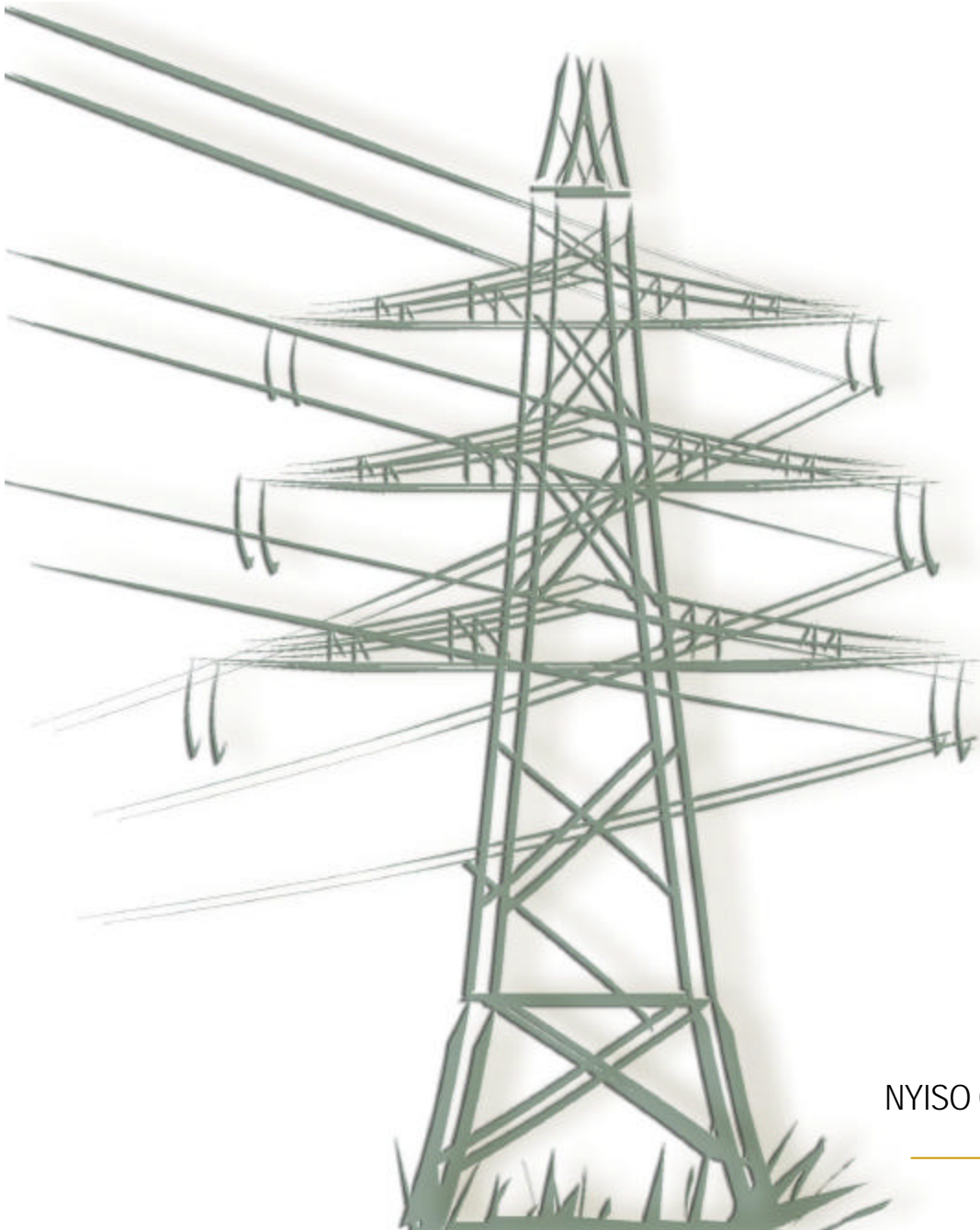




# *SUMMER 2000 OPERATING STUDY*



MAY 2000  
*prepared by*  
NYISO Operations Engineering



**NYISO OPERATING STUDY - SUMMER 2000**

**MAY 2000**

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## **NYISO OPERATING STUDY - SUMMER 2000**

### **1. 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 2000 capability period. This analysis indicates that, for the Summer 2000 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" (September 10, 1999) and the NYISO System Operating Procedures.

### **2. RECOMMENDATIONS**

The following recommendations are presented based on the analysis and results documented in this report.

- 1) 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.
- 2) The OSTF has reviewed Voltage and Stability Limits and recommends the continued review and analysis of these limits as system conditions change.
- 3) Installed Capacity (ICAP) resources of 35,636MW are anticipated to be adequate to meet the forecast peak demand of 30,200 MW. The NYISO may experience operating reserve shortages for as many as 25-50 hours during the period (based on typical load duration exposure).
- 4) The planned operation of phase angle regulators on the four Ontario – Michigan interconnections will not adversely impact the reliability of the New York system.

### 3. **SYSTEM REPRESENTATION AND BASE STUDY ASSUMPTIONS**

#### I. System Representation

The representation was developed from the NYISO Databank and assumes the forecast Summer coincident peak load of 30,200MW. The other NPCC members and adjacent regions representations were obtained from MEN/VEM Summer 2000 Inter-regional Reliability Assessment power flow.

For the Summer 2000 peak load period there are no scheduled outages of major generating units. The assumed operating levels for major EHV-connected units is summarized in Appendix B. All generating levels represented are consistent with typical operation for the peak load period. The inter-Area transactions represented in the study base case are summarized in Appendix A, and are consistent with those modeled in the MEN/VEM 2000 Summer Assessments.

The only significant transmission outage represented in the base case is the outage of the Hudson, NJ (PSE&G) 345/230kV transformer associated with the Hudson – Farragut 345kV circuit B3402. The transmission line is expected to be in service and operated in parallel with the Hudson – Farragut 345kV circuit C3403, with both circuits terminating at the C-line's 345/230kV transformer at Hudson.

The phase-angle-regulating (PAR) transformers controlling the interconnections between Consolidated Edison and PSE&G assumed a base schedule of 550MW from PSE&G to Con Edison, respecting the limitation at Hudson and internal limitations within the PSE&G 230kV transmission system. The Branchburg - Ramapo 500 kV (5018) circuit is scheduled in accordance with the "Ramapo Phase Angle Regulator Operating Procedure", December 11, 1987.

#### II. **Base Study Assumptions**

The Normal and Emergency Criteria thermal limits have been determined by the PTI PSS/e thermal analysis activities (TLTG). The thermal limits presented have been determined for all transmission facilities scheduled in service during the Summer 2000 period.

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 undoubtedly are lines internal to each system, which if they should trip or be placed out of service, could reduce the transfer capability

between Areas. Reductions due to these situations are considered to be the responsibility of the respective operating authority. Transfer condition within and between neighboring Areas can have a significant effect on internal New York and inter-Area transfer capabilities. Since the converse is also true, coordination of transfers between Ontario, Michigan, PJM and New York is necessary to provide optimal transfer conditions while maintaining the reliability and security of the interconnected systems.

Several assumptions have been made for transmission conditions in the base case. The scheduled flow between PSE&G and ConEdison on the Hudson – Farragut and Linden – Goethals ties is reduced to 600MW from previous studies. This reflects the limitations on the Farragut ties due to the forced outage of the Hudson 345/230kV “B” transformer and the parallel operation of the “B” and “C” lines at Hudson.

## 4. DISCUSSION

### I. Resource Assessment

The forecast peak demand for the 2000 Summer period is 30,200 MW. The forecast is 0.4% lower than the 1999 actual summer peak of 30,311 MW that occurred on July 6, 1999 which is also the all-time peak for the New York Control Area. The Installed Capacity (ICAP) requirement of 35,636 MW, based on the NYSRC 18% reserve requirement, is anticipated to be adequate to meet forecast demand. However, the NYISO may experience operating reserve shortages for as many as 25-50 hours during the period (based on typical load duration exposure). As presented in Table 1 (below), the NYISO expects to have 625 MW operating reserve during peak load conditions.

**Table 1**  
**NYISO Peak Load and Capacity Assessment – Summer 2000**

NYISO ICAP Requirement	35636
Net of full-responsibility purchases/sales	0
Scheduled generation outages	0
Allowance for unplanned outages	4811
<b>Net capacity for load</b>	<b>30825</b>
NYISO Forecast Peak	30200
Operating Reserve Requirement	1800
<b>Available Reserve</b>	<b>625</b>
<b>Net Margin</b>	<b>-1175</b>

The assumed allowance for unplanned outages is an equivalent rate of 13.5% and includes forced outages and deratings based on historical performance of all generation in the New York control area.

