



# NERC Lessons Learned

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Preventing Energy Emergency Alerts



Western Electric Coordinating Council



June 11, 2020

- Multiple EEAs declared unnecessarily due to multiple issues
  1. RSG software glitch caused BA to provide more generation than necessary & multiple unit trips were over 1-minute threshold for BAL-002 event
  2. BA used contingency reserve generation after unit trip and declining solar
  3. Wildfires reduced ATC to a BA but overall RSG contingency reserves were adequate
  4. BA tools did not show all available generation to operators
  5. BA shed load but was not a BAL-002 event for the RSG

1. 73 corrective actions based on 29 finding
  - a) Improved processes and tools
  - b) Training improvements
  - c) Improved communication and collaboration
  - d) Software change
2. Corrective actions focused on the evening solar ramps
  - a) Day ahead capacity assessment
  - b) Real Time Resource Management
3. Updates to EMS screens to include all reserves in RSG
4. Software change
5. Two new EMS real-time situational awareness tools were developed and refresher RSG/DCS training

- BAs should provide refresher training on acting as a member of an RSG versus as an individual BA
- RSGs should validate programs for multiple contingency reserve activations
- BAs should adjust their capacity commitment once the load forecast is generated to manage renewable ramping
- Forecast renewable to pre-position other resources
- BAs should develop a process to validate all available reserves are accounted for and properly displayed for system operators
- GOs/GOPs should test their unsynchronized units



Unanticipated Wind Generation  
Cutoffs during a Cold Weather Event



Midwest Reliability Organization



June 11, 2020

- Entity experienced severe cold weather a couple of degrees below forecasted on January 29-31, 2019
- Temperature dropped below  $-21^{\circ}\text{F}$ , causing wind units to shut down unexpectedly
- Only 4 GW of planned 8.5 GW of wind was observed
- Rising risk of being unable to meet increasing load triggered a maximum generation event

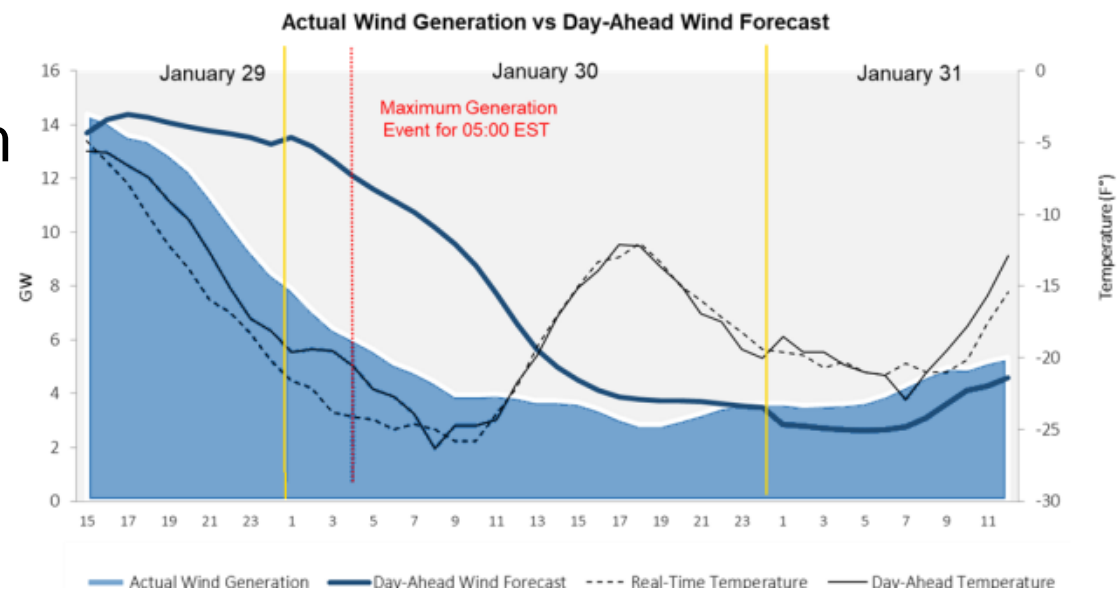


Figure 1: graph showing the expected and actual temperatures and wind generation [2]

- 98 out of 216 wind generators needed to be derated or shut down due to temperatures across the area being below  $-21^{\circ}\text{F}$
- The remaining wind generators utilized heating packages to allow themselves to operate down to  $-40^{\circ}\text{F}$
- Load modifications were deployed as part of the maximum generation event to address increasing load and decreasing capacity
- The closing of schools and businesses reduced demand, eliminating the need for emergency power purchases from neighboring areas



- Improve wind forecasting with additional resource parameters
- Obtain accurate cutoff temperature information for wind farms in the footprint
- Wind unit owners should prepare for extreme cold weather performance
- Wind unit owners should promptly communicate operating parameters and data to their BA, RC, and TOP

1. Preventing Energy Emergency Alerts

[https://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20200602\\_Preventing\\_EEAs.pdf](https://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20200602_Preventing_EEAs.pdf)

2. Unanticipated Wind Generation Cutoffs during a Cold Weather Event

[https://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20200601\\_Unanticipated\\_Wind\\_Generation\\_Cutoffs\\_during\\_a\\_Cold\\_Weather\\_Event.pdf](https://www.nerc.com/pa/rrm/ea/Lessons%20Learned%20Document%20Library/LL20200601_Unanticipated_Wind_Generation_Cutoffs_during_a_Cold_Weather_Event.pdf)