Installed Capacity Subcommittee Meeting Minutes from October 5, 2016 and discussions with the NYISO on October 10, 2016

Preliminary Base Case

By employing the Tan 45 procedure described in Policy 5, the preliminary base case IRM is 18.3% with LCRs of 81.9% for NYC and 104.2% for Long Island. Current 2016 IRM and LCR values are: IRM 17.5%, LCR for NYC is 80.5%, and LI is 102.5%. Zone GHIJ LCR is not part of the ICS Tan 45 process. Because of recent changes to both the load numbers and the retirements, NYISO will be rerunning the preliminary base case without doing a new Tan 45. Results for the new preliminary base case were not ready at the time of this report.

Status of Emergency Assistance Study

The study is still undergoing review. ICS asked for additional information related to excess capacity levels at our neighbors during peak hours. ICS elected to put this issue as a lower priority and to focus on the IRM base case and this year's report. ICS also asked the NYISO to keep working EA with the intention to complete the analysis in 2017. In the meantime, the 2017-18 base case will not deviate from policy 5 rules. Sensitivities were run with EA fixed at 2750 and 2250 with resulting IRMs of 18.6 and 19.0 respectively.

2017 Base Case Load Forecast

ICS approved NYISO's suggested load forecast for the 2017-18 capability year. Total load is forecasted to be 33,273 MW, which is 90 MW below 2016 Gold Book forecast of 33,363 MW. 2017 zonal MW forecasts are: NYCA = 33,273; GHIJ = 16,073; J = 11,648, and K = 5,409.5.

Locality Export Capacity Proposal

NYISO presented a market method to adjust for capacity leaving a constrained area and flowing to neighboring control area. NYISO wants to swap 48% of the total MWs sold from sales in zone GHIJ with ROS MW, exporting those across the Western MA interface. The remaining MW (52%) would be exported to NE from

GHIJ through the Connecticut interface. NYISO believes that this method should be used by NYSRC for calculating the impacts on IRM for exporting capacity from a constrained zone. Currently we d-rate a unit for capacity being sold and d-rate the ties to account for the flow. This has never been a problem since capacity always exported from zones A through F and were recallable if transmission issues arose. This is not the case with MW leaving from a constrained zone, due to counter flows. However, if the NYISO method is not adopted large increases in capacity prices would result. Price increases for approximately 500 MW leaving the GHIJ zone to NE would affect all customers in the NYCA by an estimated $600 million dollars (less if NYISO's method is adopted for its capacity market). While ICS does not take market signals as inputs when setting the IRM, NYISO's proposal may be a reasonable/acceptable method for exporting MW from a zone when some or all of the export cannot be curtailed by NYISO Operations. In discussions with NYISO, they indicated that power flow models were run and their results showed that the 48%/52% method is a reasonable assumption. At the direction of the EC, ICS has asked the NYISO to run two sensitivity cases (9 and 13) to see what impacts NYISO's proposal will have on the IRM.

NYISO LCR Studies

NYISO hired Navigant Consulting to assist them in analyzing GE's MARS results that optimize LCR values on price vs. ICS's method of determining LCRs on MWs. Navigant said that any results produced and reported will include strict adherence to our Policy 5 rules. Navigant and GE are exploring co-optimization of the IRM and LCR processes. ICS has informed NYISO that any study that suggests changing the IRM process would need to be fully vetted at ICS and would further need the approval of the EC.

Base Case Assumptions Matrix

ICS approved the assumptions matrix, with the caveat that the load forecasts values be updated and that all values in the attachments are properly recorded in the matrix.

