NYISO OPERATING STUDY
SUMMER 2007

Approved by Operating Committee– May 10, 2007

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NYISO OPERATING STUDY - SUMMER 2007

I. INTRODUCTION

The following report, prepared by the Operating Studies Task Force (OSTF) at the direction and guidance of the System Operations Advisory Subcommittee (SOAS), highlights the significant results of the thermal analysis completed for the Summer 2007 capability period. This analysis indicates that, for the Summer 2007 capability period, the New York interconnected bulk power system can be operated reliably in accordance with the "NYSRC Reliability Rules for Planning and Operating the New York State Power System" and the NYISO System Operating Procedures.

Transfer limits cited in this report are based on the forecast peak load conditions and are intended as a guide to system operation. Changes in generation dispatch or load patterns that significantly change pre-contingency line loadings may change limiting contingencies or limiting facilities, and result in higher, or lower, interface transfer capabilities.

System Operators should monitor the critical facilities noted in the enclosed tables, along with other limiting conditions, while maintaining bulk system power transfers within secure operating limits.

II. SYSTEM REPRESENTATION AND BASE STUDY ASSUMPTIONS

A. System Representation

The representation was developed from the NYISO Data Bank and assumes the forecast summer coincident peak load of 33,447MW. The other NPCC Area and adjacent Regional representations were obtained from MEN/VEM Summer 2007 Reliability Assessment power flow base case.

For the Summer 2007 peak load period no significant generation is expected to be out of service. The generator output levels for major units are summarized in Appendix B, and are consistent with typical operation for the period. The inter-Area schedules represented in the study base case are summarized in Appendix A.

Significant changes since the Summer 2006 capability period include:

Transmission Facilities

Mott Haven 345/138 kV station
Rochester S80 4th 345/115 kV transformer
Neptune HVdc Transmission Line

The Mott Haven 345kV connects to the existing Dunwoodie to Rainey 345kV transmission circuits. Approximately 140MW network load (transferred from the Bruckner area station) is served from the Mott Haven 138kV..

The Neptune HVdc facility is a merchant transmission project. The converter terminals are located at Raritan River 230kV (Sayreville, NJ) and Duffy Avenue 345kV (LI) near Newbridge Road. A 345kV circuit and 345/138kV transformers connect the Duffy Avenue converter station to the LIPA system at Newbridge Road. The design capacity of the facility is 660MW and it is expected to be available for service in July 2007.

Generation Resources

Lovett 3 (retirement)	-47 MW
Lovett 5 (retirement)	-176 MW
Huntley 65 (retirement)	-82 MW
Huntley 66 (retirement)	-83 MW
Maple Ridge Wind Phase 1a, 2	123 MW
Ginna Uprate	95 MW

B. Base Study Assumptions

The PTI MUST thermal transfer analysis program and PSS/e power flow are used to determine the Normal and Emergency Criteria thermal transfer limits. The thermal transfer limits presented have been determined for all transmission facilities scheduled in service during the Summer 2007 period.

The schedules used in the base case loadflows for this analysis assumed a net flow of 1000 MW from Public Service Electric & Gas (PSE&G) to Consolidated Edison via the phase-angle-regulating (PAR) transformers controlling the Hudson – Farragut and Linden – Goethals interconnections, and 1000 MW on the South Mahwah – Waldwick circuits from Consolidated Edison to PSE&G, controlled by the PARs at Waldwick. The Branchburg - Ramapo 500 kV (5018) circuit is scheduled in accordance with the "Ramapo Phase Angle Regulator Operating Procedure", December 11, 1987. These schedules are consistent with the scenarios developed in the RFC-NPCC Inter-Regional Reliability Assessment for Summer 2007, and the NERC/MMWG Summer 2007 power flow base cases. The series reactors on the Dunwoodie – Mott Haven (71 and 72) and the Sprain Brook – W. 49th St. 345kV cables (M51 and M52), as well as the E. 179th St. – Hell Gate 138kV (15055) feeder are in-service in the base case. The series reactor on the Sprain Brook – East Garden City 345kV (Y49) cable is by-passed.

Thermal transfer capabilities between New York and adjacent Areas are also determined in this analysis. These transfer limits supplement, but do not change, existing internal operating limits. *There may be facilities internal to each system that may reduce the transfer capability between Areas. Reductions due to these situations are considered to be the responsibility of the respective reliability authority*. Some of these potential limitations are indicated in the summary tables by "____ Facility" limits, which supplement the "Direct Tie" limits. Transfer conditions within and between neighboring Areas can have a significant effect on inter- and intra-Area transfer capabilities. Coordination of schedules and conditions between Areas is necessary to provide optimal transfer conditions while maintaining the reliability and security of the interconnected systems.

