



**ANNUAL ASSESSMENT
OF
RESOURCE ADEQUACY**

COVERING THE

NEW YORK CONTROL AREA

For the years 2005 – 2008

As Accepted by the

**Reliability Compliance Monitoring Subcommittee
(of the New York State Reliability Council)**

on

July 7, 2005

EXECUTIVE SUMMARY

The New York State Reliability Council (NYSRC) conducts annual resource studies that establish the statewide Installed Capacity (ICAP) reserve margin (IRM study)¹ for the New York Control Area (NYCA) for an upcoming yearly capability period. From the period of 1999 through 2004, these studies have resulted in the NYSRC adopting an 18% reserve margin. A projected 18% reserve margin can be met through 2007 using existing ICAP resources and those resources currently under construction within NYCA. For 2008, additional internal ICAP resources or resources located external to the NYCA will be needed to meet a projected 18% reserve margin if planned units do not materialize.

In addition, the New York Independent System Operator (NYISO) conducts an annual locational requirements study² that establishes minimum Locational Capacity Requirements (LCRs) for the New York City, and Long Island zones. Currently, the New York City LCR is eighty percent (80%) of the New York City forecast capability year peak load, and the Long Island LCR is ninety nine percent (99%) of the Long Island forecast capability year peak load.

New York City can meet a projected 80% locational requirement through 2007 by utilizing existing resources and those resources currently under construction. Beginning in 2008, NYC could fall short of a projected 80% LCR level if proposed resources don't materialize.

Long Island can meet a projected 99% locational requirement through 2007 by utilizing existing resources and those resources currently under construction. Beginning in 2008, LI could fall short of a projected 99% LCR level if proposed resources don't materialize.

INTRODUCTION

This assessment was performed to satisfy the measurement requirement of the New York State Reliability Council rule K-M2b³. That requirement states:

The NYISO shall conduct, and provide to the NYSRC, the following *reliability* assessments:

b)"A NYCA resource adequacy assessment for the next summer period and two years beyond, for demonstrating next capability period compliance with the NYSRC IRM requirement and NYISO locational ICAP requirements, and prospective future compliance. The assessment shall include statewide and New York City and Long Island resource adequacy."

¹ NYSRC Report titled, "New York Control Area Installed Capacity Requirements for Period May 2005 through April 2006, December 10 2004.

² NYISO Report titled, "Locational Installed Capacity Requirements Study, Covering the New York Control Area, For the 2005-2006 Capability Year," February 17th, 2005.

³ NYSRC RELIABILITY RULES For Planning and Operating the New York State Power System, Version 9 January 8, 2004

The statewide requirement is met under NYSRC rule AR-1 which reads:

"The NYSRC shall establish the *IRM* requirement for the *NYCA* such that the probability (or risk) of disconnecting any *firm load* due to *resource* deficiencies shall be, on average, not more than once in ten years. Compliance with this criterion shall be evaluated probabilistically, such that the loss of *load* expectation (LOLE) of disconnecting *firm load* due to *resource* deficiencies shall be, on average, no more than 0.1 day per year. This evaluation shall make due allowance for demand uncertainty, scheduled outages and deratings, forced outages and deratings, assistance over interconnections with neighboring *control areas*, *NYS Transmission System transfer capability*, and *capacity* and/or *load relief* from available *operating procedures*."

For the 2005 capability year, this criterion is met with an ICAP of 118% of the forecast peak load. This assessment will compare reserve margins derived from resource projections and load forecasts over the assessment period against the 118% IRM requirement.

In addition to the NYSRC requirements, the NYISO establishes minimum locational requirements. The NYISO defines locational requirements⁴ as:

A locational ICAP requirement specifies the minimum amount of installed capacity that must be procured from resources situated specifically within a locality. It considers generation within the locality as well as the transmission import capability to the locality in order to meet the resource adequacy reliability criteria of the New York State Reliability Council (NYSRC) and the Northeast Power Coordinating Council (NPCC). These criteria require that the NYCA Loss of Load Expectation (LOLE) not exceed one day in ten years. Further, NYISO's Market Administration and Control Area Services Tariff and the NYSRC Reliability Rules require the NYISO to establish locational ICAP requirements.

This report will examine the capacity to load ratios for New York City and Long Island zones over the study period. These ratios will then be compared to the existing locational requirements in order to determine whether the planned resources are adequate for these zones.