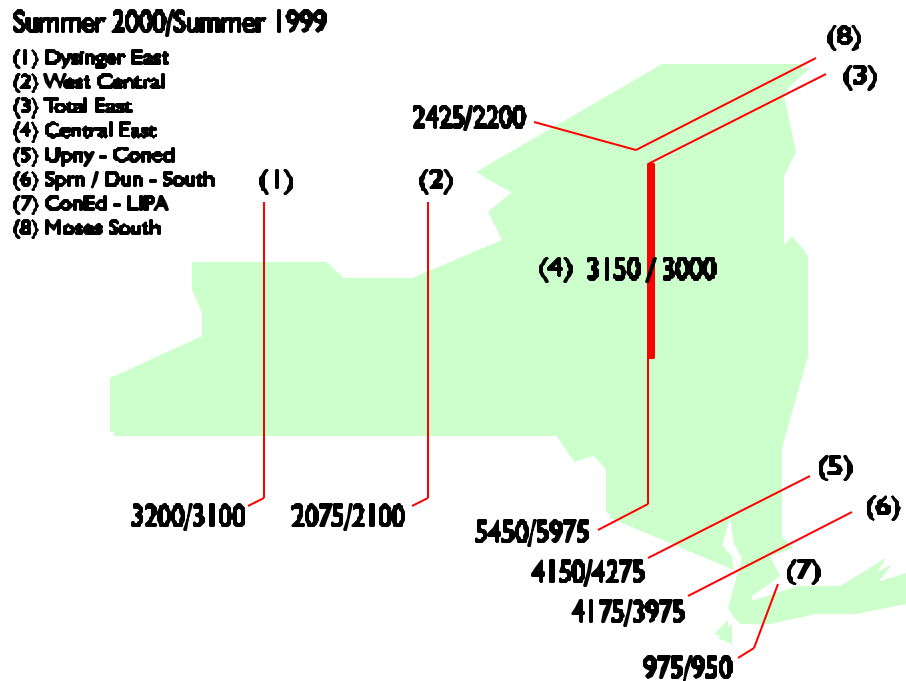
### II. Cross-State Interfaces

#### A. Transfer Limit Analysis

The only significant change in the Cross-State limits is a reduction of approximately 600 MW in the Total East limit. This reflects the lower schedules on the phase angle regulators controlling the PSE&G-ConEdison ties and Branchburg-Ramapo. While the indicated Central East limit has increased, both this and Total East interfaces are usually more limited by voltage or stability considerations. The 150 MW decrease in the UPNY-ConEd limit is also due to the reduced flow on Branchburg-Ramapo which results in slightly lower pre-



contingency flow on the Ramapo-Millwood transmission path and correspondingly higher flow on the Pleasant Valley-Millwood paths. Complete results, including normal and emergency criteria limits are presented in Section 5, Table 1, and are summarized in Figure 1, below.



**Figure 1 – Cross-State Transfer Limits**

**B. Sensitivity Testing**

The thermal limits presented in Section 5 were determined using the base conditions and transactions. The cumulative effects of various intra- and inter-Area transfers and significant changes in load or generation patterns in the system may cause significant changes in transfer limits. Some of these effects are presented in Appendix G.

Phase angle regulator schedules may vary from day-to-day. Sensitivity analysis for selected interconnections has been included for the Ramapo, St. Lawrence, and Northport interconnections. Graphs showing the effect of these PARs on these interconnections limits are included in Appendix G.

C. West Woodbourne Transformer

The Total-East interface may become restricted to significantly lower transfer levels for certain contingencies which would overload the West Woodbourne transformer. Therefore, when the West Woodbourne tie becomes the limiting facility, it may be removed from service to allow an increase in the Total-East transfer limit. An overcurrent relay is installed at West Woodbourne to protect for contingency overloads.

D. LIPA Import Analysis

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

For emergency transfer limit analysis the ConEd - LIPA PARS were adjusted to allow for maximum transfer capability into LIPA:

ConEd - LIPA PAR Settings for Emergency Conditions

Jamaica - Lake Success	0MW
Jamaica - Valley Stream	272MW
Sprain Brook - East Garden City	645MW
Norwalk Harbor – Northport	286MW

E. Transfer Limits for Outage Conditions

Determination of transfer limits for scheduled outage conditions are determined by the NYISO Scheduling and Commitment group. The NYISO real-time Security Constrained Dispatch system monitors EHV transmission continuously to maintain the secure operation of the interconnected system.

F. Transient Stability Limits

The thermal interface limits in Section 5 do not include the results of transient stability testing. The existing all lines in service and maintenance outage stability interface limits are summarized in Appendix I.

### III. Transfer Capabilities with Adjacent Control Areas

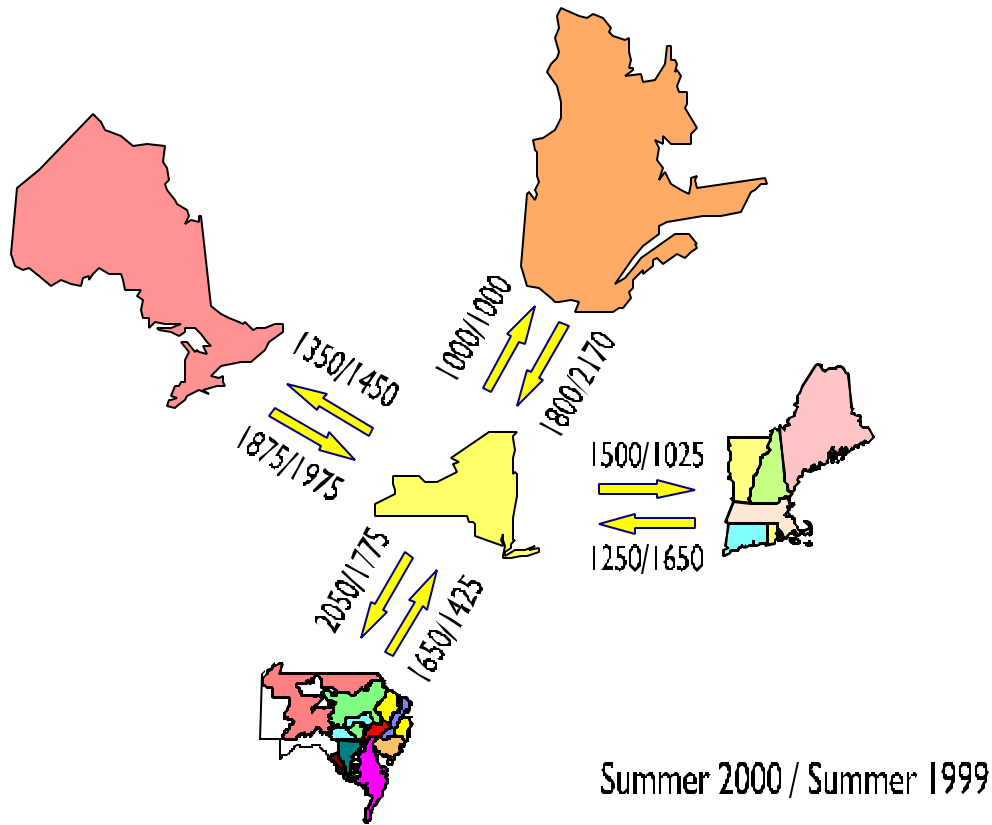


Figure 2 – Inter-Area Transfer Capabilities

#### A. New York – ISO New England Analysis

##### 1. Thermal Analysis

The transfer limits between the NYISO and ISO New England for normal and emergency transfer criteria are summarized in Section 5, Table 2. Referring to Figure 2, above, the transfer capability from NY to NE has increased significantly due to a reduction of approximately 130MW in the pre-transfer loading of the Pleasant Valley – Long Mountain 345kV line, and correspondingly higher loadings toward NE on the remaining northern ties. This also results in a similar decrease in the NE to NY transfer capability. The change in flow on Pleasant Valley – Long Mountain causes a change in the limiting contingency from the breaker failure at Long Mountain 345kV to breaker failure at Pleasant Valley.

CHG&E and Northeast Utilities will operate the Smithfield-Falls Village 69 kV line (FV/690) normally closed during the summer period. The maximum allowable transfer on this line is 28 MVA, based on limitations in the Northeast Utilities 69 kV system. The FV/690 has overcurrent protection that will trip the line in the event of an actual overload. This facility will not limit NYISO-ISO-NE transfers.

2. Guides for Optimum Utilization of Ties

As system conditions vary the following guides may be used in addition to the tables. The exhibits in Appendix G demonstrate the optimization of the net transfer capability by regulating the flow on the Northport-Norwalk Harbor tie.

New York to New England  
Northport - Norwalk Harbor Cable Flow

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  
Norwalk Harbor - Northport Cable Flow

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) circuit must be considered as follows:

The algebraic sum of the flow from Trumbull Junction to Weston (1730) and 27% of the flow from Pequonnock to Trumbull Junction (1710) and 29% of the

flow from Devon to Trumbull Junction (1710) should not exceed 239 MVA (STE rating of Trumbull Junction to Weston (1730)).

The algebraic sum of the flow from Trumbull Junction to Weston (1730) and 25% of the flow from Pequonnock to Ash Creek (91001) and 21% of the flow from Bridgeport Resco should not exceed 239 MVA (STE rating of Trumbull Junction to Weston (1730)).

In order to transfer 200 MVA from Norwalk Harbor to Northport, Norwalk Harbor generation should be on.

