



# Gas Constraints Whitepaper Update

---

Lucas Carr

NYISO

**ICS Meeting #289**

May 1, 2024

# Agenda

- Background
- Additional Analysis
- Next Steps

# Background

# Background

- At the 4/3/2024 ICS, the NYISO presented the updated fuel constraint initial modeling recommendation below
- It was requested that additional analysis be conducted with varying levels of “available oil” to provide further information on the potential impacts of differing fuel availability assumptions
  - All results in this presentation are for informational purposes only to provide further information in assessing the recommended modeling approach for fuel availability constraints

Tier	NYCA Load Conditions (MW)	Available Gas (MW)	Available Oil (MW)	Total Available Fuel (MW) (Gas + Oil)**	Illustrative Modeled Derate (Rounded MW)***
1	>26,000	375	11,000	11,375	8,600
2	25,000 - 26,000	750		11,750	8,225
3*	24,000 - 25,000	2,750		13,750	6,225
4*	23,000 - 24,000	4,500		15,500	4,475
5	22,000 - 23,000	5,500		16,500	3,475
6	<22,000	No Constraint		No Constraint	0

\* Tier 3 and 4 load levels comprise the actual peak loads observed in recent winter operating conditions. The illustrative MW derates are generally consistent with the typical reduction in generator capability experienced during such operating conditions.

\*\*Includes gas-only and dual fuel units

\*\*\* “Illustrative Modeled Derate” calculated based on the gas-only and dual fuel resources modeled in Load Zones F-K in 2024-2025 IRM Final Base Case (FBC) (ICAP: ~21,770 MW, UCAP: ~19,975 MW)

# Additional Analysis

# Tan45 Results Comparison

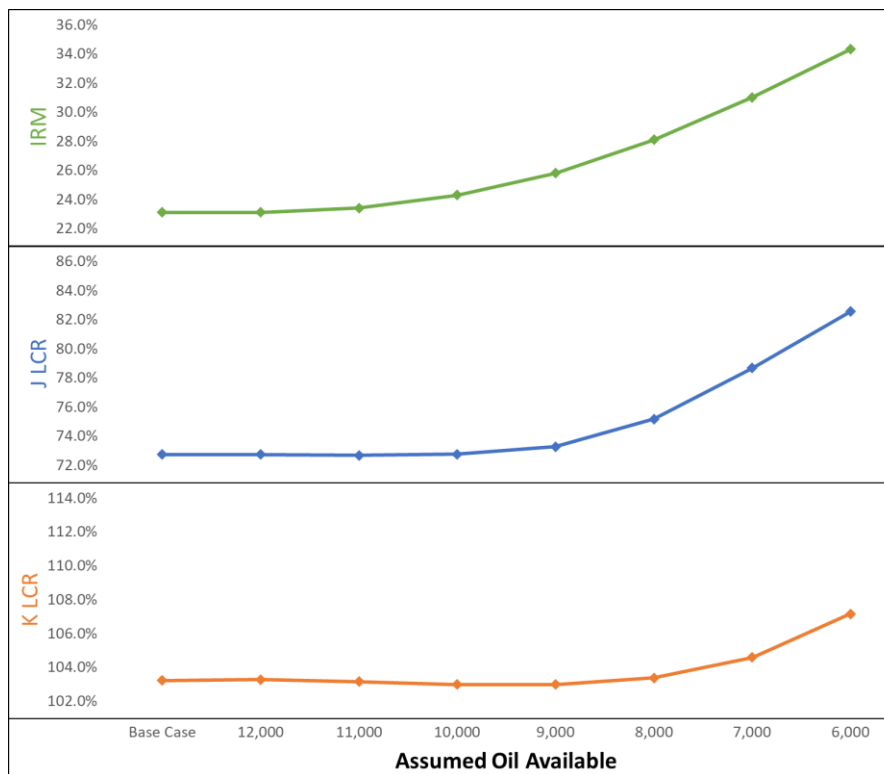
- The Tan45 process was conducted on varying levels of assumed oil applied in the recommended fuel constraint modeling