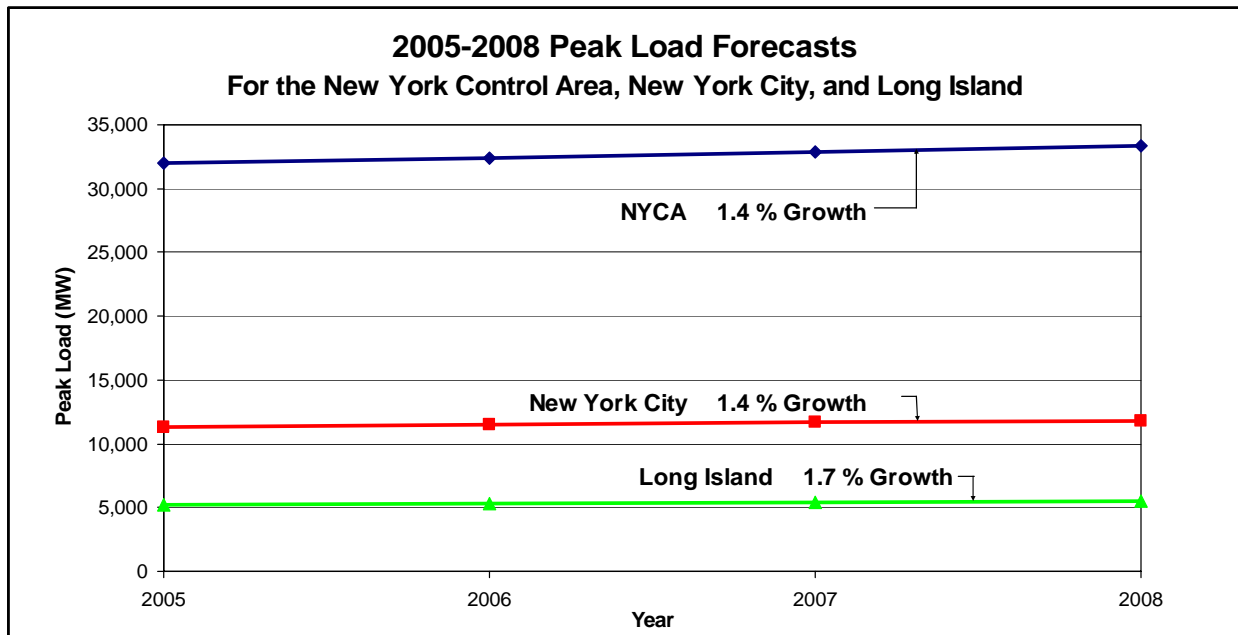
⁴ NYISO Report titled, "Locational Installed Capacity Requirements Study, Covering the New York Control Area, For the 2005-2006 Capability Year", February 17th, 2005.

⁵NYISO "2005 Load and Capacity Data" book is commonly known as the Gold book

LOAD FORECASTS

Figure 1 shows peak load forecasts for the New York City (NYC), Long Island (LI), and New York Control Area (NYCA) from the 2005 Load and Capacity Data book (Gold Book)⁵. All forecasts incorporate the effects of Demand Side Management (DSM). Growth rates over the three year period are highlighted.

Figure-1
2005-2008 Peak Load Forecasts
From 2005 NYISO Gold Book



NYISO's forecast involved a two-step process. First, overall NYCA energy requirements were forecasted. The model used in the energy requirements forecast employs manufacturing employment share, education and health care employment share, total income, and electricity price.

The second step forecasts the total NYCA summer peak. This model uses the energy requirements predicted above, total employment, households, and electricity price.

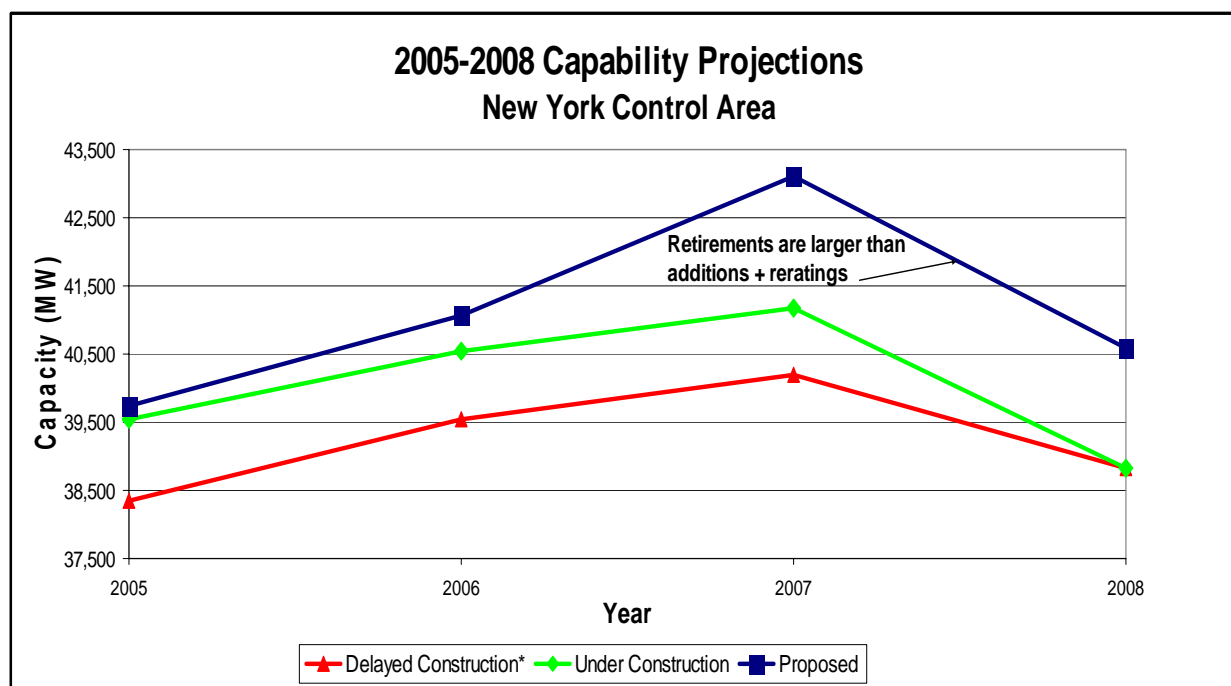
Zonal peaks and energy forecasts are found by applying zonal growth rates. These growth rates are determined from Transmission Owner projections applied to three year average actual zonal energy and peak shares.

