Winter Storm Elliott
Continued Outage Analysis

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Operating Committee
March 9, 2023
Forced Outages/Derates by Fuel Type

Note: Only even hours are shown for readability with the exception of 12/24/2022 07:00 which was the hour with the largest amount of forced outages and derates.

Slide uses GADS data pulled 03/01/2023.
Gas - Forced Outages/Derates by Cause

Note: Only even hours are shown for readability with the exception of 12/24/2022 07:00 which was the hour with the largest amount of forced outages and derates

Slide uses GADS data pulled 03/01/2023
Coal - Forced Outages/Derates by Cause

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Slide uses GADS data pulled 03/01/2023
Nuclear - Forced Outages/Derates by Cause

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The Other Fuels category consists of the following GADS fuel types:
- Wood
- Other Gases
- Other Solids

Slide uses GADS data pulled 03/01/2023
Hydro - Forced Outages/Derates by Cause

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Slide uses GADS data pulled 03/01/2023
To effectively compare resource unavailability by fuel type and by cause during the Winter Storm Elliott event both the reduction and duration of the reduction must be considered.

While a 1,000 MW Forced Outage is much larger than a 100 MW Forced Outage, if the 1,000 MW FO only lasts one hour but the 100 MW FO lasts one day then the 100 MW FO is a more significant unavailability.

Using MWh as the comparison metric incorporates both the magnitude and duration of the outage to give a more complete picture of the impact.

In the following MWh analysis slides a duration of 12/23/2022 00:00 – 12/25/2022 23:59 is used.
Forced MWh by Fuel Type and Cause

GAS
- Turbine: 218,389 MWh (14%)
- Secondary Fuel: 55,621 MWh (4%)
- Plant Equipment: 225,677 MWh (15%)
- Performance: 34,192 MWh (2%)
- Emissions: 55,997 MWh (4%)
- Boiler / HRSG: 162,319 MWh (11%)
- Freezing: 293,728 MWh (19%)
- Gas Supply: 473,208 MWh (31%)

COAL
- Turbine: 72,169 MWh (11%)
- Plant Equipment: 132,625 MWh (19%)
- Coal Issue: 17,753 MWh (3%)
- Emissions: 47,967 MWh (7%)
- Freezing: 52,919 MWh (8%)
- Boiler: 362,096 MWh (53%)
- Gas Supply: 473,208 MWh (31%)

OIL
- Turbine: 17,008 MWh (17%)
- Freezing: 34,243 MWh (33%)
- Emissions: 2,781 MWh (3%)
- Performance: 755 MWh (1%)
- Boiler: 47,549 MWh (46%)
- Plant Equipment: 102,336 MWh

NUCLEAR
- Turbine: 1,812 MWh (10%)
- Boiler / HRSG: 6,120 MWh (35%)
- Emissions: 1,211 MWh (1%)
- Performance: 1,834 MWh (10%)
- Freezing: 367 MWh (2%)
- Lack of Water: 1,453 MWh (5%)
- Plant Equipment: 51,839 MWh (99%)

OTHER
- Turbine: 1,812 MWh (10%)
- Boiler / HRSG: 6,120 MWh (35%)
- Emissions: 1,211 MWh (1%)
- Performance: 1,834 MWh (10%)
- Freezing: 367 MWh (2%)
- Fuel Supply: 1,525 MWh (9%)
- Plant Equipment: 5,698 MWh (32%)

HYDRO
- Turbine: 1,812 MWh (10%)
- Boiler / HRSG: 6,120 MWh (35%)
- Emissions: 1,211 MWh (1%)
- Performance: 1,834 MWh (10%)
- Freezing: 367 MWh (2%)
- Plant Equipment: 29,044 MWh (95%)

Slide uses GADS data pulled 03/01/2023
Availability by Fuel Type

Total MWh = GADS Net
Dependable Capacity x 72 hours

Slide uses GADS data pulled 03/01/2023
Forced MWh by Fuel Type and Cause

- Coal
- Gas
- Hydro
- Nuclear
- Oil
- Other

Slide uses GADS data pulled 03/01/2023
Forced Outages by DA Commitment

Slide uses GADS data pulled 03/01/2023
Gas Forced Outages by DA Commitment

Slide uses GADS data pulled 03/01/2023
Gas Fuel Supply Forced Outages by DA Commitment

- December 23, 2022
- December 24, 2022
- December 25, 2022

- No DA Commitment
- DA Commitment

11,247 MW

Slide uses GADS data pulled 03/01/2023
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