3. Plattsburgh – Sandbar (PV-20) Circuit

In March, the phase angle regulating transformer controlling the Plattsburgh, New York to Sandbar, Vermont circuit (PV-20) failed, and is not expected to return to service during the study period. In the transfer limit analysis for this assessment, the line was represented in service with the PAR controlling flow. Currently, the interconnection has been restored and is being operated as a free-flowing tie. Analysis performed by VELCo. and ISO-NE, in cooperation with the NYISO, NYPA and NYSE&G, has determined the conditions for secure operation, and a joint operating instruction has been implemented for this condition. This interconnection will not limit NYISO – ISO-NE transfers.

4. Transient Stability Limitations

For certain system configurations, stability performance determines the transfer capability between the pools. For those instances, the limits have been obtained from the report "1992-1996 NYPP-NEPOOL TRANSFER LIMIT STUDY - OCTOBER 1992." These stability transfer limits are presented in Appendix I.

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 incorporate the effect of Northfield and Bear Swamp in the generating and pumping mode.

**B. New York - PJM Analysis**

1. Thermal Analysis

The transfer limits for the New York - PJM interface are summarized in Section

5, Table 3. The comparison with Summer 1999 in Figure 2, above, shows an increase in transfer capability in both directions. For the Summer 2000 analysis, the outage of the 115kV ties and schedules for the PJM – SENY PARs more accurately reflect actual system conditions that would be expected during heavy transfer conditions.

The unavailability of the Hudson (NJ, PSE&G) 345/230kV transformer associated with the Hudson – Farragut 345kV circuit B-3402, may limit transfer capability between the PSE&G and Con Edison systems. The B-3402 circuit has been paralleled with the C-3403 at the Hudson terminal. This results in a reduction of 400MW transfer capability between the PSE&G system and the Con Edison New York City load area.

2. PJM – New York Transfer Cases

The base case conditions transfer assumptions for the NYISO-PJM analysis are consistent with generation shifts used in the MAAC-ECAR-NPCC Inter-regional Assessment. The dispatch and PAR schedules are summarized described in Appendix B, page 4.

3. Opening of PJM to New York 115 kV Ties as Required

The normal criteria thermal transfer limits presented in Section 5 were determined for an all-lines-in service condition. The 115kV interconnections between GPU/Penelec and New York (Warren-Falconer, North Waverly-East Sayre, and Tiffany-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. Overcurrent relays are installed on the Warren-Falconer and the North Waverly-East Sayre 115kV circuits; either of these lines would trip by relay action for an *actual overload* condition. There is no overload protection on the Laurel Lake-Goudey circuit, however it may be opened by operator action if it imposes an actual or post-contingency overload condition.

The PJM - New York emergency criteria limits presented in this report consider opening the 115kV circuits in accordance with existing New York and PJM Operating Procedures. In the analysis these lines were opened to obtain higher emergency transfer capabilities. The results presented in Table 3 include limits which assume one (or more) of these lines removed from service, if necessary.

**C. Ontario – New York Analysis**

1. Thermal Analysis

The thermal limits between the New York ISO and the Independent Market Operator (IMO-Ontario) Areas for normal and emergency transfer criteria are presented in Section 5, Table 4. The slight changes in the indicated limits in Figure 2, above, result from small changes in the pre-contingency/pre-transfer flows in the base case.

2. Transient Stability Limitations

Transient stability limits for the NYISO - IMO interconnection are reported in "NYPP-OH TRANSIENT STABILITY TESTING REPORT on DIRECT TIE TRANSFER CAPABILITY - OCTOBER 1993." The results of this stability testing is summarized in Appendix I of this report.

3. Ontario – Michigan PARs

Phase Angle Regulating transformers are being installed on the interconnections between Ontario and Michigan:

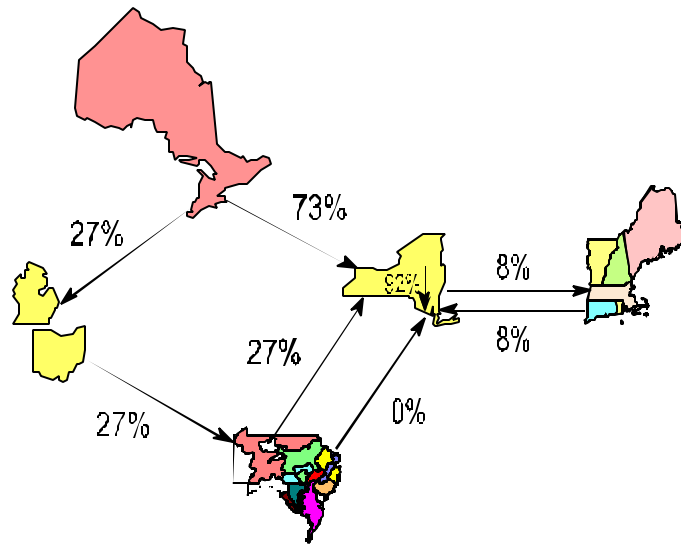
Lambton – St. Clair 345kV	L4D
Lambton – St. Clair 230kV	L51D
Scott – Bunce Creek 230kV	B3N

A PAR has been in service on the Keith – Waterman 230kV J5D circuit. The new PARs are expected to be in service by early July, 2000. This work will allow scheduling of up to 2580MW from Ontario to Michigan and minimize the impact of counter-clockwise flow around Lake Erie. This anticipated normal operating mode maintains flow across the Michigan-Ontario interface equal to the interchange schedule between the DECo and IMO control areas. During emergencies, these PARs can be operated to provide maximum reasonable assistance to relieve the emergency.

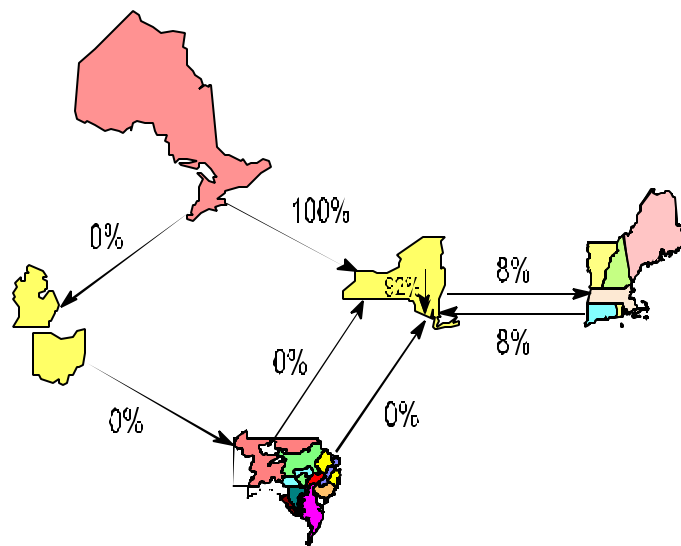
As demonstrated in Figure 2, the addition of the Michigan – Ontario PARs and operation to schedule does not adversely impact the direct tie transfer capability between IMO and NYISO. The installation of these PARs will serve to limit the impact of “loop-flow” on transfers between IMO and NYISO and on transfers between NYISO and PJM, also.

For the assessment of NYISO - IMO transfer limits, the Michigan - Ontario PARs were assumed to be holding scheduled flow to Michigan. The transfer limits determined represent conservative transfer capabilities. Figures 3 and 4 compare transfer conditions of previous assessments (free-flowing) with the current analysis (flow controlled to schedule).





**Figure 3**  
**Ontario-Michigan PARs Free-flow**



**Figure 4**  
**Ontario-Michigan PARs Regulating (Flow = Schedule)**

4. Generation Rejection for Loss of L33P/L34P-Moses

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 and Saunders to reject generation for the loss of the L33P and/or L34P interconnections. These SPSs can be selected by the IMO operator consistent with system conditions.

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 pre-contingency flow on each circuit should not exceed 228 MW.

D. TransEnergie–New York Interface

Thermal transfer limits between TransEnergie (Hydro-Quebec) and New York are not analyzed as part of this study. Transfers between the NYISO and TE are generally stability limited. During 1999 TE removed one of the 765/120kV transformers in the Chateauguay station and reconnected it to allow additional imports from Ontario's St.Lawrence (Saunders) generating station through the Beauharnois switchyard directly to the TE main 735kV system. Due to this reconfiguration, a maximum of about 800MW Beauharnois generation can be connected to the Chateauguay (NY-side) of the station. With three transformers in service and the limited amount of Beauharnois generation, the maximum delivery is about 1800MW.