CAPABILITY PROJECTIONS

The remaining graphs in this report include statewide SCR's of 975 MW, 172 MW of which reside in NYC while 98 MW are on Long Island. In addition, firm sales of 305 MW have been removed from all projections. External ICAP purchases have been excluded from Figures 2-7 but appear in Figures 8 and 9. Since the advent of the demand curve in New York in 2001, (the demand curve is an NYISO auction mechanism that allows resources above the NYSRC requirement to participate in the ICAP market) the amount of import capacity has grown (a total mean value of 2,500 MW) while firm sales have remained steady (305 MW).

The capability projections from the 2005 Gold Book are shown in Figure 2. The projection incorporates capacity additions, retirements, and reratings that are highlighted in the 2005 Gold Book and can be found in Appendix 1 at the end of this assessment. Along with this is a projection of resources based on both the scenario that those plants under constructed are completed on time (Under Construction), and that those plants under constructed are delayed by a single year (Delayed Construction). Appendix 2 shows the raw numbers from the 2005 Gold Book used to generate the graphs in this report.

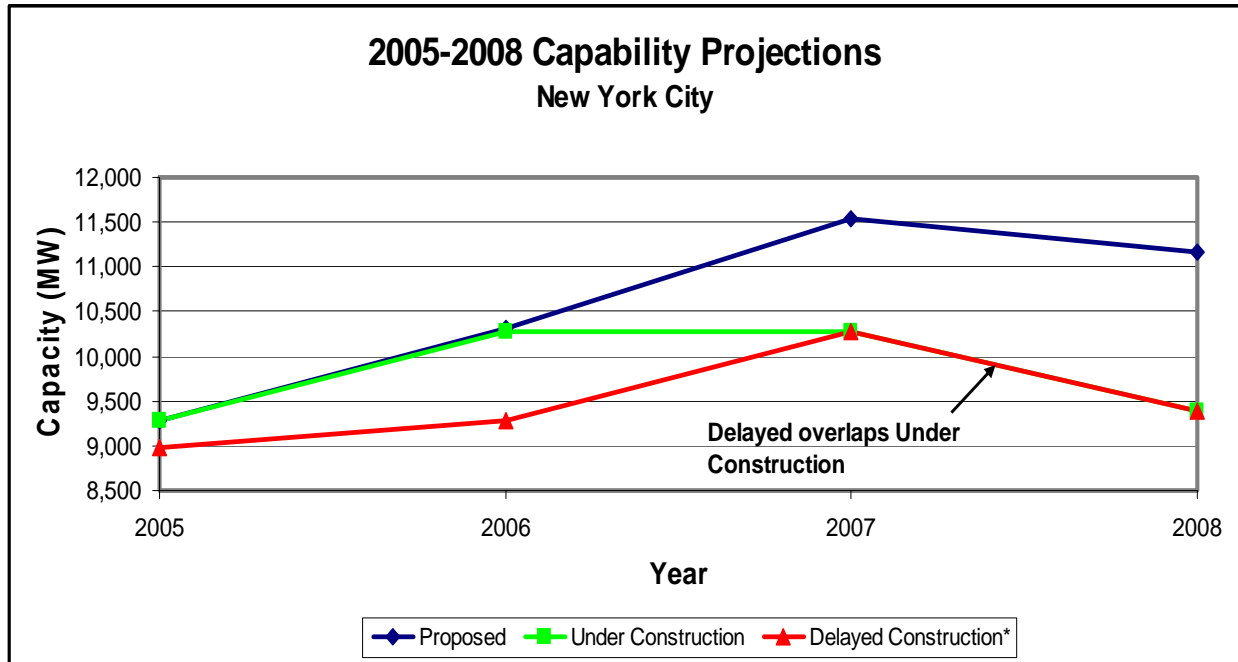
Figure-2
NYCA 2005-2008 Capability Projections
Based on 2005 Gold Book



*This line shows the scenario where plants currently under construction are delayed by one year

Figure 3 shows the capability projections for New York City under the same scenario as described above for the NYCA. Note that there are no plants are under construction after the year 2007, and that retirements cause a net reduction in available resources after that time.