III. DISCUSSION

A. Resource Assessment

Load and Capacity Assessment

The forecast peak demand for the summer 2007 capability period is 33,447 MW. This forecast is approximately 0.5% above the forecast of 33,295 MW for the Summer 2006 capability period, and 1.5% lower than the all-time New York Control Area (NYCA) seasonal peak of 33,939 MW, which occurred on August 2, 2006. The Installed Capacity (ICAP) requirement of 38,966 MW, based on the NYSRC 16.5% Installed Reserve Margin (IRM) requirement, is anticipated to be adequate to meet forecast demand.

NYISO Peak Load and Capacity Assessment – Summer 2007

NYISO ICAP Requirement	38,966
Scheduled generation outages	942
Allowance for unplanned outages	2,547
Net capacity for load	35,477
NYISO Forecast Peak	33,447
Operating Reserve Requirement	1,800
Available Reserve	***2,030***
Net Margin	230

The assumed allowance for unplanned outages is an equivalent forced outage rate of 6.7% and includes forced outages and de-ratings based on historical performance of all generation in the NYCA. For Summer 2006 the equivalent forced outage rate assumed was 8.77%.

Based on the forecast load and assumed outage rates, the NYISO will have sufficient resources to meet its reserve requirement for the season peak. Installed Capacity (ICAP) resources of 38,966 MW are anticipated to be adequate to meet the forecast peak demand of 33,447 MW.

B. Cross-State Interfaces

1. TRANSFER LIMIT ANALYSIS

Figure 1 presents a comparison of the Summer 2007 thermal transfer limits to Summer 2006. Changes in these limits from last year are due to changes in the base case load flow generation and load patterns that result in different pre-contingency line loadings, changes in limiting contingencies, or changes in circuit ratings, or line status. Appendix H presents a summary comparison of Cross-State thermal transfer limits between Summer 2007 and 2006, with limiting element/contingency descriptions. Significant differences in these thermal transfer limits are discussed below.

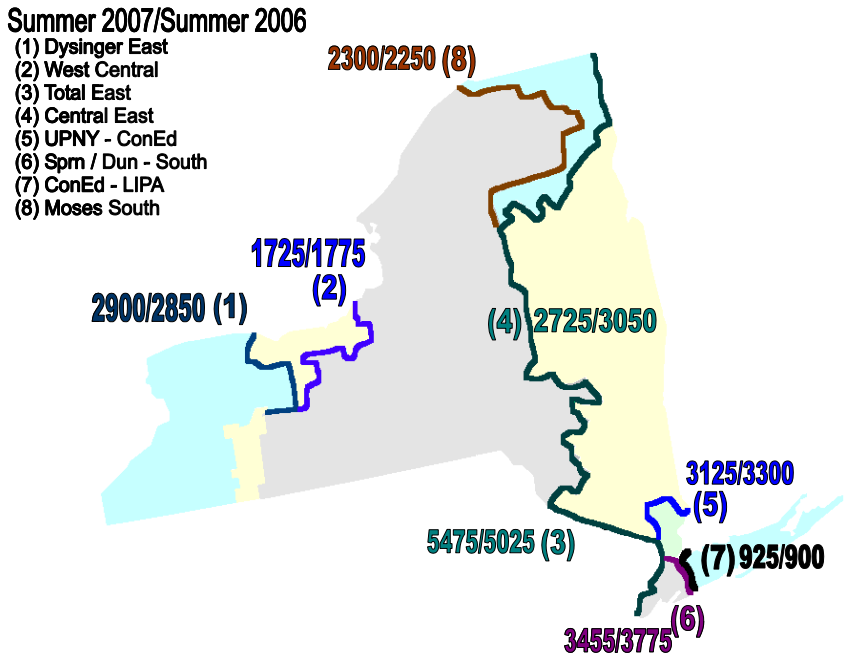

Figure 1 – Cross-State Thermal Transfer Limits

Dunwoodie South interface limit decreased 320 MW and is the result of the change in the limiting element and limiting contingency with the addition of the Mott Haven 345kV station.

UPNY – ConEd interface limit decreased 175 MW and is the result of an additional Athens unit being dispatched in the base case, which creates higher flows on the limiting element and contingency (Athens – Pleasant Valley 345 kV)

Central East interface limit decreased by 325MW due to changes in base case loading due to changes in the Athens generation dispatch, which creates higher flow on the Central East limiting element and one of the limiting contingency elements.

Total East interface limit has increased by 425MW that includes a reduction of 225MW due to the same changes cited for Central East (above) and an increase of 660MW capability of the Neptune HVdc line from PJM to Long Island.

2. SENSITIVITY TESTING

The thermal limits presented in Section 4 are determined using the base conditions and schedules. The effects of various intra- and inter-Area transfers or generation patterns in the system are presented in Appendix G. Certain of graph indicate that there may not be a measurable sensitivity to the specific variable condition (summer peak load), or the sensitivity may occur at transfer levels above other transfer constraints (e.g., voltage or transient stability limitations). This analysis demonstrates how the particular constraint (thermal transfer limits) may respond to different conditions.