**5. SUMMARY OF RESULTS  
TRANSFER LIMIT ANALYSIS**



TABLE 1

NYISO CROSS STATE INTERFACE THERMAL LIMITS-SUMMER 2000  
ALL LINES I/S

	Dysinger East	West Central	UPNY-ConEd	Sprain Brook Dunwoodie So.	ConEd-LIPA
NORMAL	3200 <sup>(1)</sup>	2075 <sup>(1)</sup>	4150 <sup>(3)</sup>	4175 <sup>(5)</sup>	975 <sup>(6)</sup>
EMERGENCY	3200 <sup>(1a)</sup>	2500 <sup>(2)</sup>	4800 <sup>(4)</sup>	4175 <sup>(5)</sup>	1500 <sup>(7)</sup>

LIMITING ELEMENT		LIMITING CONTINGENCY			
(1)	Rochester-Pannell Rd. (RP-2) 345 kV	@LTE	1501MW	L/O	(breaker failure@ Rochester 345kV) Rochester-Pannell 345 kV Rochester- 345/115 kV
(1a)	Niagara - Rochester (NR-2) 345 kV	@STE	1685MW	L/O	Kintigh-Rochester (SR-1) 345kV
(2)	Rochester-Pannell Rd. (RP-2) 345kV	@STE	1685MW	L/O	Rochester-Pannell (RP-1) 345kV
(3)	Leeds - Pleasant Valley (91) 345kV	@LTE	1538MW	L/O	Leeds - Pleasant Valley (92) 345kV
(4)	Leeds - Pleasant Valley (91) 345kV	@STE	1724MW	L/O	Leeds - Pleasant Valley (92) 345kV
(5)	Dunwoodie - Rainey 345 kV	@NOR	715MW		Pre - Contingency Loading
(6)	Dunwoodie - Shore Rd (Y50) 345 kV	@LTE	877MW	L/O	Sprain Brook – East Garden City (Y49) 345 kV
(7)	Dunwoodie - Shore Rd (Y50) 345 kV	@NOR	599MW		Pre - Contingency Loading

**NOTE:** Some transfers may be stability limited. See Appendix I for existing transient stability limits.

TABLE 1.a

NYISO CROSS STATE INTERFACE THERMAL LIMITS-SUMMER 2000  
ALL LINES I/S

	HQ -> NY @ 1350 MW		HQ -> NY @ 900 MW	
<b>CENTRAL EAST</b>				
NORMAL	3150MW <sup>(7)</sup>		3075MW <sup>(7)</sup>	
EMERGENCY	3475MW <sup>(8)</sup>		3375MW <sup>(8)</sup>	
<b>TOTAL EAST</b>				
NORMAL	5450MW <sup>(7)</sup>		5275MW <sup>(7)</sup>	
EMERGENCY	6075MW <sup>(8)</sup>		5900MW <sup>(8)</sup>	
<b>MOSES SOUTH</b>				
NORMAL	2425MW <sup>(11)</sup>		2000MW <sup>(12)</sup>	
EMERGENCY	3075MW <sup>(13)</sup>		2900MW <sup>(13)</sup>	
<b>LIMITING ELEMENT</b>		<b>LIMITING CONTINGENCY</b>		
(7)	N. Scotland - Leeds (93) 345kV @LTE	1538MW	L/O	N. Scotland - Leeds (94) 345kV
(8)	N. Scotland - Leeds (93) 345kV @STE	1724MW	L/O	N. Scotland - Leeds (94) 345kV
(9)	Moses - Adirondack MA-1 230kV @LTE	359MW	L/O	Moses - Massena MMS-1 230kV Moses - Massena MMS-2 230kV
(10)	Moses - Adirondack MA-1 230kV @STE	440MW	L/O	Moses - Adirondack MA-2 230kV
(11)	Adirondack-Porter 12 230kV @LTE	353MW	L/O	Adirondack-Porter 11 230kV
(12)	Adirondack-Porter 11 230kV @LTE	353MW	L/O	Moses - Massena MMS-1 230kV Moses - Massena MMS-2 230kV
(13)	Adirondack-Porter 11 230kV @STE	449MW	L/O	Adirondack-Porter 12 230 kV

NOTE: Some transfers may be stability limited. See Appendix I for existing transient stability limits.

TABLE 2.a  
NYISO-to ISO-NE INTERFACE LIMITS - SUMMER 2000  
ALL LINES I/S

New York to New England	Northport – Norwalk @ 100MW		
	DIRECT TIE	NYISO INTERNAL	ISO-NE INTERNAL
NORMAL	1500MW <sup>(1)</sup>	1500MW <sup>(4)</sup>	1875MW <sup>(2)</sup>
EMERGENCY	2300MW <sup>(3)</sup>	2300MW <sup>(3)</sup>	1875MW <sup>(2)</sup>
Northport – Norwalk @ 0 MW			
NORMAL	1950MW <sup>(1)</sup>	900MW <sup>(4)</sup>	1850MW <sup>(2)</sup>
EMERGENCY	2750MW <sup>(5)</sup>	1450MW <sup>(6)</sup>	1850MW <sup>(2)</sup>

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

LIMITING ELEMENT					LIMITING CONTINGENCY
(1)	Norwalk - Northport (1385) 138kV	@LTE	318 MW	L/O	(breaker failure at Long Mtn 345kV) Long Mtn - Plumtree (321) 345kV Long Mtn –Frost Bridge (352) 345kV Pleasant Valley-Long Mtn (398) 345kV Frost Bridge (1X) 345/115kV
(2)	Bear Swamp - Pratts Jct.(E205E) 230kV	@STE	300 MW	L/O	Sandy Pond HVdc @ 1500MW
(3)	Norwalk - Northport (1385) 138kV	@STE	428 MW	L/O	Pleasant Valley - Long Mtn (398) 345kV
(4)	Reynolds Rd. - Greenbush (9) 115kV	@LTE	197 MW	L/O	New Scotland – Alps (2) 345kV
(5)	Pleasant Valley - Long Mtn (398) 345kV	@NOR	1135 MW		Pre-contingency loading
(6)	Reynolds Rd. – Greenbush (9) 115kV	@STE	248MW	L/O	New Scotland 345kV #77 bus



TABLE 2.b  
ISO-NE to NYISO INTERFACE LIMITS - SUMMER 2000  
ALL LINES I/S

New England to New York	Norwalk – Northport @ 100MW		
	DIRECT TIE	NYISO INTERNAL	ISO-NE INTERNAL
NORMAL	1250MW <sup>(1)</sup>	1250MW <sup>(1)</sup>	1000MW <sup>(2)</sup>
EMERGENCY	1925MW <sup>(3)</sup>	2275MW <sup>(4)</sup>	1225MW <sup>(5)</sup>
<b>Norwalk – Northport @ 200MW</b>			
NORMAL	800MW <sup>(1)</sup>	800 MW <sup>(1)</sup>	1275MW <sup>(5)</sup>
EMERGENCY	1475MW <sup>(3)</sup>	2300MW <sup>(4)</sup>	1275MW <sup>(5)</sup>

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

LIMITING ELEMENT					LIMITING CONTINGENCY
(1)	Norwalk - Northport (1385) 138kV	@LTE	318MW	L/O	(breaker failure@Pleasant Valley 345kV) Pleasant Valley-E. Fishkill (F37) 345kV Pleasant Valley-Long Mtn (398) 345kV
(2)	Derby Junction-Stevenson (1560) 115kV	@STE	221MW	L/O	(breaker failure@Southington 345kV Southington-Frost Bridge(329) 345kV Haddam-Southington (362) 345kV
(3)	Norwalk - Northport (1385) 138kV	@STE	428MW	L/O	Pleasant Valley-Long Mtn (398) 345kV
(4)	Bennington - Hoosick (K6) 115kV	@STE	159MW	L/O	Alps-Berkshire-Northfield (393/312) 345kv
(5)	Southington- Todd (1910) 115kV	@STE	306MW	L/O	Southington-Frost Bridge (329) 345kv

TABLE 3.a

PJM to NYISO INTERFACE LIMITS-SUMMER 2000  
ALL LINES I/S

<b>PJM to NYISO</b>	<b>NYISO FACILITY</b>	<b>DIRECT TIE</b>	<b>PJM FACILITY</b>
<b>NORMAL</b>		1025MW <sup>(2)</sup>	1650MW <sup>(1)</sup>
<b>3-115-O/S</b>	2250MW <sup>(3)</sup>	2100MW <sup>(4)</sup>	
<b>EMERGENCY</b>	2450MW <sup>(5)</sup>	2175MW <sup>(6)</sup>	

	<b>LIMITING ELEMENT</b>				<b>LIMITING CONTINGENCY</b>
(1)	N. Meshoppen 230/115kV	@NOR	136MW		Pre-Contingency Loading
(2)	Warren-Falconer (171) 115 kV	@NOR	82MW		Pre Contingency Loading
(3)	Oakdale - Watercure (71) 230kV	@LTE	400MW	L/O	Oakdale - Watercure (31) 345kV
(4)	E. Towanda - Hillside (70) 230kV	@LTE	531MW	L/O	Homer City - Watercure (30) 345kV
(5)	Oakdale - Watercure (71) 230kV	@STE	440MW	L/O	Oakdale - Watercure (31) 345kV
(6)	E. Towanda-Hillside (70) 230kV	@STE	554MW	L/O	Homer City - Watercure (30) 345kV

**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. Some transfers may be stability limited. See Appendix I for existing transient stability limits.

