LNG Shortfall Scenario Effectiveness

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Purpose
The analysis presented in this summary report demonstrates the effectiveness of the proposed liquefied natural gas (LNG) plant in the context of responding to supply shortfalls on a Design-Peak Day.

Analysis
In order to compare normal operation to a shortfall scenario, Figures 1-3 are high pressure (HP) model results of the current Joint Operations Agreement (JOA). Unless otherwise stated herein, the results assume all necessary gas supply reaches the city gates and there are no malfunctions or mechanical failures on the pipelines feeding the system.

*The Little Mountain and Payson Gates have two source nodes each in order to simplify the model. Flows are shown in millions of cubic feet per day (MMcfd).*
The first supply shortfall scenario considered is caused by well freeze-offs in Wyoming upstream of Dominion Energy Questar Pipeline (DEQP) system. In the modeled scenario, the volume at the Little Mountain Gate Station (north and south feeding) is reduced by 150 MMcf/d. Figure 4 shows the resulting LNG plant flow rate under these conditions. Figures 5-7 contain the model results similar to Figures 1-3 for comparison. All system pressures are above operational minimums.
Figure 4: LNG Plant Flow Rate - Wyoming Freeze-Offs Scenario

Figure 5: Gate Station Flow Rates - Wyoming Freeze-Offs Scenario
Figure 6: JOA Central HP System Results - Wyoming Freeze-Offs Scenario

Figure 7: JOA Northern HP System Results - Wyoming Freeze-Offs Scenario

The next supply shortfall scenario considered is caused by malfunctions at OPAL upstream of the Kern River Pipeline system. In the modeled scenario, the volume at the Hunter Park Gate Station (north and south feeding) is reduced by 150 MMcf/d. Figure 8 shows the resulting LNG plant flow rate under these conditions. Figures 9-11 contain the model results similar to Figures 1-3 for comparison. All system pressures are above operational minimums.
Figure 8: LNG Plant Flow Rate - OPAL Malfunction Scenario

Figure 9: Gate Station Flow Rates - OPAL Malfunction Scenario
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**Figure 10: JOA Central HP System Results - OPAL Malfunction Scenario**

**Figure 11: JOA Northern HP System Results - OPAL Malfunction Scenario**

**Conclusion**

The proposed LNG facility will allow the Company to maintain operational pressures during the most likely supply shortfall scenarios on a Design-Peak Day. The facility is capable of feeding up to the design capacity at the proposed site.