Phase angle regulator schedules may vary from day-to-day. Sensitivity analysis for selected interfaces has been included for the Ramapo, St. Lawrence, and Northport interconnections. Graphs showing the sensitivity of the interface limit to the PAR schedule are included in Appendix G.

3. WEST WOODBOURNE TRANSFORMER

The Total-East interface may be limited at significantly lower transfer levels for certain contingencies that result in overloading of the West Woodbourne 115/69kV transformer. Should the West Woodbourne tie be the limiting facility, it may be removed from service to allow higher Total-East transfers. An overcurrent relay is installed at West Woodbourne to protect for contingency overloads.

4. CONED – LIPA TRANSFER ANALYSIS

Normal transfer limits were determined using the base case generation dispatch and PAR settings as described in Appendix B. Emergency limits are dispatch dependant and can vary based on generation and load patterns in the LIPA system.

For emergency transfer limit analysis the PARs controlling the LIPA import were adjusted to allow for maximum transfer capability into LIPA:

ConEd – LIPA PAR Settings

	Normal	Emergency
Jamaica – Lake Success 138kV	-164 MW	0 MW
Jamaica – Valley Stream 138kV	-122 MW	175 MW
Sprain Brook – E. Garden City 345kV	637 MW	637 MW

ISO-NE – LIPA PAR Settings

Norwalk Harbor – Northport 138kV	100 MW	286 MW

The PAR schedules referenced above and the ConEd – LIPA transfer assessment assume 70% loss factor and rapid oil circulation in the determination of the facility ratings.

Emergency Transfer via the 138kV PAR-controlled Jamaica ties between ConEdison and LIPA

Con Edison and LIPA have determined possible emergency transfer levels via the Jamaica - Valley Stream (901) 138kV and Jamaica - Lake Success (903) 138kV PAR-controlled ties that could be used to transfer emergency power between the two entities during peak conditions. The emergency transfer levels were calculated in both directions, for system peak load conditions with all transmission lines in service and all generation available for full capacity.

ConEd to LIPA emergency assistance

Based on analysis of historical conditions performed by LIPA and Con Edison, Con Edison anticipates to be able to supply a total flow up to 175 MW* of emergency transfer from Con Edison to Long Island, if requested, via the ties.

LIPA to ConEd emergency assistance

LIPA anticipates to be able to supply a total flow up to 459 MW* of emergency transfer from Long Island to Con Edison, if requested, via the ties.

5. TRANSFER LIMITS FOR OUTAGE CONDITIONS

Transfer limits for scheduled outage conditions are determined by the NYISO Scheduling and Market Operations groups. The NYISO Real-Time Dispatch system monitors the EHV transmission continuously to maintain the secure operation of the interconnected system.

6. TRANSIENT STABILITY LIMITS

The thermal interface limits in Section 4 do not include the results of transient stability testing. The current all lines in service and maintenance outage transient stability and voltage stability interface limits, are summarized and available through the NYISO website located at:

http://www.nyiso.com/public/webdocs/market_data/reports_info/oper_studies_sys_perf_reports/summary_nyiso_operating_limits.doc