TABLE 3.b

NYISO to PJM INTERFACE LIMITS-SUMMER 2000  
ALL LINES I/S

NYISO to PJM	NYISO FACILITY	DIRECT TIE	PJM FACILITY
<b>NORMAL</b>		2050MW <sup>(1)</sup> 2300MW <sup>(3)</sup> 2225MW <sup>(2)</sup>	2475MW <sup>(5)</sup>
<b>3-115-O/S</b>			2350MW <sup>(5)</sup>
<b>EMERGENCY</b>		2050MW <sup>(1)</sup> 2225MW <sup>(2)</sup>	3075MW <sup>(6)</sup>
<b>3-115-O/S</b>		2750MW <sup>(7)</sup>	2875MW <sup>(6)</sup>

LIMITING ELEMENT					LIMITING CONTINGENCY	
(1)	E. Sayre - N. Waverly 115 kV	@LTE/Emer	124MW	L/O	E. Towanda - Hillside 230 kV	
(2)	E. Sayre - N. Waverly 115 kV	@NOR	90MW		Pre Contingency Loading	
(3)	Goudy - Laurel Lake 115 kV	@LTE	128MW	L/O	E. Towanda - Hillside (70) 230 kV E.Sayre - N. Waverly 115 kV	
(4)	Oakdale - Watercure (71) 230 kV	@STE	440MW	L/O	Oakdale - Watercure (31) 345 kV	
(5)	Homer City 345/230 kV	@LTE	733MW	L/O	Homer City 345/230 kV	
(6)	Homer City 345/230 kV	@STE	912MW	L/O	Homer City 345/230 kV	
(7)	E. Towanda - Hillside (70) 230 kV	@NOR	483MW	L/O	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. Some transfers may be stability limited. See Appendix I for existing transient stability limits.

TABLE 4  
NYISO- IMO INTERFACE LIMITS - SUMMER 2000  
ALL LINES I/S

	<b>L33/34P @ 0 MW</b>			<b>L33/34P @ 400 MW</b>		
	NYISO FACILITY	IMO FACILITY	DIRECT TIE	NYISO FACILITY	IMO FACILITY	DIRECT TIE
<b>Ontario to New York</b>						
NORMAL	1050 <sup>(1)</sup>	2050 <sup>(3)</sup>	1950 <sup>(6)</sup>	1475 <sup>(1)</sup>	2450 <sup>(3)</sup>	2325 <sup>(6)</sup>
EMERGENCY	1450 <sup>(2)</sup>	2425 <sup>(4)</sup>	1950 <sup>(7)</sup>	1875 <sup>(2)</sup>	2850 <sup>(5)</sup>	2325 <sup>(7)</sup>
	<b>L33/L34P @ 0 MW</b>			<b>L33/34P @ 200 MW</b>		
<b>New York to Ontario</b>						
NORMAL		1525 <sup>(3)</sup>	1350 <sup>(10)</sup>		1700 <sup>(3)</sup>	1550 <sup>(10)</sup>
EMERGENCY		2100 <sup>(12)</sup>	1575 <sup>(11)</sup>		2300 <sup>(9)</sup>	1750 <sup>(11)</sup>

	LIMITING ELEMENT				LIMITING CONTINGENCY	
(1)	Niagara - Rochester 345kV (NR-2)	@LTE	1501MW	L/O	Kintigh - Rochester 345kV(SR-1)	
(2)	Niagara - Rochester 345kV (NR-2)	@STE	1685MW	L/O	Kintigh - Rochester 345kV (SR-1)	
(3)	Middleport - Allanburg 220kV (Q30)	@LTE	520MW	L/O	Beck- Hannon-Middleport 220kV(Q24) Beck-Neale-Middleport 220kV (Q29)	
(4)	Middleport - Allanburg 220kV (Q30)	@STE	520MW	L/O	Beck-Hannon-Middleport 220kV(Q29)	
(5)	Allanburg-Middleport 220kV (Q30)	@STE	459MW	L/O	Marcy-Massena 765kV (MSU1)	
(6)	Beck - Niagara 230kV (PA27)	@LTE	460MW	L/O	Beck - Niagara 345kV (PA302)	
(7)	Beck - Niagara 230kV (PA27)	@STE	460MW	L/O	Beck - Niagara 345kV (PA302)	
(8)	Beck-Hannon 220kV (J24)	@LTE	623MW	L/O	Beck-Neale-Middleport 220kV (Q25) Beck-Hannon-Middleport-220kV (Q29)	
(9)	Beck - Hannon 220kV (J24))	@STE	623MW	L/O	Pre Contingency Loading	
(10)	Beck - Niagara 230kV (PA27)	@LTE	460MW	L/O	Beck - Niagara 345kV (PA302) Niagara 345/230kV	
(11)	Beck - Niagara 230kV (PA27)	@NOR	400MW		Pre Contingency Loading	
(12)	Beck - Hannon 220kV (Q29)	@NOR	578MW		Pre Contingency Loading	

**NOTE:** Some transfers may be stability limited. See Appendix I for existing transient stability limits.

APPENDIX A

SCHEDULE OF SIGNIFICANT INTERCHANGES  
ASSUMED FOR TRANSFER LIMITS STUDIES

SUMMER 2000



**SCHEDULE OF NET INTERCHANGES**

**NYISO Operating Study – Summer 2000  
Appendix A**

<b>TO FROM</b>	<b>NYISO</b>	<b>PJM</b>	<b>IMO</b>	<b>ISONE</b>	<b>NB/NS</b>	<b>MECS</b>	<b>ECAR</b>	<b>HQ</b>	<b>TOTAL EXPORT+ IMPORT-</b>
<b>NYISO</b>		-442	0	126	0	0	82	-1350	-1584
<b>PJM</b>	442		0	0	0	0	-618	0	-176
<b>IMO</b>	0	0		0	0	600	0	-800	-200
<b>ISO-NE</b>	-126	0	0		-700	0	0	-1700	-2526
<b>NB/NS</b>	0	0	0	700		0	0	-600	100
<b>MECS</b>	0	0	-600	0	0		N/A	0	-600
<b>ECAR</b>	-82	618	0	0	0	N/A		0	556
<b>HQ</b>	1350	0	800	1700	600	0	0		4450

**APPENDIX A**  
**SUMMARY OF SUMMER 2000 BASE TRANSFERS**

<b>NEW BRUNSWICK</b>	
New Brunswick to Hydro-Quebec: Madawaska and Eel River HVdc	-600
New Brunswick to New England.	700
<b>Total Export (+) / Import (-)</b>	<b>100</b>
<b>NEW ENGLAND</b>	
New England to New Brunswick.	-700
New England to Hydro-Quebec: Sandy Pond and Highgate HVdc	-1700
New England to New York.	-126
<b>Total Export (+) / Import (-)</b>	<b>-2526</b>
<b>NEW YORK ISO</b>	
New York to Hydro Quebec (Chateaugauy)	-1350
New York to New England( NYPA to VELCO)	126
New York to Hydro Quebec (Cornwall)	0
New York to PJM: NYPA to PA-RECS	94
New York to PJM. (Sithe Allegheny)	-36
New York to ECAR: NYPA to AMP- Ohio	82
New York to IMO (Ontario)	0
New York to PJM. (Non-Firm Energy)	-500
<b>Total Export (+) / Import (-)</b>	<b>-1584</b>

<b>IMO (Ontario)</b>	
IMO (Ontario) to Hydro-Quebec.	-800
IMO (Ontario) to New York	0
IMO (Ontario) to MECS (DECO)	600
IMO (Ontario) to MAPP	-200
<b>Total Export (+) / Import (-)</b>	<b>-400</b>

**APPENDIX A**  
**SUMMARY OF SUMMER 2000 BASE TRANSFERS**



<i>APPENDIX A</i> <i>SUMMARY OF SUMMER 2000 BASE TRANSFERS</i>	
<b>PJM</b>	
PJM to New York: NYPA to PA-RECS	-94
PJM to New York. ( Sithe Allegheny to NYSEG)	36
PJM to ECAR. ( FE to PEPCO)	- 450
PJM to VACAR.	300
PJM to ECAR. ( DLCO to PECO)	- 400
PJM to New York: (Non Firm Energy)	500
PJM to FE. (Seneca Pumped Hydro)	-332
<b>Total Export (+) / Import (-)</b>	<b>- 440</b>

<b>HYDRO-QUEBEC</b>	
Hydro-Quebec to Brunswick. Madawaska and Eel River HVdc	600
Hydro-Quebec to New England: Sandy Pond and Highgate HVdc	1700
Hydro-Quebec to New York: (Chateauguay)	1350
Hydro-Quebec to Cornwall	66
Hydro Quebec to IMO (Ontario)	800
<b>Total Export (+) / Import (-)</b>	<b>4516</b>

**APPENDIX B**

**SUMMER 2000 BASE CASE CONDITIONS**

A. SUMMER 2000 Conditions

**GENERATION FACILITIES (LEVEL OF MWS IN CASE)**

The status and dispatch of generation represented in this analysis is listed below.

