

# Impacts on the IRM of Model Updates to the HQ Interface

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# Agenda

- **Background Info**
- **Review HQ Sensitivities from the 2019 IRM**
- **Present Study Results**
  - HQ Wheel
  - Merge capacity in Cedars bubble into HQ bubble, and remove Cedars bubble
  - 80 MW External Deliverability Rights

# Background Info



## Background Info

- HQ Wheel has been discussed at several ICS meetings
- ICS's historical position has been to not model the wheel
- After further discussions at ICS, it was decided to perform a sensitivity for the 2019 IRM
- Results of those runs along with other discussions led to an agreement to include the HQ Wheel for the 2020 IRM Study

# 2019 IRM Sensitivities

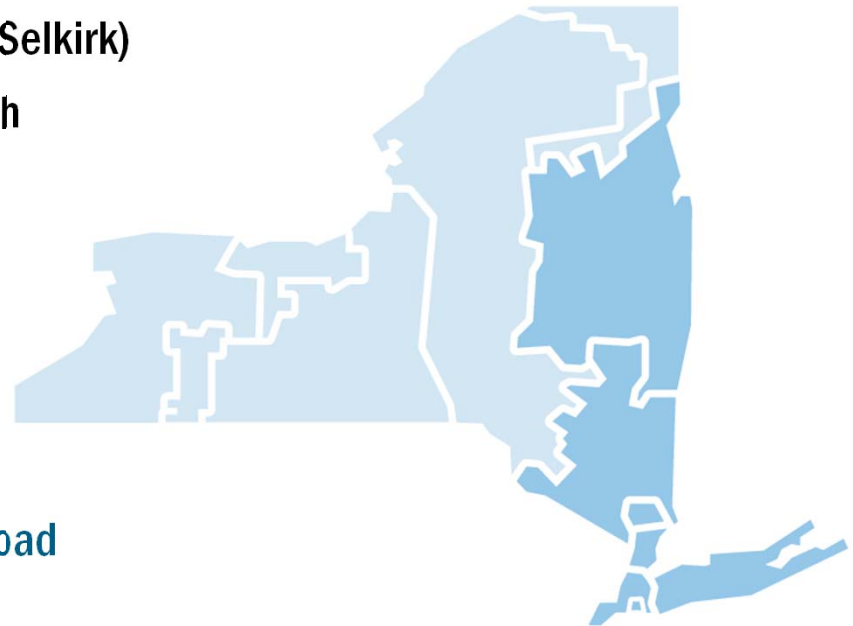
- **Combine Cedars and Quebec Areas**
- **Incorporate the HQ to New England Wheel**
  - De-rate HQ Chateaugay to D by 300 MW
  - Increased ISO-NE Import from Western MA to F by 300 MW
- **Both sensitivities performed on IRM Preliminary Base Case resulted in an increase in IRM and Zone J and Zone K minimum LCR requirements**

	IRM	NYC	LI
IRM Final Base Case	16.8	82.7	101.5
Sensitivity 11 - HQ-Wheel (Tan 45)	17.1	82.8	101.7
Sensitivity 12 - Combine Cedars (Sensitivity method)	16.9	82.7	101.6

# Study Results

# Study Plan

- Start with 2019 IRM Final Base Case (including Selkirk)
- Conduct study as a parametric analysis with each phase as its own base case
  - Update external control areas per Policy 5
  - Conduct Tan45
  - Determine LCRs using the LCR Optimizer
  - Determine External Import Limits
  - Each study case to use the October 2018 load forecast



# Results of Base Case

2019 IRM Base Case with Selkirk in service*		PJM	ISO-NE	Quebec	Ontario	Totals	
		<b>Summer Ratings</b>	1,450	1,400	1,500	1,750	6,100
IRM	16.7						
NYC	83.4	<b>Grandfathered Rights</b>	1080	0	1,110	0	2,190
LI	103.5						
G_J	92.50	<b>Individual Limits (above GF)</b>	200	850	15	403	1468
		<b>Simultaneous Limits (above GF)</b>	42	178	3	85	308
		<b>Final Values (GF+SL)</b>	<b>1,122</b>	<b>178</b>	<b>1,113</b>	<b>85</b>	<b>2,498</b>

\* Note that these results differ from the official imports rights determined by the NYISO in January. This scenario used the October 2018 Load Forecast and did not include the EC-approved IRM.



## Model HQ Wheel

- Use equivalent contract model
- De-rate HQ to Chateaugay by 300 MW
- De-rate F to Western MA by 300 MW
- HQ better than 0.1 LOLE, so adjusted LOLE to nominal 0.1 LOLE per Policy 5

# HQ Wheel Scenario Results

HQ Wheel		PJM	ISO-NE	Quebec	Ontario	Totals	
	<b>Summer Ratings</b>	1,450	1,400	1,500	1,750	6,100	
IRM	17.3						
NYC	83.0	<b>Grandfathered Rights</b>	1,080	0	1,110	0	2,190
LI	103.6						
G_J	93.50	<b>Individual Limits (above GF)</b>	190	635	17	362	1204
	<b>Simultaneous Limits (above GF)</b>	125	419	11	239	795	
	<b>Final Values</b>	<b>1,205</b>	<b>419</b>	<b>1,121</b>	<b>239</b>	<b>2,985</b>	