C. Thermal Transfer Capabilities with Adjacent Control Areas

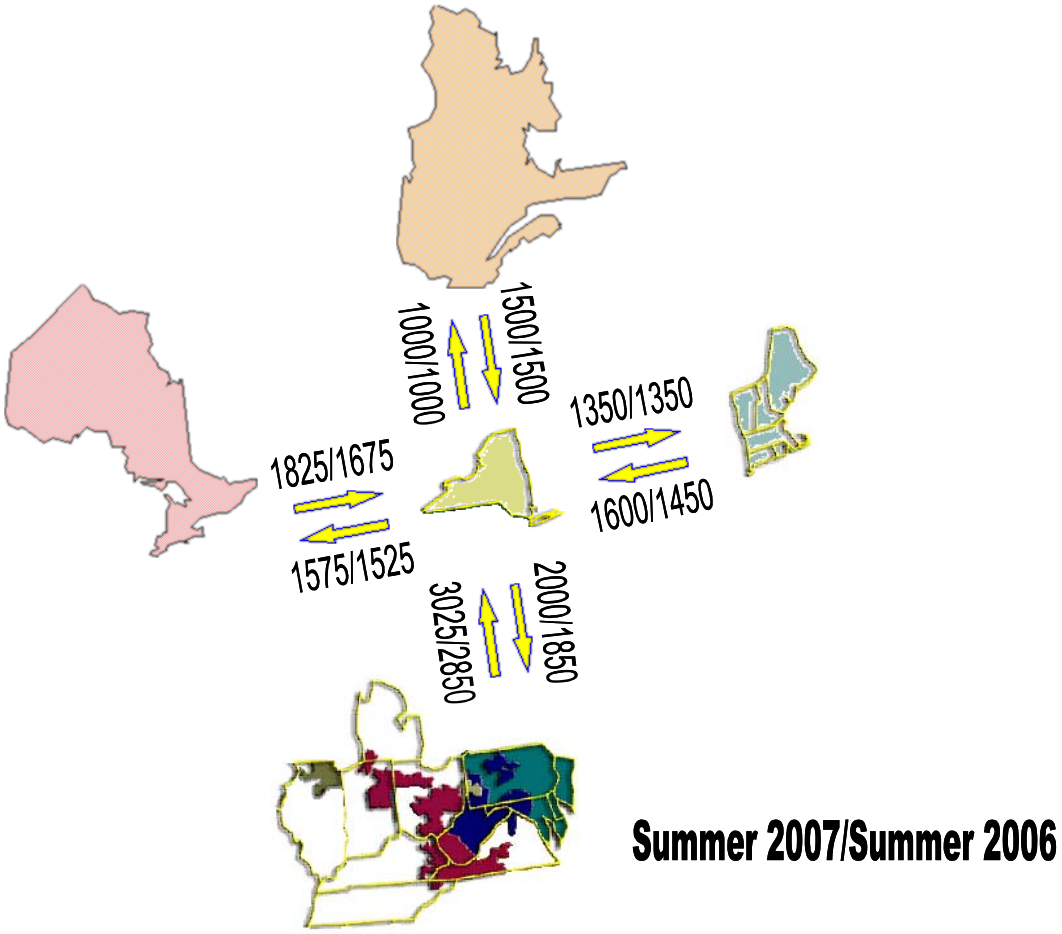

Figure 2 – Inter-Area Thermal Transfer Capabilities

1. NEW YORK – ISO NEW ENGLAND ANALYSIS

a) New England Transmission/Capacity Additions

Transmission

A new 345kV transmission circuit has been placed in service from the Plumtree to Norwalk in southwest Connecticut. Also, in Southwest CT the series reactors at Southington on the 1910 and 1950 lines will be in service. In Vermont, a phase angle regulating transformer has been placed in service on the Whitehall (NY) to Blissville (VT) 115kV circuit. Also in Vermont, a new 3454kV circuit has been place in service from West Rutland to New Haven, and two 345kV/115kV, 400MVA autotransformers at West Rutland. Two 345kV/115kV, 650MVA autotransformers have been added at the new Wachusett substation tapping the existing #314 and #343 345kV circuits between Sandy Pond and Millbury.

Capacity

In the New England Control Area, from September 2005 through January 2007, no additional capacity has been added.

b) Thermal Transfer Limit Analysis

The transfer limits between the NYISO and ISO New England for normal and emergency transfer criteria are summarized in Section 4, Table 2.

c) Cross-Sound Cable

The Cross-Sound Cable is an HVdc merchant transmission facility connecting the New Haven Harbor 345kV (United Illuminating, ISO-NE) station and Shoreham 138kV (LIPA, NYISO) station. It has a design capacity of 330MW. This facility is not metered as part of NY-NE interface, and HVdc transfers are independent of transfers between the NYISO and ISO-NE.

d) Smithfield – Salisbury 69kV

CHG&E and Northeast Utilities will operate the Smithfield - Salisbury 69 kV (FV/690) line normally open during the summer period due to post-contingency limits within the Northeast Utilities system. When the ISO-NE to NYISO transfer is less than approximately 400 MW, however, the line may be closed. When closed, the maximum allowable flow on this line is 28 MVA based on limitations in the Northeast Utilities 69 kV system. The FV/690 line has directional over-current protection that will trip the line in the event of an overload when the flow is into Northeast Utilities. This facility will not limit transfers between NYISO and ISO-NE.

e) Northport - Norwalk Harbor Cable Flow

Flow on this facility is controlled by a phase angle-regulating (PAR) transformer at Northport. As system conditions vary the following may be used to optimize transfer capability between the Areas. The thermal transfer limits are presented in Table 2 for two different PAR schedule assumptions on the Northport – Norwalk Harbor interconnection. Exhibits in Appendix G graphically demonstrate the optimization of transfer capability by regulating the flow on the Northport-Norwalk Harbor tie.

New York to New England: With power flowing from New York to New England on the Northport to Norwalk Harbor (1385) cable, potential overloads of the Norwalk Harbor to Rowayton Junction (1867) and the Norwalk Harbor to Rowayton Junction (1880) circuits must be considered as follows:

- The flow from Norwalk Harbor to Rowayton Junction (1867) should not exceed 237 MVA (Normal rating of Norwalk Harbor to Rowayton Junction (1867).

- The flow from Norwalk Harbor to Rowayton Junction (1880) should not exceed 214 MVA (Normal rating of Norwalk Harbor to Rowayton Junction (1880)).

