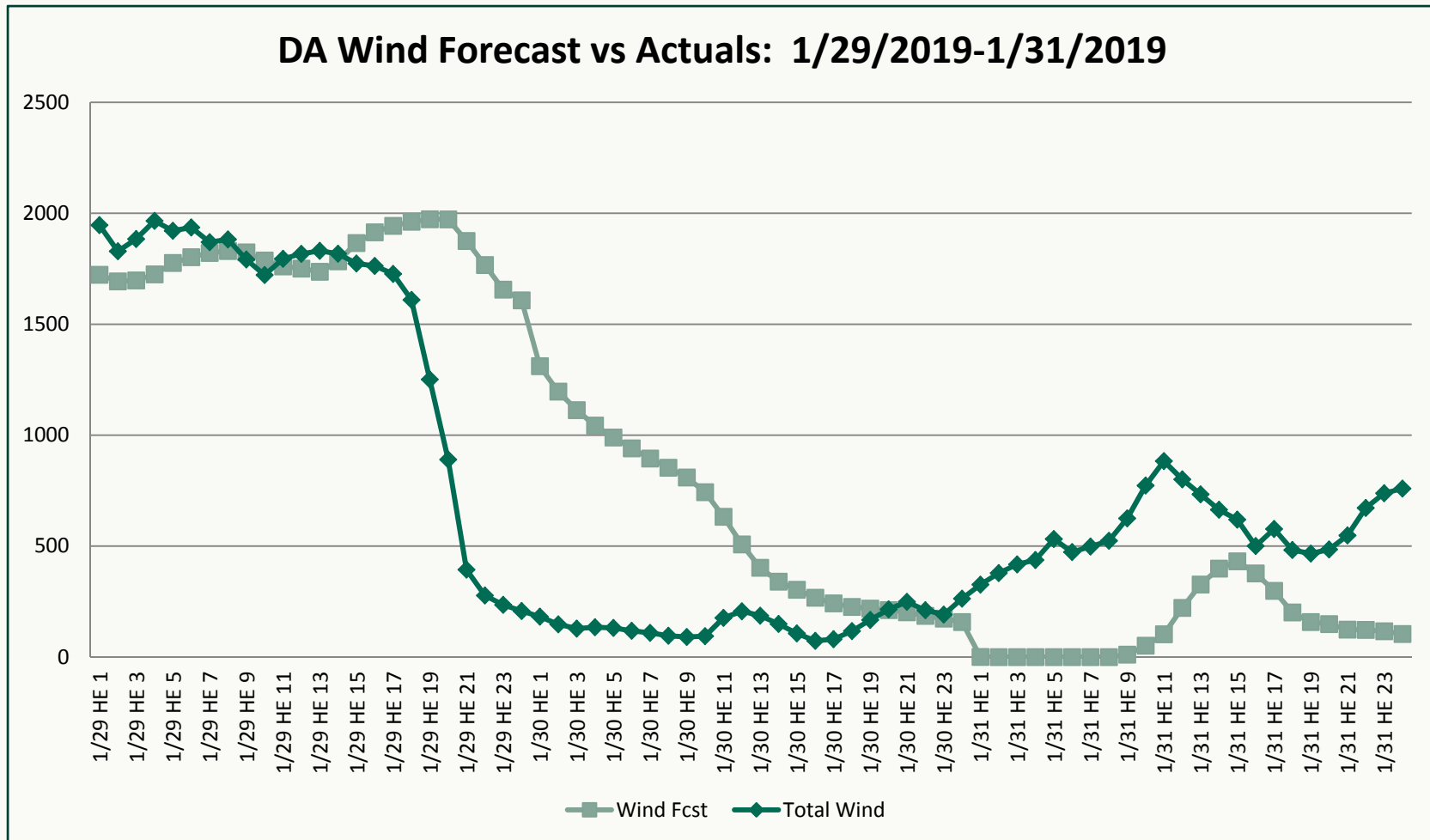
Lessons Learned/Next Steps

- System performed well under extreme conditions
- Proactive staffing limited customer impact
- Leveraged Electric experience to aid with Gas response

NSP Generation Capacity vs. Load



Resource Portfolio Performance - Wind



Note: Information is preliminary and is subject to change.



Resource/Supply – Lessons Learned/Next Steps

- First experience with cold weather cutout on wind
 - Event provided valuable information for future forecast improvements
- Unit commitment in advance of cold weather
 - Startup failures in extreme cold likely
 - “Must Run” for generation not committed by MISO to cover native load