Delta HQ Wheel against Base Case		PJM	ISO-NE	Quebec	Ontario	Totals	
	<b>Summer Ratings</b>	0	0	0	0	0	
IRM	0.6						
NYC	-0.4	<b>Grandfathered Rights</b>	0	0	0	0	0
LI	0.1						
G_J	1.0	<b>Individual Limits (above GF)</b>	-10	-215	2	-41	-264
	<b>Simultaneous Limits (above GF)</b>	83	241	8	154	487	
	<b>Final Values</b>	83	241	8	154	487	

## **Merge the HQ Cedars bubble into the HQ bubble**

- **Adjust the summer rating of HQ Chateaugay to D to 1,690 MW**
- **HQ better than 0.1 LOLE, so adjusted LOLE to nominal 0.1 LOLE per Policy 5**

# HQ Wheel + Merge Cedars Results

HQ Wheel + Merge Cedars		PJM	ISO-NE	Quebec	Ontario	Totals	
	<b>Summer Ratings</b>	1,450	1,400	1,690	1,750	6,290	
IRM	17.4						
NYC	83.6	<b>Grandfathered Rights</b>	1,080	0	1,110	0	2,190
LI	103.7						
G_J	92.30	<b>Individual Limits (above GF)</b>	200	795	15	420	1430
	<b>Simultaneous Limits (above GF)</b>	56	222	4	117	400	
	<b>Final Values</b>	<u>1,136</u>	<u>222</u>	<u>1,114</u>	<u>117</u>	<u>2,590</u>	

Delta HQ Wheel + Cedars Merge against HQ Wheel		PJM	ISO-NE	Quebec	Ontario	Totals	
	<b>Summer Ratings</b>	0	0	190	0	190	
IRM	0.1						
NYC	0.6	<b>Grandfathered Rights</b>	0	0	0	0	
LI	0.1						
G_J	-1.2	<b>Individual Limits (above GF)</b>	10	160	-2	58	226
	<b>Simultaneous Limits (above GF)</b>	-70	-197	-7	-122	-395	
	<b>Final Values</b>	-70	-197	-7	-122	-395	

## **Model 80 MW External Deliverability Rights**

- **Model using same method as the 1,100 MW HQ External CRIS (derate HQ to Chateaugay by 80 MW)**
- **Increase rating on HQ interface (Chateaugay + Dennison after merging Cedars) by 80 MW (1,770 MW interface total)**
- **Not necessary to adjust external control areas LOLEs per Policy 5**

# 80 MW EDR Results

HQ Wheel + Merge Cedars + 80 MW EDR		PJM	ISO-NE	Quebec	Ontario	Totals	
		<b>Summer Ratings</b>	1,450	1,400	1,770	1,750	6,370
IRM	17.3						
NYC	82.4	<b>Grandfathered Rights</b>	1,080	0	1,190	0	2,270
LI	103.6						
G_J	92.00	<b>Individual Limits (above GF)</b>	200	790	17	362	1,369
		<b>Simultaneous Limits (above GF)</b>	58	231	5	106	400
		<b>Final Values</b>	<u>1,138</u>	<u>231</u>	<u>1,195</u>	<u>106</u>	<u>2,670</u>

Delta HQ Wheel + Cedars Merge + 80 MW EDR against previous case		PJM	ISO-NE	Quebec	Ontario	Totals	
		<b>Summer Ratings</b>	0	0	80	0	80
IRM	-0.1						
NYC	-1.2	<b>Grandfathered Rights</b>	0	0	80	0	80
LI	-0.1						
G_J	-0.3	<b>Individual Limits (above GF)</b>	0	-5	2	-58	-61
		<b>Simultaneous Limits (above GF)</b>	2	8	1	-12	0
		<b>Final Values</b>	2	8	81	-12	80

Results Summary					
	2019 IRM with Posted LCRs, Imports - Final Load Forecast	Base w/Selkirk Tan 45 with 10/18 Load Forecast	HQ Wheel Tan 45 with 10/18 Load Forecast	HQ + Merge Cedars Tan 45 with 10/18 Load Forecast	HQ + Merge Cedars + 80 MW EDR Tan 45 with 10/18 Load Forecast
IRM	17.0	16.7	17.3	17.4	17.3
NYC	82.8	83.4	83.0	83.6	84.0
LI	104.1	103.5	103.6	103.7	103.6
G_J	92.3	92.50	93.5	92.30	92.0
Import Rights					
PJM	32	42	125	56	58
ISO-NE	279	178	419	222	231
Quebec	4	3	11	4	5
Ontario	128	85	239	117	106
<b>Total Above GF:</b>	<b>443</b>	<b>308</b>	<b>795</b>	<b>400</b>	<b>400</b>
All Contracts:	2,633	2,498	2,985	2,590	2,670

These results are based upon the technical study of the 2019 IRM Base Case with Selkirk in service and using the October 2018 load forecast. Official import rights results would be sensitive to database changes that could result from the NYSRC EC approving an IRM higher or lower than the technical study, and changes in the ICAP forecast. Any other resource adjustments or system changes may also affect the import rights results.



# Recommendations



# **NYISO Recommendations for 2020 IRM Study**

- **Model the HQ Wheel**
- **Model the Merged HQ Bubble**
- **Consider a sensitivity for the 80 MW External Deliverability Rights in the 2020 IRM Study, for preparation for inclusion in the 2021 IRM Base Case**

# Questions?

We are here to help. Let us know if we can add anything.

