



**2004**

**INTERIM REVIEW**

**OF**

**RESOURCE ADEQUACY**

**COVERING THE**

**NEW YORK CONTROL AREA**

**For the years 2004 – 2006**

Approved by the RCC on March 9, 2005

January 24, 2005

## **EXECUTIVE SUMMARY**

This is New York Independent System Operator's (NYISO) 2004 Annual Interim Assessment of its 2002 Triennial Review of Resource Adequacy (2002 Triennial Review). The 2002 review was a triennial assessment covering the years 2002 through 2006. The 2004 review highlights any changes occurring since the 2002 assessment and covers the period 2004 through 2006. These reviews are conducted to comply with the Reliability Assessment Program established by the Northeast Power Coordinating Council (NPCC). They follow the resource adequacy review guidelines as outlined in the NPCC B-8 Document "Guidelines for Area Review of Resource Adequacy".

Results of this interim assessment show that the New York Control Area (NYCA) will comply with the NPCC resource adequacy reliability criterion under the Base and High Load Forecasts.

The New York Control Area has locational ICAP requirements for the Long Island (LI) and New York City (NYC) zones established by the NYISO. Existing and planned capacity is sufficient to meet LI's current 99% locational requirement and NYC's current 80% locational requirement over the period.

## **INTRODUCTION**

This is the second update of the New York's 2002 Triennial Review of Resource Adequacy. The 2002 Triennial Review was approved in November 2002.

## **ASSUMPTION CHANGES**

### **Resources**

The 2002 Triennial Review assumed a total of 920 MW cumulative new capacity additions by the year 2004. As of August 2004, 1,341 MW of new resources have materialized above the 37,100 MW identified in the 2002 Triennial Review. Plants currently under construction<sup>1</sup> will bring that number to 2,851 MW by the summer of 2005.

To be consistent with studies conducted for the New York State Reliability Council (NYSRC), firm purchases are not included as a resource for this assessment. In the

---

<sup>1</sup> Plants are deemed under construction if they have signed interconnection agreements in place and project work continues. A description of the additions and retirements can be found on page 22 of the analysis "New York Control Area Installed Capacity Requirements, For the Period May 2005 through April 2006, Technical Study Report" available on the nysrc.org website.

summer of 2004, for example, there were over 2,000 MW of external Installed Capacity (ICAP) purchases accepted into the NYCA market.

The installed capacity comparisons between the 2002 Review and this Interim Review are shown in the following summary table. This table does not include any projections of Special Case Resources (SCR's). For 2005, the projection of SCR's is 975 MW.

**Table 1. Installed Capacity Comparison**

<b>Year</b>	<b>2002 Triennial Review (MW)</b>	<b>2004 Interim Review (MW)</b>	<b>Difference (MW)</b>
2003	37,420	38,111 <sup>2</sup>	+691
2004	38,020	38,441	+424
2005	38,020	39,951	+1931
2006	38,020	39,785	+1765

### **Load**

Table 2 compares the NYCA Base and High Load Forecasts used in this assessment with those used in the 2002 Triennial Review. As shown in the table, the annual peak loads used in the 2004 Interim Review is higher than the corresponding values used in the 2002 Triennial Review. The difference is mainly due to the result of the updated load forecast parameters used for the forecast process, including both economy and weather. In addition, the NYISO has changed the load shape used from the 1995 load shape to the 2002 load shape reflecting recent trend analysis<sup>3</sup>.

**Table 2. Reference Peak Load Forecast Comparison**

<b>Year</b>	<b>Base Case Load Forecast</b>		<b>High Load Forecast</b>	
	<b>2002 Triennial Review (MW)</b>	<b>2004 Interim Review (MW)</b>	<b>2002 Triennial Review (MW)</b>	<b>2004 Interim Review (MW)</b>
2003	31,053	31,430*	31,581	N/A
2004	31,408	31,440**	32,042	31,900
2005	31,755	32,320	32,458	32,530
2006	32,086	32,770	32,857	33,100

\*Actual 2003 summer peak reconstituted to account for load reduction programs

\*\*This is the weather-normalized peak of the 6/9/04 peak of 28,433 MW

<sup>2</sup> Total Summer capacity as indicated in "New York Independent System Operator's 2004 Load and Capacity Data" book, also known as the 'Gold Book'

<sup>3</sup> For a description of this analysis, see "New York Control Area Installed Capacity Requirements, For the Period May 2004 through April 2005, Technical Study Report" available on the nysrc.org website.

## **Interface Ties**

The sub-area representation modeled in this 2004 Interim Review has been modified when compared to the 2002 Triennial Review. The Multi-Area Reliability Simulation (MARS) software now has the ability to model closed interfaces by establishing transfer limits for groups of interfaces. This eliminated the need to include the “Dummy Areas” in the model topology to represent closed interfaces. There were also several minor changes to the internal tie limits<sup>4</sup>. These changes had no effect on the Loss of Load Expectation (LOLE). Ties to Control Areas outside of NYCA were not changed for this assessment.