New England to New York: With power flowing from New England to New York on the Norwalk Harbor to Northport (1385) cable, potential overloads of the Trumbull Junction to Weston (1730) and Trumbull Junction to Old Town (1710) circuits must be considered.

f) Whitehall – Blissville 115kV

The phase angle regulator on this circuit will control pre-contingency flow between the respective stations. VELCo, NationalGrid, ISO-NE and NYISO are developing a joint operating procedure. For the Summer 2007 analyses, the pre-contingency schedule is 50MW from Blissville (ISO-NE) to Whitehall (NYISO). The scheduled flow may be adjusted to protect the NationalGrid local 115kV transmission south of Whitehall for 345kV contingency events in southern Vermont.

g) Transient Stability Limitations

For certain system configurations, stability performance determines the transfer capability between the Areas. For those instances, the limits have been obtained from the report "1992-1996 NYPP-NEPOOL TRANSFER LIMIT STUDY - OCTOBER 1992." A new study of NYISO-ISO-NE transfer capability through 2009, including transient stability assessment, is under review and expected to be completed prior to the summer peak period.

The stability limits are expressed in terms of the transfer on the "Northern Ties", i.e., excluding flow on the Norwalk Harbor – Northport circuit. Stability limits for transfers from New England to New York are a function of the New England MW load level, and include the effect of Northfield and Bear Swamp in the generating and pumping mode.

2. NEW YORK - PJM ANALYSIS

a) Thermal Transfer Limit Analysis

The transfer limits for the New York - PJM interface are summarized in Section 4, Table 3. The phase angle regulating transformers controlling the Branchburg – Ramapo 500kV circuit are used to maintain flow at the normal rating of the Ramapo 500/345kV transformer (1000 MW) in the direction of the transfer.

b) Opening of PJM - New York 115 kV Ties as Required

The normal criteria thermal transfer limits presented in Section 4 were determined for an all lines in-service condition. The 115kV interconnections between GPU Energy and New York (Warren - Falconer, North Waverly - East Sayre, and Laurel Lake - Goudey) may be opened in accordance with NYISO and PJM Operating Procedures provided this does not cause unacceptable impact on local reliability in either system. Over-current protection is installed on the Warren - Falconer and the North Waverly - East Sayre 115kV circuits; either of these circuits would trip by relay action for an *actual overload* condition. There is no overload protection on the Laurel Lake - Goudey circuit, but it may be opened by operator action if there is an actual or post-contingency overload condition. However, opening the Laurel Lake – Goudey tie could potentially cause local thermal and pre- and post-contingency voltage violations for the 34.5 kV distribution system within New York. Sensitivity analysis performed indicated that the thermal and voltage conditions were exacerbated for conditions that modeled high simultaneous interface flows from NY to PJM and NY to Ontario.

3. ONTARIO – NEW YORK ANALYSIS

a) Thermal Transfer Limit Analysis

The thermal limits between the New York ISO and the Independent Electricity System Operator (IESO-Ontario) Areas for normal and emergency transfer criteria are presented in Section 4, Table 4. The transfer limits are determined for two assumed schedules on the phase angle regulating transformers controlling the L33P and L34P interconnections at St. Lawrence.

The thermal limit from New York to Ontario, with respect to IESO facilities, has increased 450 MW and 300 MW for normal and emergency transfers respectively compared to last summer. This is largely due to changes in limiting element and pre contingency loading: The Summer 07 case has about 360 MW pre-contingency flow from New York through Ontario to Michigan but 0 MW in the Summer 06 base case. In addition to this, there is also a change in the limiting element facility rating The direct tie interface limits are approximately the same compared to last summer for both normal and emergency transfers.

The thermal limit from Ontario to New York, with respect to IESO facilities, remains the same at 1375 MW for normal and emergency transfers. The direct tie interface limits are essentially the

same compared to last summer for both normal and emergency transfers.

b) Transient Stability Limitations

Transient stability limits for the NYISO - IESO interconnection are reported in "NYPP-OH TRANSIENT STABILITY TESTING REPORT on DIRECT TIE TRANSFER CAPABILITY - OCTOBER 1993."

c) Ontario – Michigan PARs

Phase Angle Regulating transformers are in service on the interconnections between Ontario and Michigan:

Lambton – St.Clair 345kV	L4D
Lambton – St.Clair 230kV	L51D
Keith – Waterman 230kV	J5D

The new phase angle regulators controlling the Lambton – St Clair circuits (L4D and L51D) are in-service and are represented in the powerflow base case holding fixed angle (free-flow MW). These PARs will not be available to regulate power flow during normal operation on the Ontario – Michigan interface until an operating agreement among the parties has been finalized. Ontario and Michigan currently have an agreement in place to operate L4D and L51D off neutral tap in emergency conditions. The existing PAR controlling the Keith – Waterman (J5D) circuit is controlling a schedule of 0 MW in the base case.