***NYISO***

Indian Pt #2	931 MW	In Service
Indian Pt #3	980 MW	In Service
AES/Somerset	637 MW	In Service
Nine Mile Pt #1	628 MW	In Service
Nine Mile Pt #2	1205 MW	In Service
Oswego #5	691 MW	In Service
Oswego #6	0 MW	O/S
Albanv	291 MW	In Service
Ravenswood #3	895 MW	In Service
Roseton 1	493 MW	In Service
Roseton 2	585 MW	In Service
Bowline Pt 1	554 MW	In Service
Bowline Pt 2	0MW	O/S
Niagara (1-13)	2555 MW	In Service
St. Lawrence/FDR (17-32)	912 MW	In Service
Poletti	774 MW	In Service
Gilboa	500 MW	In Service
CoGen Tech	644 MW	In Service
J.A. Fitzpatrick	885 MW	In Service
JMC Selkirk II (A.B.C)	339 MW	In Service
Saranac Energy	240 MW	In Service
Sithe	1099 MW	In Service
Ginna	485 MW	In Service

***ISO-NE***

Millstone Point #2	857 MW	In Service
Millstone Point #3	1137 MW	In Service
Vermont Yankee	496 MW	In Service
Northfield 1-4	750 MW	In Service
Bear Swamp 1+2	440 MW	In Service
Norwalk Harbor 1+2	159/168 MW	In Service
Seabrook	1150 MW	In Service

***IMO (Ontario)***

Darlington	3520 MW	In Service
Beck	1427 MW	In Service
Bruce >B=	3100 MW	In Service
Lambton	1900 MW	In Service
Pickering >B=	1545 MW	In Service
Nanticoke	3360 MW	In Service
St. Lawrence/Saunders (1-16)	848 MW	In Service

***PJM***

Peach Bottom #2	1087 MW	In Service
Peach Bottom #3	1093 MW	In Service
Salem #1	0 MW	O/S
Salem #2	1106 MW	In Service
Limerick #1	1134 MW	In Service
Limerick #2	1115 MW	In Service
Hope Creek	1031 MW	In Service
Susquehanna #1	1106 MW	In Service
Susquehanna #2	1110 MW	In Service

### HQ HVdc CONVERTER SCHEDULES

Chateauguav HVdc	878 MW	In Service
Sandy Pond HVdc	1500 MW	In Service
Highgate HVdc	200 MW	In Service
Madawaska HVdc	300 MW	In Service
Eel River HVdc	300 MW	In Service

### AREA LOADS & LOSSES

NYISO	30194 MW
ISO-NE	23406 MW
IMO (Ontario)	22700 MW
PJM	50516 MW

### PHASE ANGLE REGULATOR SCHEDULES

Inghams (CD-ED)	120 MW
Plattsburgh-Sandbar (PV-20)	160 MW
St. Lawrence-Moses L33P	0 MW
St. Lawrence-Moses L34P	0 MW
Norwalk Harbor-Northport	200 MW
Jamaica-Valley Stream	0 MW
Jamaica-Lake Success	-200MW
Hudson-Farragut (B3402)	274 MW
Hudson-Farragut (C3403)	274 MW
Linden-Goethals	0 MW
Waldwick-Hinchmans	300 MW
Waldwick-Fairlawn	300 MW
Waldwick-Hillsdale	330 MW
Ramapo PAR #1 (+ to NY)	200 MW
Ramapo PAR #2 (+ to NY)	200 MW
East Garden City #1	322 MW
East Garden City #2	322 MW

**APPENDIX C**

**POWER FLOW TRANSCRIPTION DIAGRAMS**



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**Western NYISO** ..... **C-4**