2017 Sensitivity Case Results

Case	Description	IRM (%)	NYC (%)	LI (%)
0	**Preliminary Base Case**	18.3	81.9	104.2
	This is the Base Case technical results derived from knee of the IRM-LCR curve. All other sensitivity cases are performed off of this run			
1	**NYCA Isolated**	26.6	87.8	111.8
	This case examines a scenario where the NYCA system is isolated and receives no emergency assistance from neighboring control areas (New England, Ontario, Quebec, and PJM). UDRs are allowed.			
2	**No Internal NYCA Transmission Constraints (Free Flow System)**	15.4	NA	NA
	This case represents the "Free-Flow" NYCA case where internal transmission constraints are eliminated and measures the impact of transmission constraints on statewide IRM requirements.			
3	**No Load Forecast Uncertainty**	10.4	76.3	96.9
	This scenario represents "perfect vision" for 2017 peak loads, assuming that the forecast peak loads for NYCA have a 100% probability of occurring. The results of this evaluation help to quantify the effects of weather on IRM requirements.			
4	**Remove all wind generation**	14.4	81.9	104.2
	Freeze J & K at base levels and adjust capacity in the upstate zones. This shows the impact that the wind generation has on the IRM requirement.			
5	**No SCRs & no EDRPs**	15.5	79.3	104.0
	Shows the impact of SCRs and EDRPs on IRM.			
6	**Emergency Assistance limit of 2750 MW**	18.6	82.1	104.5
	This case uses a grouped interface of all NYCA import ties to restrict emergency imports to a level of 2750 MW.			
6a	**Emergency Assistance limit of 2250 MW**	19.0	82.4	104.9
	This case uses a grouped interface of all NYCA import ties to restrict emergency imports to a level of 2250 MW.			

Case	Description		NE:	Quebec:	Ontario:	PJM:	Total:
7	**Indirect Emergency Assistance eliminated - Incremental IRM reported. *** *This case is under review*	NYCA IRM:	20.4	20.4	20.4	20.6	--
		IMPACT:	2.1	0	0	0.2	2.3

	These case zeros out the ties leaving NY in order to prevent loop flow from leaving NY and re-entering NY bypassing constrained interfaces. The external Control Areas are testing parametrically.			
8	**Retire Indian Point 2 and 3**	LOLE of 0.87 days/year		
	Starts with the base case and removes the Indian Point Units. The LOLE is recorded. This sensitivity was performed without adding any additional capacity.			
9	**Forward Capacity Market uses all available room (1100 MW) on F-WMA and G-Connecticut interface ties based on the 48/52 % split.**	----	----	----
	Use the methodology expressed in sensitivity case 13 below to export the total amount of contracts that NE will accept over the ties from zones F and G to New England.			
10	**Ginna and Fitzpatrick retired using normal sensitivity methodology (adjust zones A-K)**	17.2	84.3	107.3
	Remove the two units and return the LOLE to 0.1 using the typical sensitivity methodology where capacity is added in zones A-K.			
10a	**Retire Ginna and Fitzpatrick and perform a tan 45 analysis (IRM/LCR curve)**	18.8	82.3	104.5
	Remove the two units and create and IRM/LCR curve using the appendix A (Policy 5-10) methodology. Determine the tan 45 values.			
10b	**Ginna and Fitzpatrick retired using sensitivity methodology of adjusting zones A, C, and D.**	19.3	81.9	104.2
	Remove the two units and return the LOLE to 0.1 using a sensitivity methodology whereby capacity is added in zones A, C, and D.			
11	**Determine IRM and emergency assistance while including all NYCA capacity resources**	LOLE: 'As Found' - 0.013 Isolated – 0.124	Import limit: 110 MW	NY reserve level:* 25.8
	Start with NYCA "as found". Isolate NYCA by setting all inter control area ties to zero. Slowly increase the Import grouped interface rating used in # 6 above starting from zero and increasing until LOLE is 0.1 days/year. Record the import limit and the IRM.			
12	**One Ramapo PAR out of service**	18.6	82.1	104.5
	Reduce the tie from PJME to RECO bubble (5018 line) from 1,000 to 500 MW to represent the PAR not returning.			
13	**Sale of Roseton Unit using methodology provided by the NYISO.**	----	----	----
	Use the NYISO suggested IRM methodology where 48% is sourced from zone F and 52% is sourced from zone G. to reflect the potential sale of 511 MW from Roseton Unit 1			

Cases 9 and 13 were not run as NYISO needed ICS's direction on how to build the model. These two cases provide an extreme indication for how the IRM will change if ISO-NE's tariff changes go into effect.

One major factor for the increase in case 0 from last year (17.5) is the large amount of retirements, mostly located in zone J.