## **Unit Availability**

The 2002 Triennial Review used ten years as the historic basis for establishing the Equivalent Forced Outage Rates (EFOR) in the model. Starting in 2004, a five-year historic basis was adopted. Table 3 shows the differences in the EFOR modeled.

**Table 3. EFOR for 2002 and 2004 Reviews**

<b>Location</b>	<b>2002 Triennial Review (%)</b>	<b>2004 Interim Review (%)</b>
Upstate zones	10.1	7.2
NYC zone	10.4	6.5
LI zone	5.9	5.6
NYCA	9.6	6.8

## **Fuel Supply Diversity**

The NYISO currently enjoys the benefits of a diverse fuel supply for its capacity resources. Future resources, however, are projected to be fueled primarily by natural gas. Despite an increase in dependency on Natural Gas as a fuel source, those units in critical areas, such as New York City, are required to have a back up fuel supply available. Further, since the NYCA is a summer peaking Area and the availability of Gas supply is adequate during the summer months, the NYISO does not foresee shortages or potential interruptions as problematic over this study period. A joint task force between NYISO, the NYPSC, and NYSERDA (Gas Adequacy Task Force) has been formed to study this issue. Any impacts identified will be included as they become available.

---

<sup>4</sup> A description of these changes can be found on pages 32-33 of the analysis “New York Control Area Installed Capacity Requirements, For the Period May 2005 through April 2006, Technical Study Report” available on the nysrc.org website.

## **New Market Rules**

Effective June 1, 2003 the NYISO replaced its monthly Capacity Deficiency Auction with a monthly Spot Market Auction based on three FERC-approved Demand Curves developed by market participants. These Demand Curves are designed to ensure that the minimum reliability requirements in New York City, Long Island and the overall NYCA Installed Reserve Margin (IRM) would be met by increasing the amount of capacity resources purchased to levels above the minimum NYCA Requirements established by the NYSRC and providing an additional incentive for new supply resources to enter the market in advance of increased demand requirements. Instituting this change resulted in installed capacity reserve margins of over 25% for the summers of 2003 and 2004.

## **Locational Requirements**

Locational requirements are set annually by the NYISO and currently exist at 80% for NYC and 99% for Long Island. If the requirements were to continue at the existing levels, NYC and LI would meet its requirements, over the period, with planned and existing resources (see results section).

## **RESULTS AND CONTINGENCY PLAN**

Table 4 summarizes the NYCA system Loss of Load Expectation (LOLE) results for various scenarios. It indicates that the NYCA is in compliance with the NPCC criterion under both the Base and High Load Forecast cases.

**Table 4. LOLE under Base and High Load Forecasts**

Year	Base Case Load Forecast		High Load Forecast	
	2002 Triennial (Days/Year)	2004 Interim (Days/Year)	2002 Triennial (Days/Year)	2004 Interim (Days/Year)
2004	0.003	0.014	0.010	0.015
2005	0.008	0.006	0.021	0.008
2006	0.017	0.013	0.043	0.018

Table 5 shows the projected Reserve Margins (capacity to load ratios) for the two localities that exist in the New York Control Area.

**Table 5. Projected Locality Reserve Margins**

Year	Long Island Locality			New York City Locality		
	Capacity*	Load	Reserve Margin	Capacity*	Load	Reserve Margin
2004	5130	5059	101.4%	9164	11150	82.2%
2005	5323	5155	103.4%	9887	11365	87.0%
2006	5323	5243	101.5%	9721	11535	84.3%

\* These capacities do not include any projections of Special Case Resources.

NYC and LI continue to represent the majority of system risk in the model simulations. Recently, the New York Power Authority issued an RFP for 500 MW of capacity in New York City due in 2008. In addition, the Long Island Power Authority issued an RFP for 1,000 MW of capacity on Long Island due over the period from 2005 to 2008. Only 160 MW of this capacity is within this study period and is incorporated in the above numbers.

## **CONCLUSION**

The New York Control Area will meet the NPCC Resource Adequacy Criterion under both Base Case and High Load Forecast assumptions through the year 2006.

The NYISO has encouraged the addition of over 2,000 MW of external resources to participate in the New York market by the introduction of the monthly Spot Market Auction based on the concept of the three FERC approved demand curves. Even though participation is expected to continue, this report does not include these resources in its projections or findings<sup>5</sup>.

Existing and planned capacity for New York City and Long Island is sufficient to meet the current locational requirements of 99% for LI and 80% for NYC over the period.

---

<sup>5</sup> The practice of not including the external resources is an extension of the conservative modeling performed under the Installed Reserve Margin studies conducted for the New York State Reliability Council.