**Eastern NYISO** ..... **C-5**

**Southern NYISO** ..... **C-6**

**Central Hudson** ..... **C-7**

**Consolidated Edison** ..... **C-8**

**LIPA** ..... **C-9..10**

**NYSEG** ..... **C-11..12**

**NMPC** ..... **C-13..17**

**Orange & Rockland** ..... **C-18**

**Rochester** ..... **C-19**

**Beauharnois** ..... **C-20**

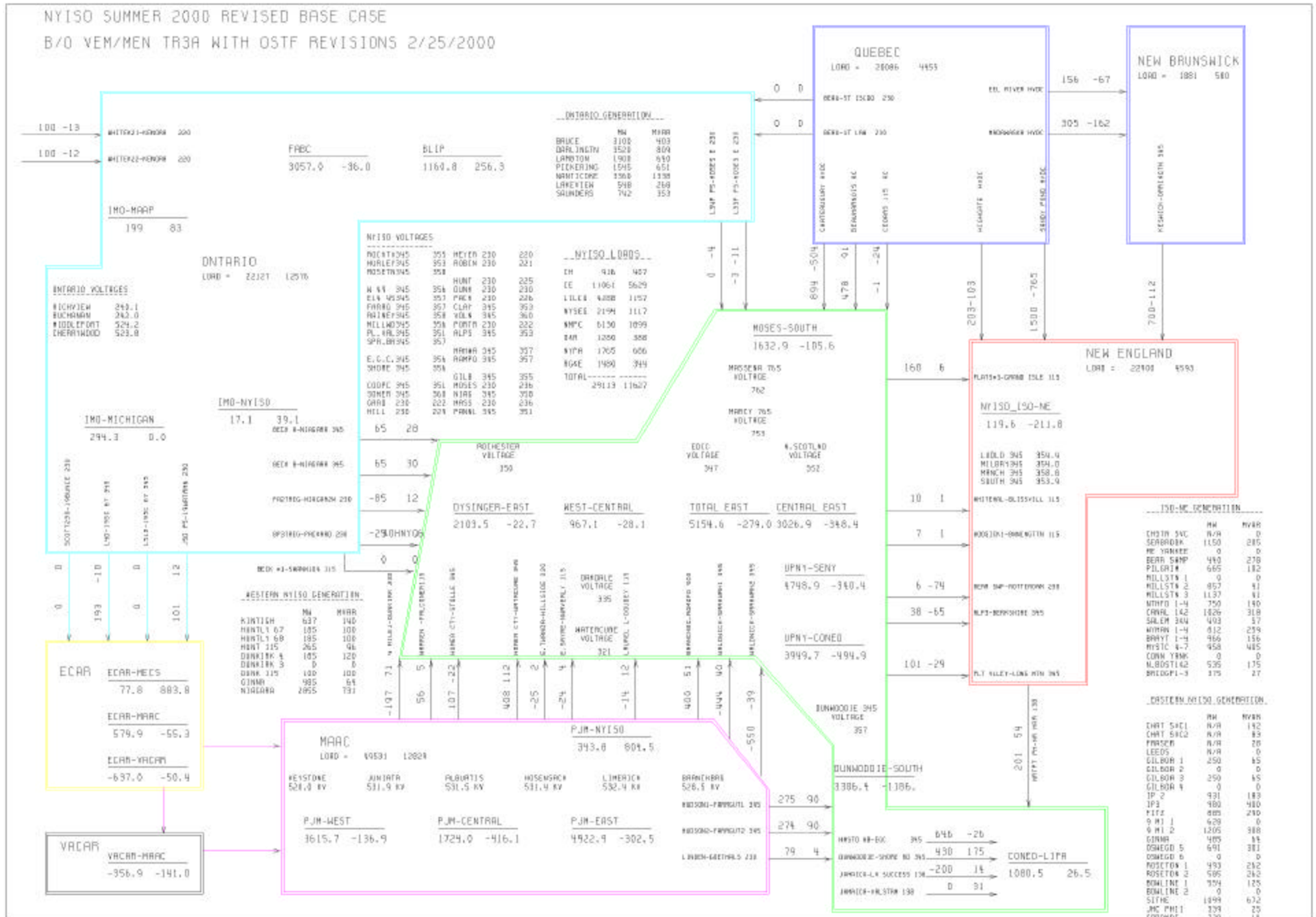
**PJM** ..... **C-21**

**PSE&G** ..... **C-22**

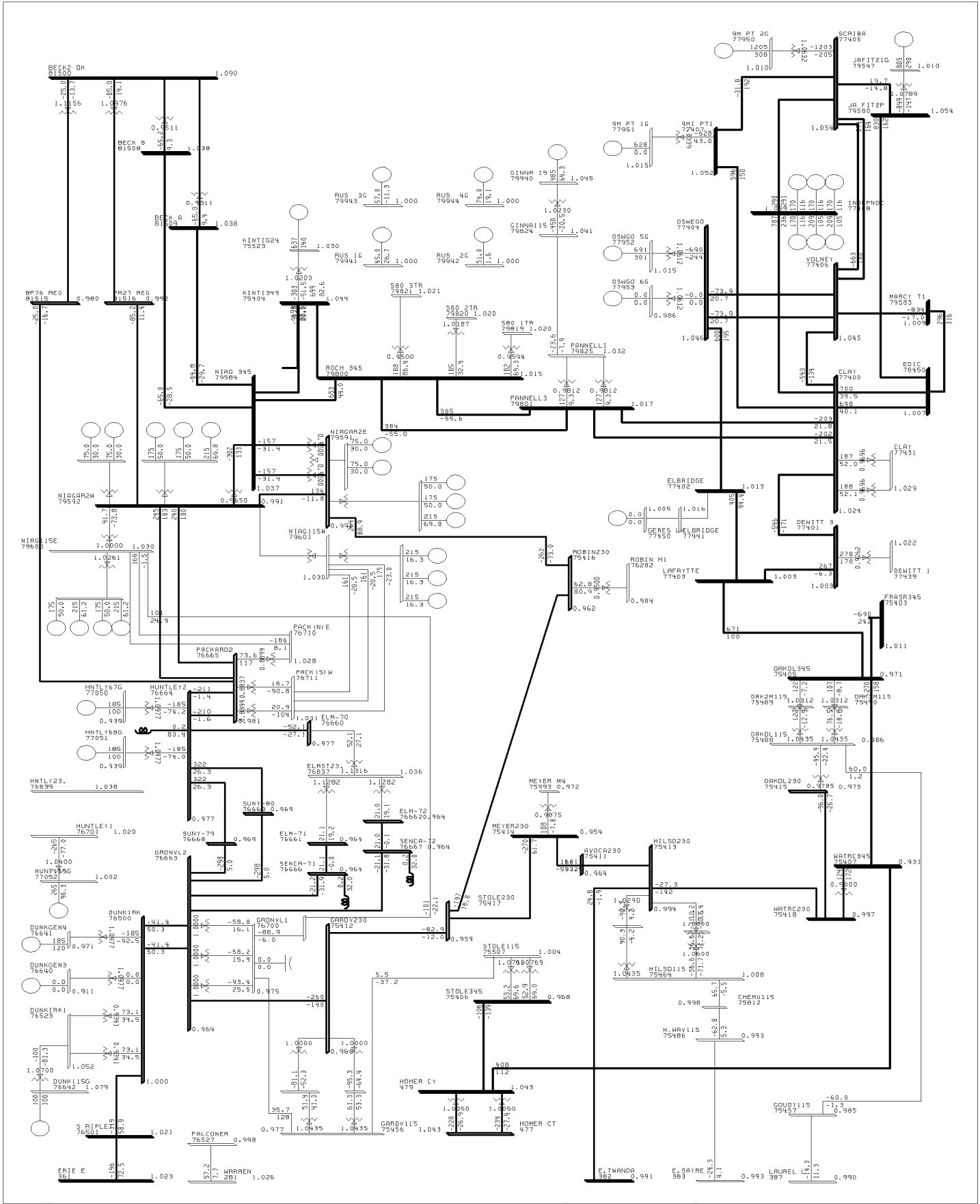
**UPNY-ConEdison** ..... **C-23**







NYISO OPERATING STUDY  
SUMMER 2000

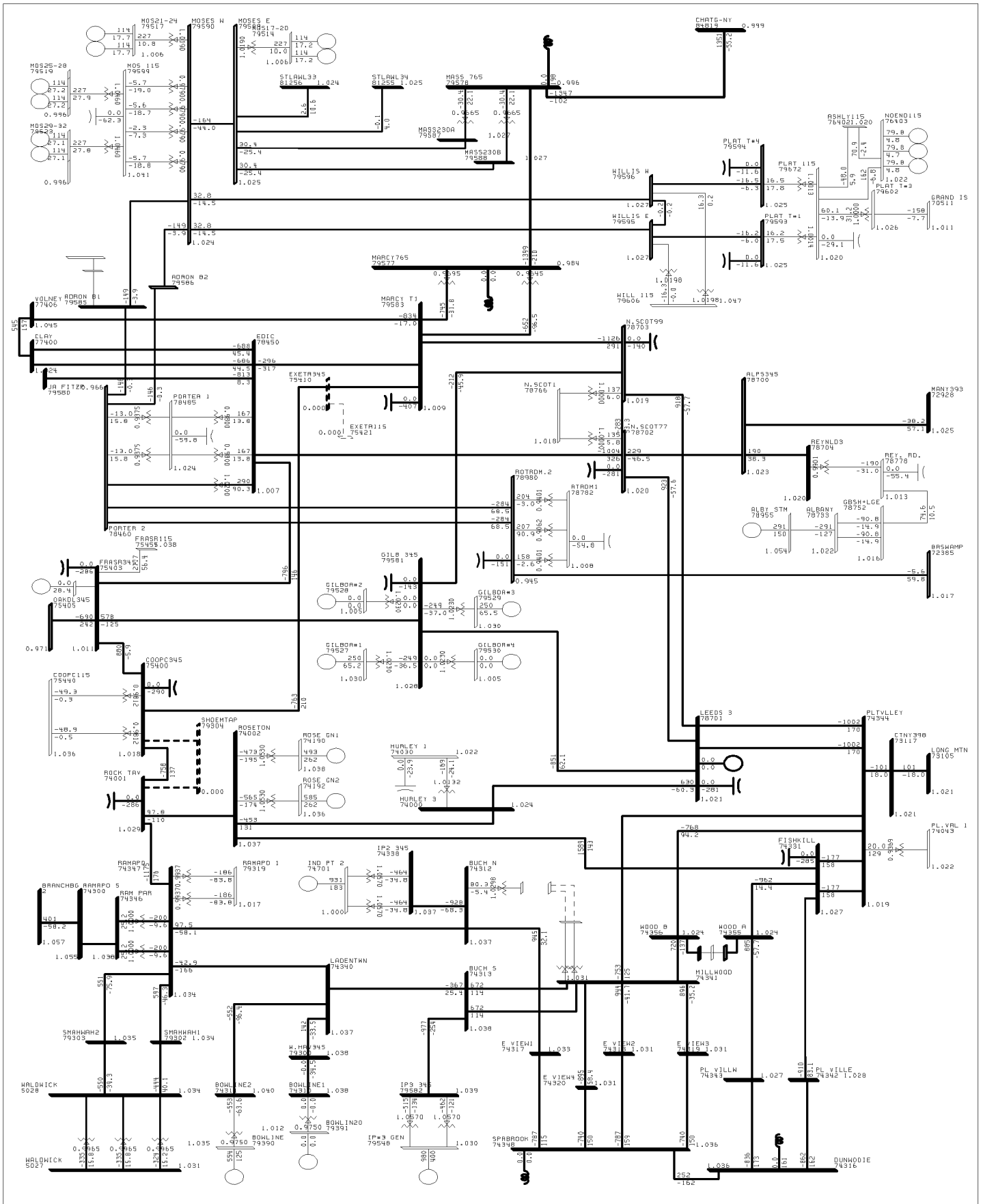


NYISO SUMMER 2000 REVISED BASE CASE  
 B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
 1) WESTERN NYPP WED, MAR 22 2000 16:00

POWER TECHNOLOGIES

BUS - VOLTAGE (PU)  
 BRANCH - MW/MVAR  
 EQUIPMENT - MW/MVAR

KV: ≤138 .#230 .#345

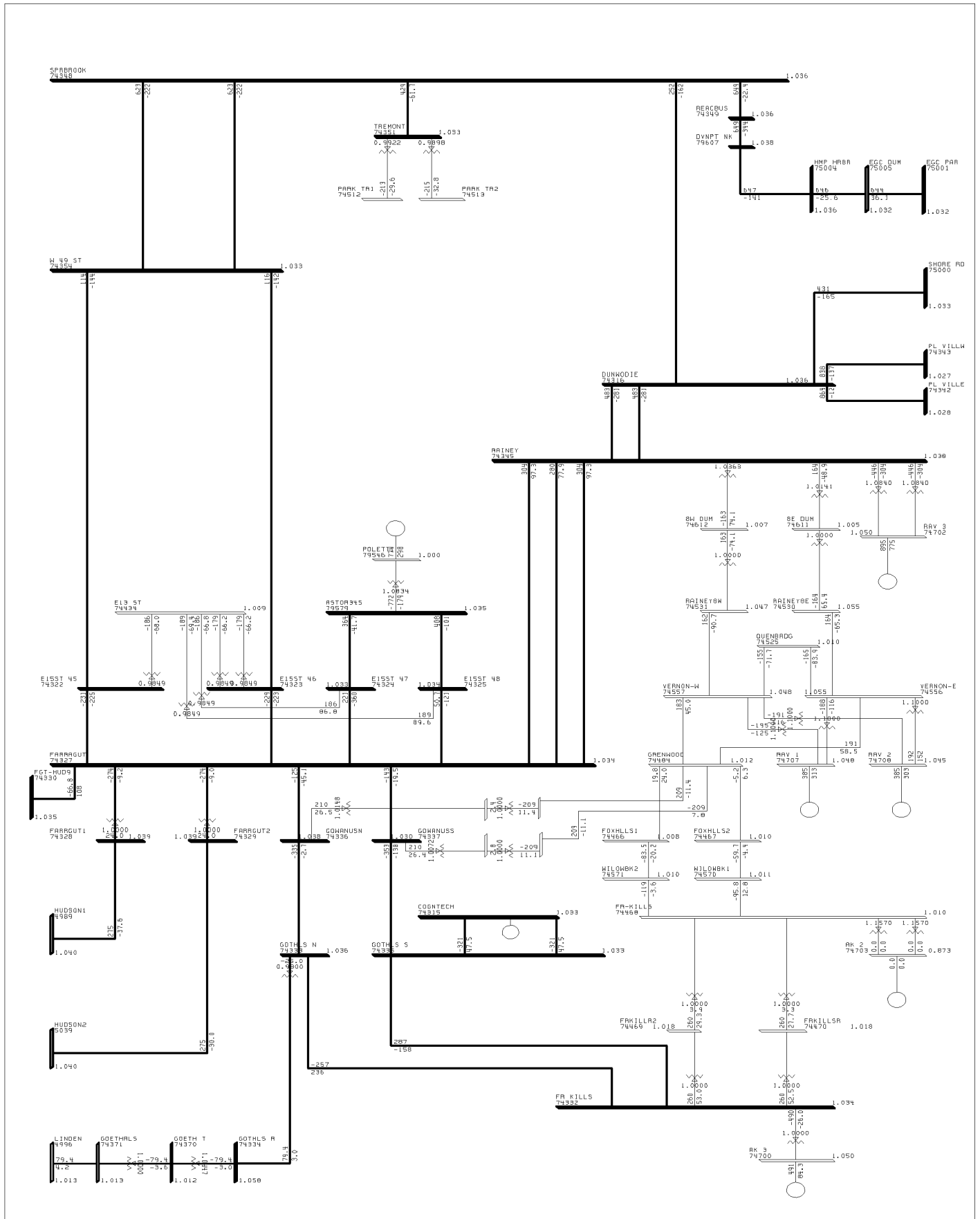


NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
2) EASTERN NYPP WED, MAR 22 2000 16:00

