2023/24 Winter Outlook
Scenarios
Introduction – 2023/24 Winter Scenarios

• The ISO routinely performs scenario assessments to prepare for the winter.

• The following slides illustrate the qualitative and quantitative aspects of three scenarios:
  – Scenario 1 assumes a mild winter as represented by the 2021/22 winter.
  – Scenario 2 assumes a moderate winter, but with a 13 day cold spell, as represented by the 2017/18 winter.
  – Scenario 3 assumes a severe winter as represented by the 2013/14 winter.

• The ISO’s 21-day energy forecast tool will signal any potential energy emergencies, thereby alerting the market to procure necessary fuel replenishments, both to meet their obligation and to protect against scarcity.
2023/24 Winter Assumptions

• Peak load for moderate winter is 19,600 MW
• Peak load for severe winter is 20,300 MW
• Behind the Meter PV is ~6400 MW
  — Loads and energy demand are reduced accordingly
• Incremental fuel of ~3Bcf LNG and ~10 million gallons of oil assumed from the Inventoried Energy Program*
  — As a reminder, the 2022/23 assumptions included that the oil inventory would be at ~50% and LNG volumes would be ~31 Bcf
• Imports held at 1500 MW when temperatures dip below 20° F, and vary from 3000 – 4000 MW when temperatures are above 20° F
• No significant, multiple, or long-duration generator or transmission contingencies

*This estimate is on the lower end of expected incremental fuel
Scenario 1 – Mild Winter, Similar to 2021/22

• Winter 2021/22 overview:
  – Milder than normal winter with very few days staying below freezing
  – Average temperature departure from normal was +1.0°F (i.e., warmer than normal)
  – Winter peak load of 19,623 MW
  – Approximately 80M gallons of fuel oil was burned

• Under this scenario, the ISO anticipates that there would be sufficient capacity and energy available to meet the expected peak loads and energy
Scenario 2 – Moderate Winter with a Deep and Prolonged Cold Spell; Similar to 2017/18

• Winter 2017/18 characteristics:
  – Milder than normal outside of a two-week span of significantly below normal temperatures
  – Average temperature departure from normal was +0.5°F degrees
  – The region was impacted by an extended stretch of cold weather between December 25 and January 9; all major cities in the region experienced temperatures below normal for at least 13 consecutive days, of which 10 days averaged more than 10°F below normal
  – Winter peak load of 20,631 MW

• Under this scenario, the ISO anticipates that there would be sufficient capacity and energy available to meet the expected peak loads and energy
Scenario 3 – Cold Winter with Several Cold Stretches; Similar to 2013/14

• Winter 2013/14 characteristics:
  – Colder than normal overall highlighted by a polar vortex event which resulted in significant stretches of cold weather in New England and surrounding areas
  – Average temperature departure from normal was -2.3°F degrees
  – The region experienced six cold weather stretches of four or more consecutive days, including a stretch of ten consecutive days at or below freezing
  – Winter peak load of 21,514 MW
  – Significant energy usage caused high demand on both the electric and natural gas systems

• Under this scenario, the ISO expects that capacity deficiency actions under OP-4 may be necessary across a few days
  – OP-7 actions are unlikely to be needed
Other Information
Currently, aggregate Fuel Oil Inventories are close to pre-winter levels
Looking Forward – World Gas Prices

- Current forward prices for European and Asian natural gas are ~$18 to $19
  - Prices below are from mid April

<table>
<thead>
<tr>
<th>Month</th>
<th>Dutch TTF USD/MMBtu</th>
<th>Asian JKM USD/MMBtu</th>
<th>AGT USD/MMBtu</th>
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<tbody>
<tr>
<td>November 2023</td>
<td>18.406</td>
<td>17.970</td>
<td>5.78</td>
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<tr>
<td>December 2023</td>
<td>19.076</td>
<td>19.025</td>
<td>13.71</td>
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<tr>
<td>January 2024</td>
<td>19.217</td>
<td>19.160</td>
<td>17.41</td>
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<tr>
<td>February 2024</td>
<td>19.228</td>
<td>19.145</td>
<td>16.56</td>
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<td>March 2024</td>
<td>18.900</td>
<td>16.665</td>
<td>7.47</td>
</tr>
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Winter 2023-24 Preparations

• ISO will model 90-day forward looking energy analysis in advance of the winter and provide an update to stakeholders in October/November 2023

• Winter weather forecast will be an important factor

• ISO will continue its robust communication protocol with stakeholders, states, and federal agencies in advance of the winter

• Inventoried Energy Program will be in place for winter 2023/2024 and 2024/2025