Available Oil Assumed (MW)	IRM	IRM Delta	J LCR	J LCR Delta	K LCR	K LCR Delta	G - J	G - J Delta	Summer LOLE Risk (%)	Winter LOLE Risk (%)
<b>Base Case</b>	23.1%	-	72.73%	-	103.21%	-	84.58%	-	100.0%	0.0%
<b>12,000</b>	23.1%	+0.00%	72.73%	+0.00%	103.27%	+0.06%	84.58%	+0.004%	99.7%	0.3%
<b>11,000</b>	23.4%	+0.30%	72.68%	-0.05%	103.15%	-0.05%	84.54%	-0.035%	97.2%	2.8%
<b>10,000</b>	24.3%	+1.20%	72.75%	+0.02%	102.98%	-0.22%	84.59%	+0.012%	89.1%	10.9%
<b>9,000</b>	25.8%	+2.70%	73.27%	+0.54%	102.98%	-0.23%	84.98%	+0.399%	73.8%	26.2%
<b>8,000</b>	28.1%	+5.00%	75.18%	+2.45%	103.37%	+0.17%	86.37%	+1.789%	53.2%	46.8%
<b>7,000</b>	31.0%	+7.90%	78.68%	+5.95%	104.57%	+1.37%	88.93%	+4.350%	35.6%	64.4%
<b>6,000</b>	34.3%	+11.20%	82.55%	+9.82%	107.15%	+3.94%	91.76%	+7.181%	18.6%	81.4%

- The Tan45 process was unable to find a solution when available oil was assumed at 5,000 MW or lower

# Tan45 Results Chart

- The chart to the right illustrates the Tan45 produced IRM, Load Zone J locational capacity requirement (LCR), and Load Zone K LCR values for the varying levels of assumed oil available
- The IRM increases significantly when the assumed level of oil available reduces below 11,000 MW (i.e., the NYISO's recommended initial modeling assumption)
- The J and K LCR values are not impacted as significantly until assumed oil availability decreases to levels below 9,000 MW



# TSL Sensitivity/LCR Results Comparison

- Additional cases were run on alternative conditions to evaluate potential impacts of the applicable transmission security (TSL) floor values determined by the NYISO
  - For the cases with assumed oil availability above 10,000 MW, the EC approved IRM of 22.0% was maintained and LCRs were bound by the TSL floor values
  - For the cases with assumed oil availability of 10,000 – 8,000 MW, the LCRs were locked at the TSL floor values and the LOLE of 0.100 was achieved by adjusting the IRM
  - For the cases with assumed oil availability levels below 8,000 MW, the 0.100 LOLE criteria could not be met without increasing the LCRs above the TSL floor values. In these cases, the Tan45 IRM as shown on slide 6 was maintained and the NYISO’s LCR optimizer was allowed to shift within the J, K, and/or G-J Localities to meet the LOLE criteria

Available Oil Assumed (MW)	IRM	IRM Delta	J LCR	J LCR Delta	K LCR	K LCR Delta	G – J LCR	G - J Delta	LOLE (event-days/yr)
Base Case	22.0%	-	80.40%	-	105.30%	-	81.00%	-	0.090
12,000	22.0%	-	80.40%	-	105.30%	-	81.00%	-	0.091
11,000	22.0%	-	80.40%	-	105.30%	-	81.00%	-	0.095
10,000	22.5%	+0.5%	80.40%	-	105.30%	-	81.00%	-	0.100
9,000	24.2%	+2.2%	80.40%	-	105.30%	-	81.00%	-	0.100
8,000	26.7%	+4.7%	80.40%	-	105.30%	-	81.00%	-	0.100
7,000	31.0%	+9.0%	80.40%	-	105.30%	-	83.45%	+2.45%	0.100
6,000	34.3%	+12.3%	81.78%	+1.38%	107.81%	+2.51%	95.57%	+14.57%	0.100



# Next Steps

# Next Steps

- The NYISO will continue working with ICS to evaluate the fuel constraints modeling whitepaper
- The NYISO anticipates further discussing preliminary Capacity Accreditation Factor (CAF) values for firm and non-firm fuel elections leveraging the additional analysis of varying levels of available oil assumptions at an upcoming ICAPWG meeting

# Our Mission & Vision



## Mission

Ensure power system reliability and competitive markets for New York in a clean energy future



## Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

# Questions?