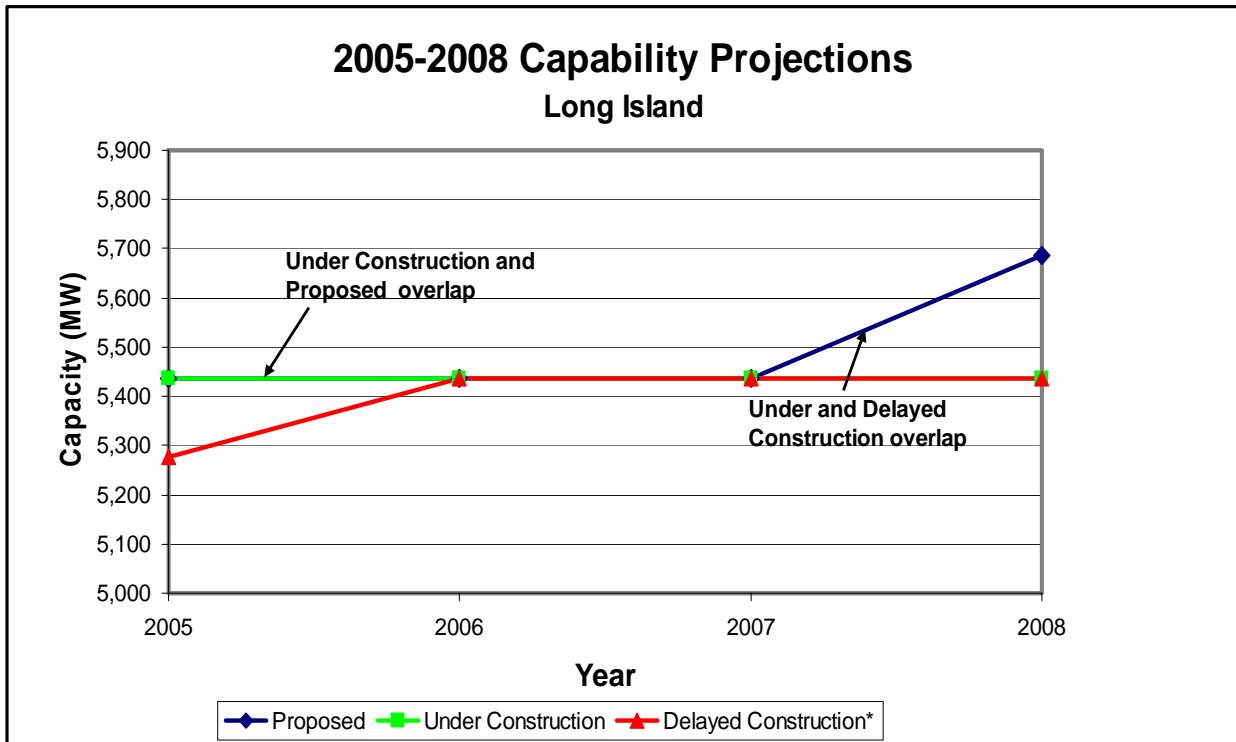
Figure-3
 NYC 2005-2008 Capability Projections
 Based on 2005 Gold Book



*This line shows the scenario where plants currently under construction are delayed by one year

Figure 4 shows the capability projections for Long Island under the same scenario as described above for the NYCA. Note that there are no plants under construction beyond 2005.

