

# Wind Control Changes

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# Wind Control Changes



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- 3 Different Wind Control Changes
  - They address different issues and have had different development timelines but have converged on a similar implementation timeline.
  - #1 provides an expansion of the curtailment tool for limiting BPA's Balancing Reserves Deployed within the set aside amounts.
  - #2 provides for improved Dispatcher mitigation of System Operating Limit violations.
  - #3 provides an additional tool for self suppliers and others to hold incremental capacity in an external Balancing Authority

# Wind Control Change #1

- Additional curtailments for Balancing Reserve deployment will be allowed during an hour
  - When the wind is dropping throughout an hour BPA is currently held to only curtailing the wind schedules twice
    - First curtailment (curtailment level 1) at 90% deployed balancing reserve to actual generation plus reserve allocation
    - Second curtailment (curtailment level 2, nomenclature changing with this update to curtailment level 2-1) at 100% deployed balancing reserve to actual generation, no reserve allocation
  - We are adding two more levels of curtailment that will take place if the wind continues to drop off in-hour
    - Curtailment level 2-2 will occur not sooner than ten minutes following a curtailment level 2-1. The wind schedules will be curtailed to the actual generation if the deployed balancing reserve reaches 100%.
    - Curtailment level 2-3 will occur not sooner than 10 minutes following a curtailment level 2-2. The wind schedules will be curtailed to the actual generation if the deployed balancing reserve reaches 100%.
  - We do not anticipate going to curtailment levels 2-2 or 2-3 very often. There have only been a few hours that we have seen reserve deployed exceed 100% when we are in a curtailment level 2.

## Wind Control Change #2

- The curtailment calculator algorithm takes into account the amount of schedules over the path, not the actual output of a wind facility scheduling across the path. Therefore, if a wind facility is over generating by 100 MW and is curtailed, it will have to reduce its output first by the 100 MW of over generation then by the amount of the curtailment. BPA then sees an addition 100 MW of overload mitigation that was not accounted for in the curtailment calculator.
- When wind is contributing to a System Operating Limit issue on a path due to generating more than is scheduled, we will bring the wind facilities affecting the path down to their scheduled values prior to initiating a curtailment.
- With this change, the curtailments will not have to be as deep and in some instances we will not need to curtail.
- This is fair and beneficial to all parties because the non-wind and wind schedules across the path will not experience as many curtailments
- Limiting the wind output to schedule prior to curtailing will give BPA a more accurate calculation on the amount of curtailment needed.
- Currently, and going forward, any thermal unit that is over generating and adversely impacting the congested path is called by Dispatch told to go back to schedule.

## Wind Control Change #3

- Start allowing G-NF (non-firm energy product code) for exports from the BPA BA
  - There are entities that want to start scheduling some wind using the non-firm energy product code to provide additional tools to mitigate wind under generation events.
  - Although initiated by wind owners/operators, this will be allowed for any generation in the BPA balancing authority area that is exporting its power
  - This will allow capacity to be held in other in other balancing authorities, the sink balancing authority can curtail the e-Tag during wind drop-off events.
  - Once curtailment of the G-NF e-Tag occurs, the sink balancing authority will be responsible to deploy the capacity needed to meet the transaction.

# Wind Control Changes – Implementation Plan

- Modifications to AGC
  - The change for additional curtailments has been programmed on AGC, will be released with the limitation changes
  - Limitation changes are in process, will be complete prior to mid-August
  - Aiming for August 15<sup>th</sup> to get these online
- Modification to iCRS
  - iCRS has been modified to accept additional curtailments in-hour
  - Will display curtailments 2, 3 and 4 as 2-1, 2-2 and 2-3
  - Using 2-X for the last three curtailments because all of them follow the same logic as the current curtail level 2, if reserve deployed reaches 100%, curtail the e-Tags to the actual generation
  - Will be deployed when AGC changes are deployed
- Modification for e-Tag Validation
  - Non-firm exports are not disallowed currently, no changes to validations due to allowing non-firm exports.

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- Questions?