The Bunce Creek – Scott 230 kV circuit B3N has been returned to service. The phase angle regulating transformer controlling this circuit failed and a replacement is expected in mid-2008.

d) Generation Rejection for Loss of L33P/L34P-St. Lawrence Ties

The interface limits were determined for a particular load, transmission and generation pattern. When system conditions vary from those forecast in the study, normal interface limits may vary. Generation rejection special protection systems (SPSs) are available at Beauharnois, St. Lawrence/Saunders, and St. Lawrence/FDR to reject generation for the loss of the L33P and/or L34P interconnections. Ontario or NYPA operators consistent with system conditions can select these SPSs.

Of the two circuits, L33P is more limiting. At 0 degrees phase shift the limiting STE rating is 465 MVA (voltage regulator rating). The outage distribution factor for the loss of L34P is 0.601 and based on this, the maximum pre-contingency flow on each circuit should not exceed 290 MW. At 40 degrees phase shift the limiting STE rating is 334 MVA (PAR rating). The outage distribution factor for the loss of L34P is 0.462 and based on this, the maximum flow on each circuit should not exceed 228 MW.

4. TRANSÉNERGIE–NEW YORK INTERFACE

Thermal transfer limits between TransÉnergie (Hydro-Quebec) and New York are not analyzed as part of this study. Respecting the NYSRC and NYISO operating reserve requirements, the maximum allowable delivery into the NYCA from TransÉnergie on the Chateauguay – Massena (MSC-7040) 765kV tie is limited to 1200 MW. However the total flow has been limited to 1500 MW; the additional flow is a “wheel-through” transaction to another Control Area. Maximum delivery from NYCA to Quebec is 1000 MW.

IV. SUMMARY OF RESULTS
TRANSFER LIMIT ANALYSIS

TABLE 1

NYISO CROSS-STATE INTERFACE THERMAL LIMITS-SUMMER 2007
ALL LINES I/S

	Dysinger East	West Central	UPNY-ConEd	Sprain Brook Dunwoodie So.	ConEd-LIPA
NORMAL	2900(1)	1725(1)	3125(3)	3455(5)	1000(7)
EMERGENCY	3175(2)	2000(2)	3775(4)	3725(6)	1450(8)

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	Niagara – Rochester (NR2) 345kV	@LTE	1501 MW	L/O	AES/Somerset – Rochester (SR-1) 345kV
(2)	Stolle Rd – Meyer (67) 230kV	@NOR	430 MW	L/O	Pre-Contingency loading
(3)	Leeds – Pleasant Valley (92) 345kV	@LTE	1538 MW	L/O	Athens – Pleasant Valley (91) 345kV
(4)	Leeds – Pleasant Valley (92) 345kV	@STE	1725 MW	L/O	Athens – Pleasant Valley (91) 345kV
(5)	Mott Haven - Rainey 345kV (Q11)	@SCUC	949 MW	L/O	Mott Haven - Rainey 345 kV (Q12) Rainey 7W 345/138 kV Rainey 7W GTs 2-3, 2.4
(6)	Mott Haven - Rainey (Q11) 345kV	@STE	1081 MW		Mott Haven – Rainey (Q12) 345kV
(7)	Dunwoodie – Shore Rd. (Y50) 345kV	@NOR	653 MW*	L/O	Pre-contingency Loading
(8)	Dunwoodie – Shore Rd. (Y50) 345kV	@STE	1436 MW*		Sprain Brook – East Garden City (Y49) 345kV

NOTE: Some transfers may be voltage/stability limited
* LIPA rating for Y50 circuit is based on 70% loss factor and rapid oil circulation
* Sprain Brook –Dunwoodie South Normal limit (SCUC Limit) is the average of the LTE and STE rating.

TABLE 1.a

NYISO CROSS-STATE INTERFACE THERMAL LIMITS-SUMMER 2007
ALL LINES I/S

	MSC-7040 FLOW 800 MW	MSC-7040 FLOW 1200 MW	MSC-7040 FLOW 1600 MW
CENTRAL EAST			
NORMAL	2700(1)	2725(1)	2750(1)
EMERGENCY	3150(2)	3150(5)	3150(5)
TOTAL EAST			
NORMAL	5450(1)	5475(1)	5475(1)
EMERGENCY	6350(2)	6350(5)	6325(5)
MOSES SOUTH			
NORMAL	2025(3)	2300(3)	2600(3)
EMERGENCY	2375(4)	2650(4)	2950(4)

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	Fraser – Coopers Corners (33) 345kV	@LTE	1404 MW	L/O	Double-circuit Tower 31&41 Marcy – Coopers Corners (UCC2-41) 345kV Porter – Rotterdam (31) 230kV
(2)	Fraser – Coopers Corners (33) 345kV	@NOR	1207 MW		Pre-Contingency Loading
(3)	Moses - Adirondack 230kV	@LTE	359 MW	L/O	Chateauguay–Massena (MSC-7040) 765kV Massena – Marcy (MSU-1) 765kV and TransÉnergie delivery
(4)	Moses - Adirondack 230kV	@STE	440 MW	L/O	Chateauguay–Massena (MSC-7040) 765kV Massena – Marcy (MSU-1) 765kV and TransÉnergie delivery
(5)	New Scotland – Leeds 345kV	@STE	1724 MW	L/O	New Scotland – Leeds 345kV