Figure-4
LI 2005-2008 Capability Projections
Based on 2005 Gold Book

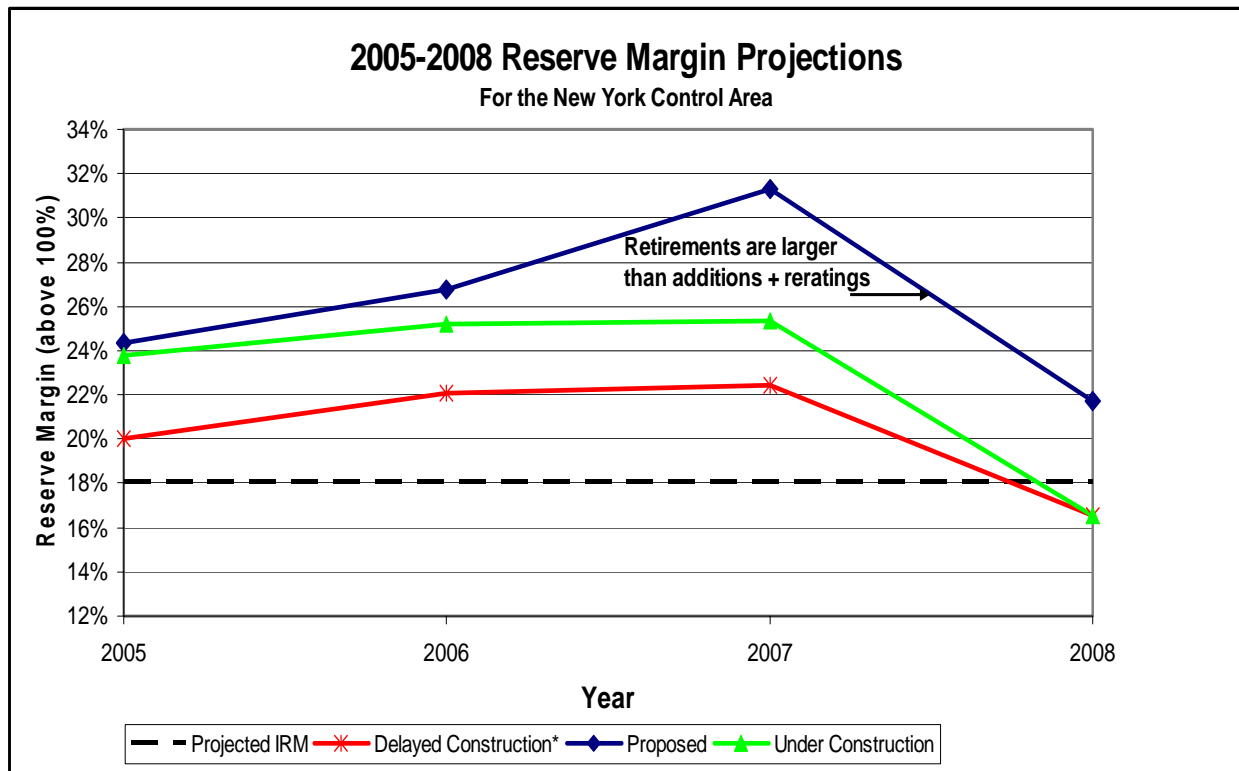


*This line shows the scenario where plants currently under construction are delayed by one year

RESERVE MARGIN LEVELS

Figure 5 shows the reserve margin projections over the assessment period derived from the load and capability scenarios shown above. This figure indicates that the projections are well above the 18% requirement, even with delayed construction, through the year 2007. In 2008, however, a large number of announced retirements cause a precipitous drop in available resources that could result in reserve margins lower than 18% if proposed additions don't materialize.

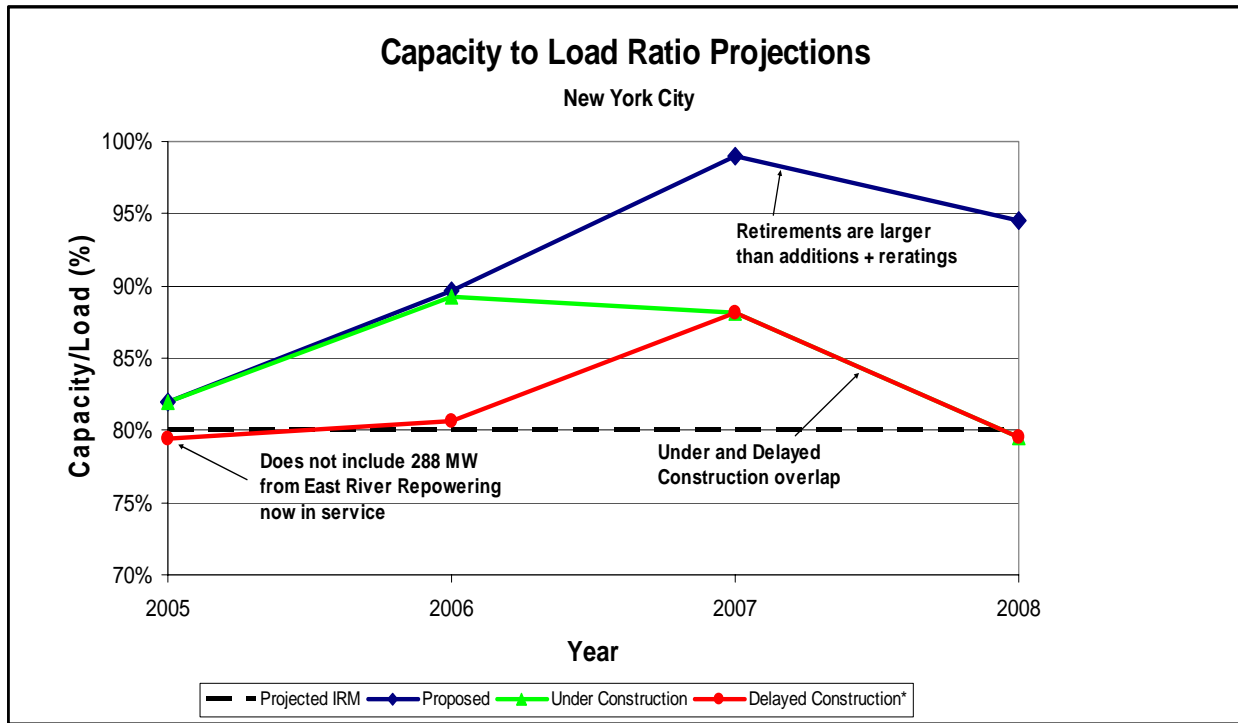
Figure-5
 NYCA 2005-2008 Reserve Margin Projections
 Derived from 2005 NYISO Gold Book



*This line shows the scenario where plants currently under construction are delayed by one year

Figure 6 depicts the capacity to load ratio projections for the New York City area derived from the load and capabilities shown in previous charts. The figure shows that NYC can meet a projected 80% locational requirement through 2007. Similar to NYCA in 2008, NYC could fall short of a projected 80% LCR level if proposed resources don't materialize. This shortfall could be attributed to retirements exceeding additions in the 2008 timeframe and could be avoided if retirements, such as the Poletti unit, are extended beyond 2008.

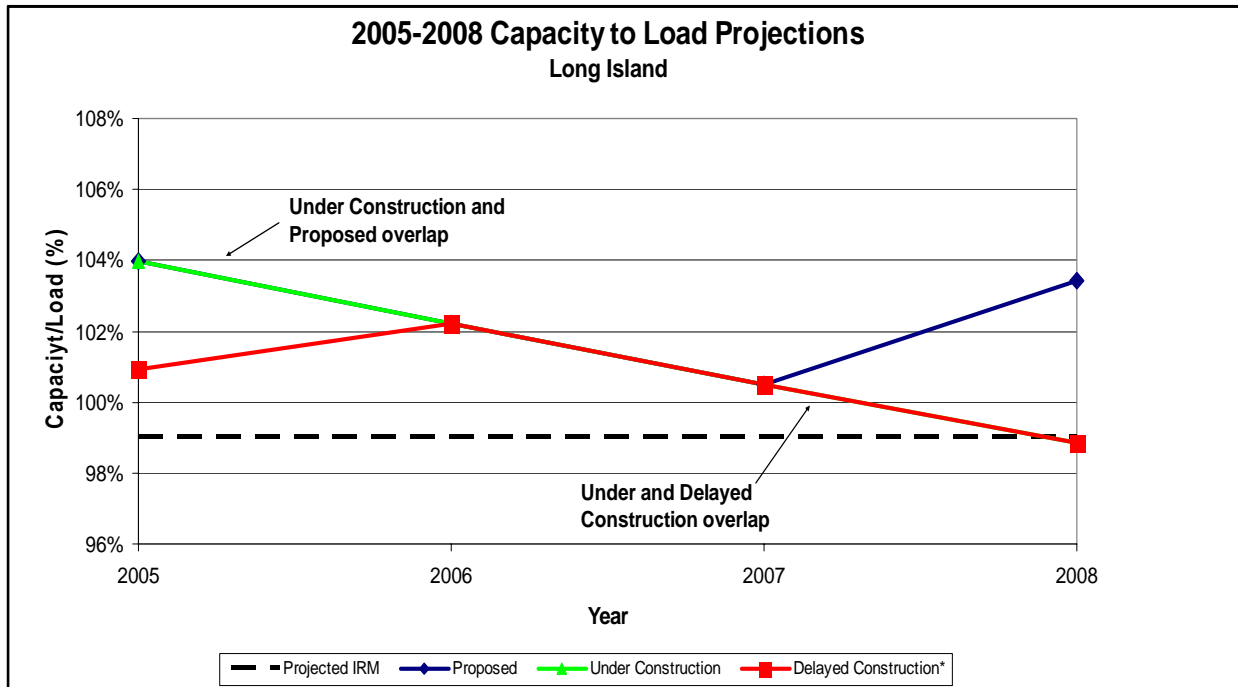
Figure-6
 NYC 2005-2008 Capacity to Load Ratio Projections
 Derived from 2005 NYISO Gold Book



*This line shows the scenario where plants currently under construction are delayed by one year

Figure 7 shows the capacity to load ratio projections for Long Island over the assessment period as derived from the load and capability scenarios shown above. The figure indicates that Long Island can meet a projected 99 % locational requirement through 2007. Similar to NYCA and NYC, Long Island could fall short of a projected 99 % LCR level in 2008 if proposed resources don't materialize.