NOTE: Some transfers may be voltage/stability limited

TABLE 2.a

NYISO to ISO-NE INTERFACE LIMITS - SUMMER 2007-ALL LINES I/S

New York to New England	DIRECT TIE	NYISO FACILITY	ISO-NE FACILITY
		Northport –Norwalk @ 100MW	
NORMAL	1050(1)	2000(3)	1700 (5)
EMERGENCY	1575(2)	2275(4)	1800 (6)
		Northport –Norwalk @ 0 MW	
NORMAL	1350(1)	1950(3)	1800 (5)
EMERGENCY	1875(2)	2225(4)	1800 (6)

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	Norwalk Harbor - Northport (1385) 138kV	@LTE	335 MW	L/O	Long Mountain – Pleasant Valley (398) 345kV
(2)	Norwalk Harbor - Northport (1385) 138kV	@STE	450 MW	L/O	Long Mountain – Pleasant Valley (398) 345kV
(3)	East Greenbush – Reynolds Rd 115 kV	@LTE	293 MW	L/O	Alps345 – N. Scotland 345 kV
(4)	East Greenbush – Reynolds Rd 115 kV	@STE	318 MW	L/O	Alps345 – N.Scotland 345 kV
(5)	Vermont Yankee – Vernon Road Tap	@STE	326MW	L/O	Vermont Yankee – Amherst (379) 345kV Vermont Yankee – Coolidge (340) 345kV
(6)	Vermont Yankee - Vernon Road Tap	@STE	326 MW	L/O	Vermont Yankee – Coolidge (340) 345kV

Note: Northport – Norwalk Harbor flow is positive in the direction of transfer.

TABLE 2.b

ISO-NE to NYISO INTERFACE LIMITS - SUMMER 2007 -ALL LINES I/S

New England to New York	DIRECT TIE	NYISO FACILITY	ISO-NE FACILITY
		Norwalk –Northport @ 100MW	
NORMAL	1600(1)	1700(3)	1025(5)
EMERGENCY	2175(2)	2525(4)	1100(6)
		Norwalk–Northport @ 200MW	
NORMAL	1250(1)	1750(3)	1075(5)
EMERGENCY	1825(2)	2550(4)	1100(6)

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	Norwalk Harbor - Northport (1385) 138kV	@LTE	335 MW	L/O	(Breaker failure @ Pleasant Valley 345kV) Pleasant Valley - Fishkill (F36) 345kV Long Mountain – Pleasant Valley (398) 345kV
(2)	Norwalk Harbor - Northport (1385) 138kV	@STE	450 MW	L/O	Long Mountain – Pleasant Valley (398) 345kV
(3)	Alps – Reynolds Rd. 345kV	@LTE	562 MW	L/O	New Scotland – Alps (2) 345kV
(4)	Alps – Reynolds Rd. 345kV	@STE	755 MW	L/O	New Scotland – Alps (2) 345kV
(5)	Manchester 4X 345/115kV Autotransformer	@STE	598MW	L/O	Manchester – Scovill Rock (353) 345kV Manchester 5X 345/115kV Autotransformer Manchester 6X 345/115kV Autotransformer
(6)	Millbury – Webster Street 115kV	@STE	147MW	L/O	Card – Lake Road (330) 345kV Card 5X 345/115kV Autotransformer

Note: Norwalk Harbor – Northport schedule is positive in the direction of transfer

TABLE 3.a

PJM to NYISO INTERFACE LIMITS-SUMMER 2007
ALL LINES I/S

PJM to NYISO	DIRECT TIE	NYISO FACILITY	PJM FACILITY
NORMAL	1575[(1)]	3050[(2)]	3100[(3)]
3-115-O/S	3025[(4)]	2800[(2)]	3125[(3)]
EMERGENCY	2175[(6)]	3375[(7)]	3100[(3)]
3-115-O/S	3025[(4)]	3225[(7)]	3125[(3)]

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	Warren-Falconer (171) 115kV	@LTE	116 MW	L/O	Forest – Glade TP 230kV Glade TP – Glade 230 kV
(2)	Watercure - Oakdale 230 kV	@LTE	400 MW	L/O	Watercure – Oakdale (31) 345kV Oakdale – Lafaytte 345 kV
(3)	Oxbow – Lackawanna 230kV	@Emer	504 MW	L/O	E. Towanda – Grover 230kV Grover - Moshannon 230 kV Grover 230/34 kV
(4)	Homer City – Watercure (30) 345kV	@NOR	755 MW	L/O	Pre – Contingency Loading
(5)	Oxbow – Lackawanna 230kV	@Emer	504 MW	L/O	Moshannon - Grover 230kV
(6)	Warren - Falconer (171) 115kV	@NOR	82MW	L/O	Pre-Contingency Loading
(7)	Watercure 345/230 kV transformer	@STE	600 MW	L/O	Watercure – Oakdale (31) 345kV

NOTE: Emergency Transfer Limits may require line outages as described in Section 4.III. PAR schedules have been optimized for the emergency limits as described in Appendix B. Some transfers may be stability limited.

TABLE 3.b

NYISO to PJM INTERFACE LIMITS-SUMMER 2007
ALL LINES I/S

NYISO to PJM	DIRECT TIE	NYISO FACILITY	PJM FACILITY
NORMAL	1300(1)	1350(2A)	2250(3)
3-115-O/S	2000(4)	1725(2B)	2125(3)
EMERGENCY	1675(5)	2050(6)	2250(3)
3-115-O/S	2150(7)	1850(2C)	2125(3)

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	E. Sayre – N. Waverly 115kV	@LTE	119 MW	L/O	E. Towanda – Hillside (70) 230 kV Laurel L – Goudy (956) 115 kV
(2A)	Goudey – Oakdale 115kV	@LTE	239 MW	L/O	Hillside 230kV bus fault Hillside - Meyer 230kV Hillside – Watercure (69) 230kV Hillside – E. Towanda Hillside 230/34.
(2B)	Goudey – S. Owego 115kV	@LTE	131MW	L/O	Hillside – Watercure 230 kV
(2C)	Goudey – S. Owego 115kV	@STE	143MW	L/O	Hillside – Watercure 230 kV
(3)	Homer City 345/230kV transformer	@Emer	699 MW	L/O	Homer City 345/230kV transformer
(4)	E. Towanda – Hillside (70) 230kV	@LTE	531 MW	L/O	Double-circuit Tower 33&41 Marcy – Coopers Corners (41) 345kV Fraser – Coopers Corners (33) 345kV
(5)	E. Sayre – N. Waverly 115kV	@NOR	90 MW		Pre – Contingency Loading
(6)	Goudey – Oakdale 115kV	@NOR	238 MW		Pre – Contingency Loading
(7)	E. Towanda – Hillside (70) 230kV	@NOR	483 MW		Pre-Contingency Loading

NOTE: Emergency Transfer Capability Limits may have required line outages as described in Section 4.III. PAR schedules have been optimized for the emergency limits as described in Appendix B.

TABLE 4

NYISO- IESO INTERFACE LIMITS - SUMMER 2007
ALL LINES I/S

	DIRECT TIE	NYISO FACILITY	IESO FACILITY	DIRECT TIE	NYISO FACILITY	IESO FACILITY
Ontario to New York		**L33/34P @ 0 MW**			**L33/34P @ 400 MW**	
NORMAL	1950(1)	1500(2)	1375(3)	2325(1)	1825(6)	1775(3)
EMERGENCY	2325(4)	1925(5)	1375(3)	2700(4)	2425(5)	1775(3)
New York to Ontario		**L33/34P @ 0 MW**			**L33/34P @ 200 MW**	
NORMAL	1400(7)		2000(8)	1575(7)		2200(8)
EMERGENCY	1700(9)		2575(10)	1875(9)		2775(10)

	LIMITING ELEMENT				LIMITING CONTINGENCY
(1)	Beck – Niagara (PA27) 230kV	@LTE	460 MW	L/O	Beck – Niagara (PA 302) 345kV
(2)	Niagara – Rochester (NR-2) 345kV	@LTE	1501 MW	L/O	AES/Somerset - Rochester (SR-1) 345kV
(3)	Middleport 500/220 kV (T3)	@NOR	750 MW		Pre-Contingency Loading
(4)	Beck – Niagara (PA27) 230kV	@STE	558 MW	L/O	Beck – Niagara (PA 302) 345kV
(5)	Niagara – Rochester (NR-2) 345kV	@STE	1685 MW	L/O	AES/Somerset - Rochester (SR-1) 345kV
(6)	Niagara - Packard (61) 230kV	@LTE	717 MW	L/O	(Tower Failure 62&BP76) Niagara – Packard (62) 230kV Beck – Packard (BP76) 230kV
(7)	Beck – Niagara (PA27) 230kV	@LTE	460 MW	L/O	BK-DT302 Beck2 DK – Beck2 PA2 220 kV Beck2 DK – Beck2 Q22 220 /13.8 kV Beck2 DK – Beck2 G15 220 kV
(8)	Neal JQ25 – Burlington J25 220 kV	@LTE	775 MW	L/O	Q24 + 29HM
(9)	Beck – Niagara (PA27) 230kV	@NOR	400 MW		Pre-Contingency Loading
(10)	Neal JQ25 – Burlington J25 220 kV	@NOR	638.6 MW		Pre – Contingency Loading

NOTE: Some transfers may be stability limited