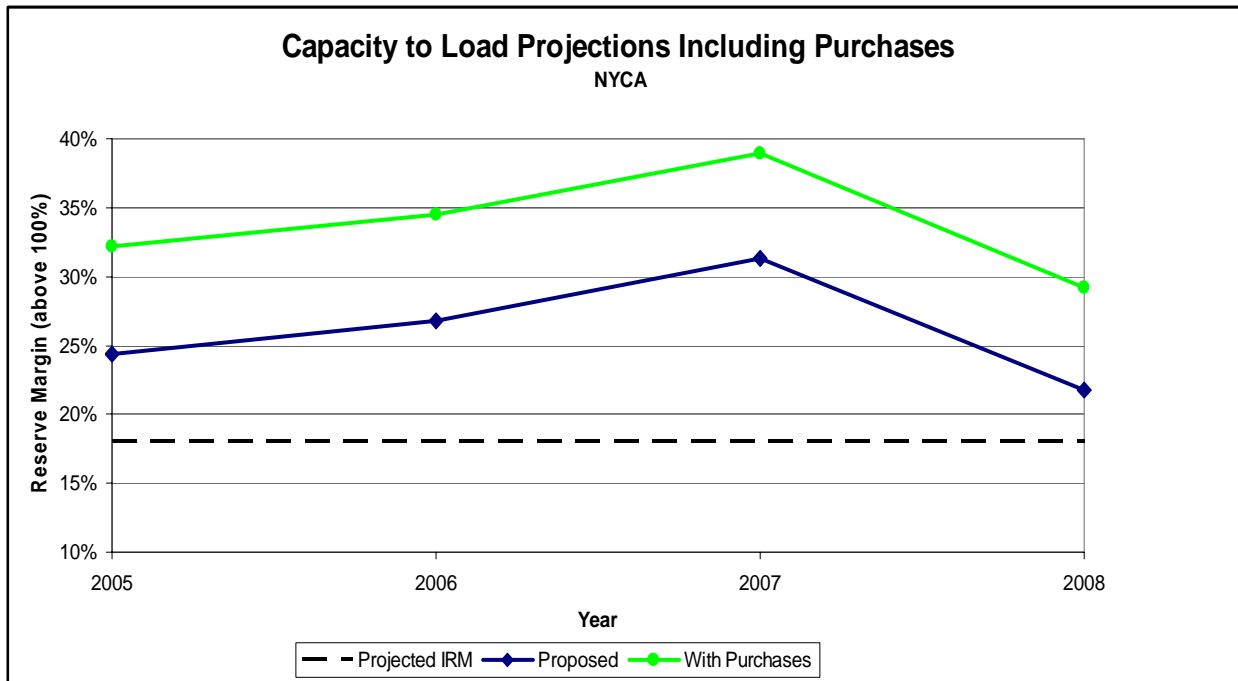
Figure-7
 LI 2005-2008 Capacity to Load Ratio Projections
 From Load and Capacity Data



*This line shows the scenario where plants currently under construction are delayed by one year

Figure 8 displays the reserve margin projections over the assessment period in the NYCA if planned resources were to materialize (Proposed). In addition, the figure below shows the reserve margins if external ICAP purchases are included. The results show that a projected 18% IRM could be met for all four years under the scenario where all planned resources are completed and external ICAP purchases continue to be available to the NYCA.

Figure-8
 NYCA 2005-2008 Capacity to Load Ratio Projections Including Purchases
 From Load and Capacity Data



CONCLUSION

This assessment has demonstrated that a projected 18% reserve margin can be met through 2007 using existing and planned generation ICAP resources located within NYCA. For 2008, ICAP resources located external to the NYCA will be needed if planned units do not materialize.

New York City can meet a projected 80% locational requirement through 2007. Beginning in 2008, NYC could fall short of a projected 80% LCR level if proposed resources don't materialize. This is due to plant retirements exceeding additions at that time. This shortfall could be avoided if retirements, such as the Poletti unit, are extended beyond 2008.

Long Island can meet a projected 99% locational requirement through 2007. Beginning in 2008, LI could fall short of a projected 99% LCR level if proposed resources don't materialize.

Appendix 1

Gold Book Tables Used for this Report

TABLE IV-1

As of April 1, 2005

ADDITIONS

OWNER / OPERATOR	STATION	UNIT	ZONE	DATE	CAPABILITY (kW)		UNIT TYPE
					SUMMER	WINTER	
Projects Under Construction							
Consolidated Edison of NY, Inc.	East River Repowering		J	7/1/2005	288000	288000	Combined Cycle
New York Power Authority	NYPA 500 MW Project		J	1/1/2006	500000	500000	Combined Cycle
SCS Energy, LLC	Astoria Energy (Phase 1)		J	4/1/2006	500000	500000	Combined Cycle
Calpine Eastern Corporation	Bethpage 3		K	5/1/2005	79900	79900	Combined Cycle
Pinelawn Power, LLC	Pinelawn Power I		K	5/1/2005	79900	79900	Combined Cycle
PSEG Power NY	Bethlehem Energy Center		ROS	7/1/2005	750000	750000	Combined Cycle
					2197800	2197800	
Proposed Resource Additions							
Calpine Eastern Corporation	JFK Expansion		J	6/1/2006	45000	45000	Combustion Turbine(s)
SCS Energy, LLC	Astoria Energy (Phase 2)		J	4/1/2007	500000	500000	Combined Cycle
PG&E/Liberty Generating Co., LLC	Liberty Generation		J	5/1/2007	400000	400000	Combined Cycle
Bay Energy, LLC	Bay Energy		J	6/1/2007	79900	79900	Combustion Turbine(s)
NYC Energy, LLC	Kent Avenue		J	6/1/2007	79900	79900	Combustion Turbine(s)
Fortistar, LLC	Fortistar VAN		J	7/1/2007	79900	79900	Combustion Turbine(s)
Fortistar, LLC	Fortistar VP		J	7/1/2007	79900	79900	Combustion Turbine(s)
PSEG Power In-City 1, LLC	Cross Hudson Project		J	7/1/2008	550000	550000	Combined Cycle
Reliant Energy NY	Astoria Repowering (Phase 1)		J	7/1/2010	540000	540000	Combined Cycle
Reliant Energy NY	Astoria Repowering (Phase 2)		J	9/1/2011	540000	540000	Combined Cycle
KeySpan Energy, Inc.	Spagnoli Road Energy		K	7/1/2008	250000	250000	Combined Cycle
American National Power	Brookhaven Energy Center		K	7/1/2009	580000	580000	Combined Cycle
Flat Rock Wind Power, LLC	Flat Rock Wind Power (Phase 1)		ROS	12/1/2005	200000	200000	Wind Turbines
Global Winds Harvest Inc.	Prattsburgh Wind Park		ROS	7/1/2006	79500	79500	Wind Turbines
Flat Rock Wind Power, LLC	Flat Rock Wind Power (Phase 2)		ROS	12/1/2006	100000	100000	Wind Turbines
Besicorp-Empire Development Company, LLC	Empire State Newsprint		ROS	7/1/2007	660000	660000	Combined Cycle
Lockport Merchant Associates, LLC	Lockport II Gen Station		ROS	7/1/2007	79900	79900	Combustion Turbine(s)
Calpine Eastern Corporation	Wawayanda Energy Center		ROS	7/1/2008	540000	540000	Combined Cycle
Mirant Corporation	Bowline Point 3		ROS	7/1/2008	750000	750000	Combined Cycle
					6134000	6134000	
				Total	8331800	8331800	

Appendix 1- Continued

Gold Book Tables Used for this Report

TABLE IV-2
As of April 1, 2005

RERATINGS

OWNER / OPERATOR	STATION	UNIT	ZONE	DATE	CAPABILITY (kW)		REASON FOR RERATING
					SUMMER	WINTER	
Entergy	Indian Point 2		ROS	6/1/2005	36000	36000	Uprate
Entergy	Indian Point 3		ROS	6/1/2005	38000	38000	Uprate
NYP&A	Blenheim Gilboa		ROS	6/2/2005	30000	30000	Plant Life Extension
NYP&A	Blenheim Gilboa		ROS	6/2/2005	30000	30000	Plant Life Extension
NYP&A	Blenheim Gilboa		ROS	6/2/2005	30000	30000	Plant Life Extension
NYP&A	Blenheim Gilboa		ROS	6/2/2005	30000	30000	Plant Life Extension
Constellation	GINNA		ROS	11/1/2006	95000	95000	Uprate
					289000	289000	

TABLE IV-3
As of April 1, 2005

RETIREMENTS

OWNER / OPERATOR	STATION	UNIT	ZONE	DATE	CAPABILITY (kW)		REASON FOR RETIREMENT
					SUMMER	WINTER	
<u>Scheduled Retirements with New Projects</u>							
Consolidated Edison Company of NY, Inc.	Waterside 6,8,9		J	7/1/2005	167200	167800	Station Repowering
New York Power Authority	Poletti 1 *		J	2/1/2008	885300	885700	Station Replacement
Reliant Energy NY	Astoria 2		J	7/1/2010	175300	181300	Station Repowering
Reliant Energy NY	Astoria 3		J	9/1/2011	361000	372400	Station Repowering
PSEG Power NY	Albany 1,2,3,4 **		ROS	3/1/2005	312300	364600	Station Replacement
<u>Scheduled Retirements</u>							
NRG Power, Inc.	Huntley 63,64 **		ROS	11/1/2005	60600	96800	Environmental Restrictions
NRG Power, Inc.	Huntley 65,66		ROS	11/1/2006	166800	170000	Environmental Restrictions
Rochester Gas and Electric Corporation	Russell Station		ROS	12/1/2007	238000	245000	Environmental Restrictions
<u>Planned Retirements</u>							
Mirant Corporation	Lovett 5		ROS	6/1/2007	188500	189700	Environmental Restrictions
Mirant Corporation	Lovett 3		ROS	6/1/2008	68500	68500	Environmental Restrictions
Mirant Corporation	Lovett 4		ROS	6/1/2008	174000	175500	Environmental Restrictions
					2797500	2917300	

* Unit can remain in service for two years beyond scheduled retirement date, if needed to meet reliability requirements.

** Units have been netted out of Existing Generating Capacity - Table III-2.

Note: Scheduled retirements indicate those units that have signed agreements with the New York State Attorney General

Appendix 2
 Summation of Numbers from Above Tables
 From 2005 Gold Book

PROPOSED

<u>ZONE</u>		<u>2005</u>	<u>2006</u>	<u>2007</u>	<u>2008</u>
Statewide	Capacity	39748	41072	43116	40576
	Load	31960	32400	32840	33330
New York City	Capacity	9274	10319	11538	11158
	Load	11315	11505	11660	11805
Long Island	Capacity	5438	5438	5438	5688
	Load	5230	5320	5410	5500

Under Construction

<u>ZONE</u>					
Statewide	Capacity	39554	40554	41173	38833
	Load	31960	32400	32840	33330
New York City	Capacity	9274	10274	10274	9388
	Load	11315	11505	11660	11805
Long Island	Capacity	5438	5438	5438	5438
	Load	5230	5320	5410	5500