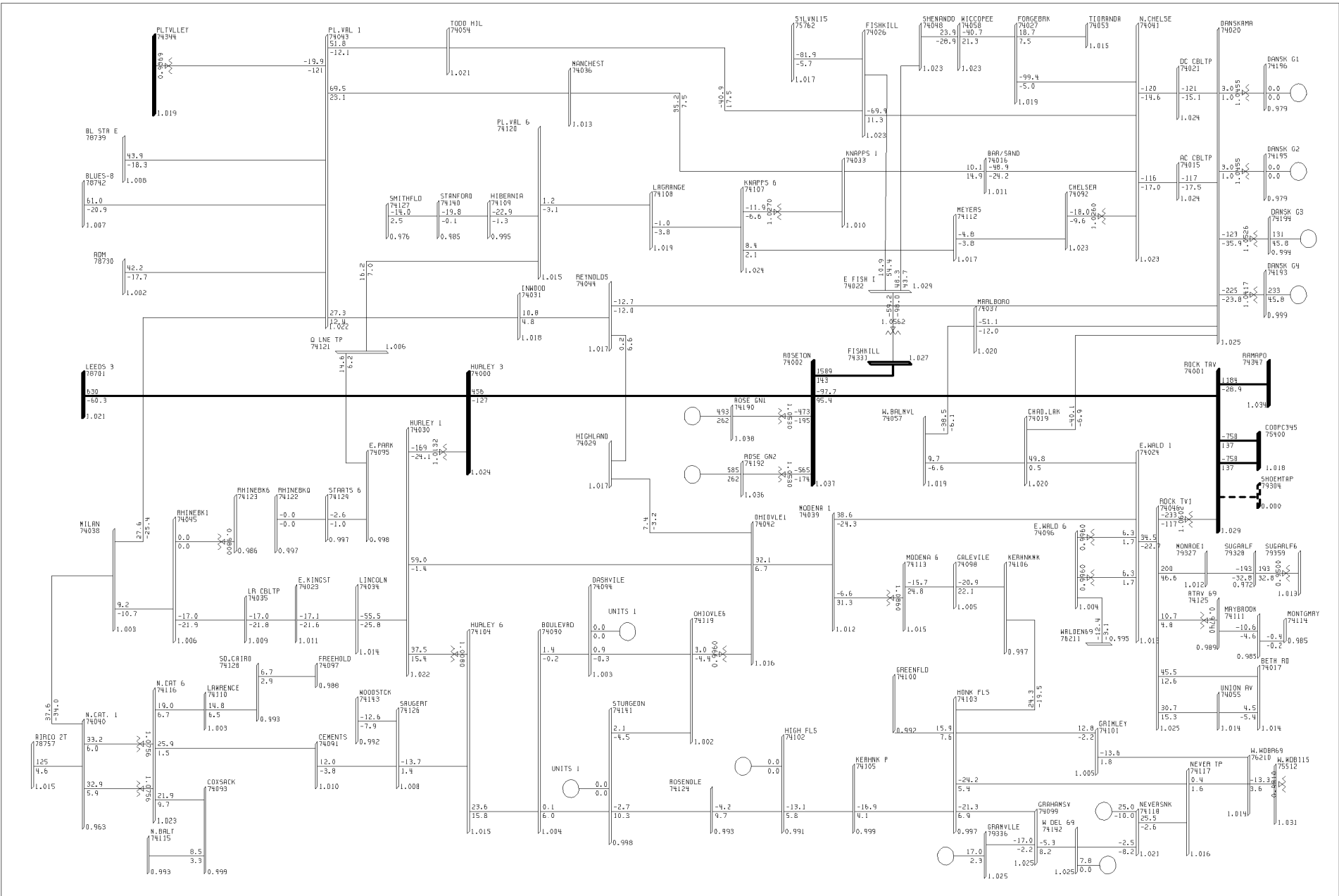
Source: TECHNOLOGIES, INC.

KV ≤ 138 . #230 . #345

BUS - VOLTAGE (PU)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR



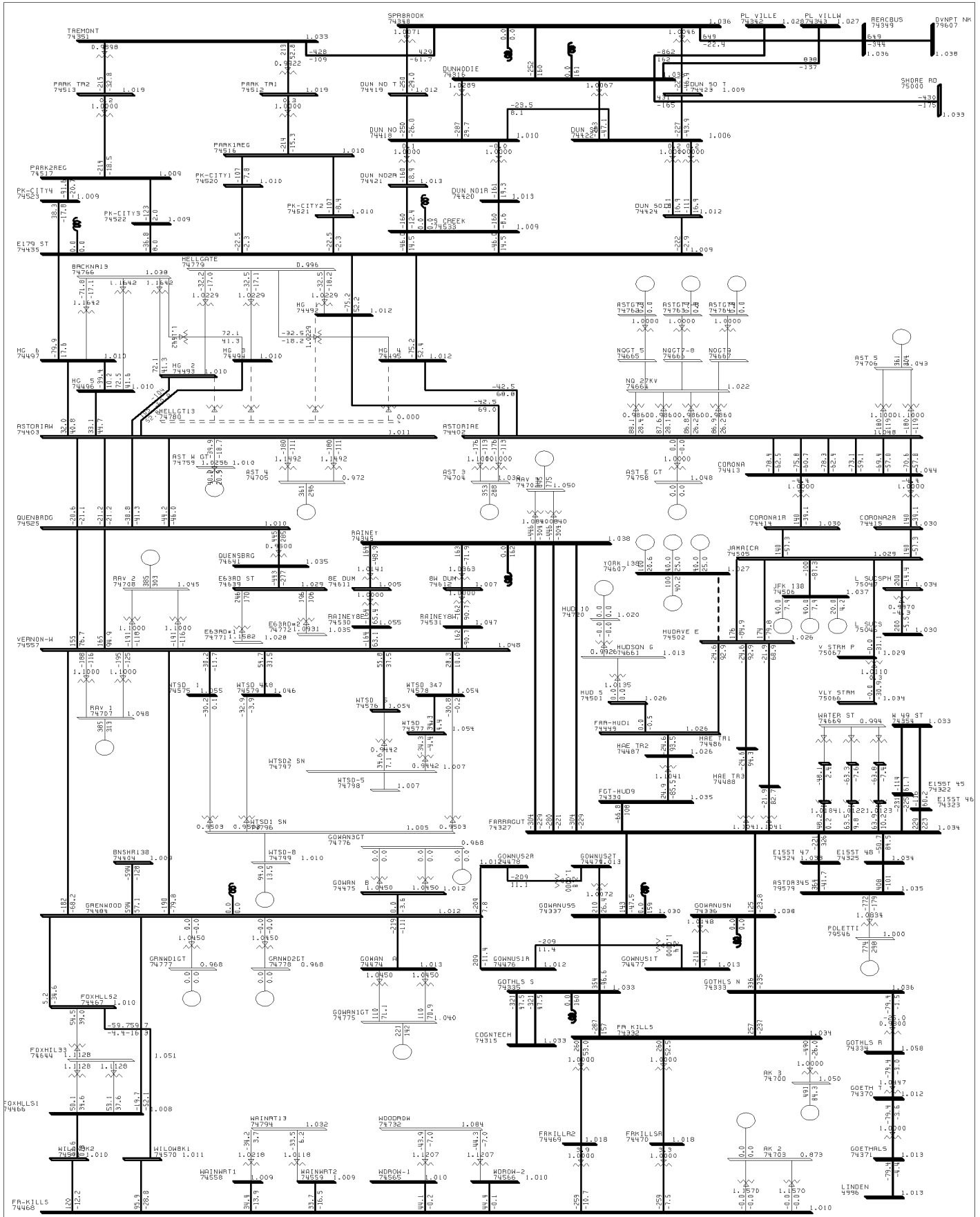
	<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 3) SOUTHERN NYPP WED, MAR 22 2000 16:00</p>	<p>KV: ≤138 .4230 .4345</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
4) CENTRAL HUDSON WED, MAR 22 2000 16:00

BUS - VOLTAGE (PU)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR

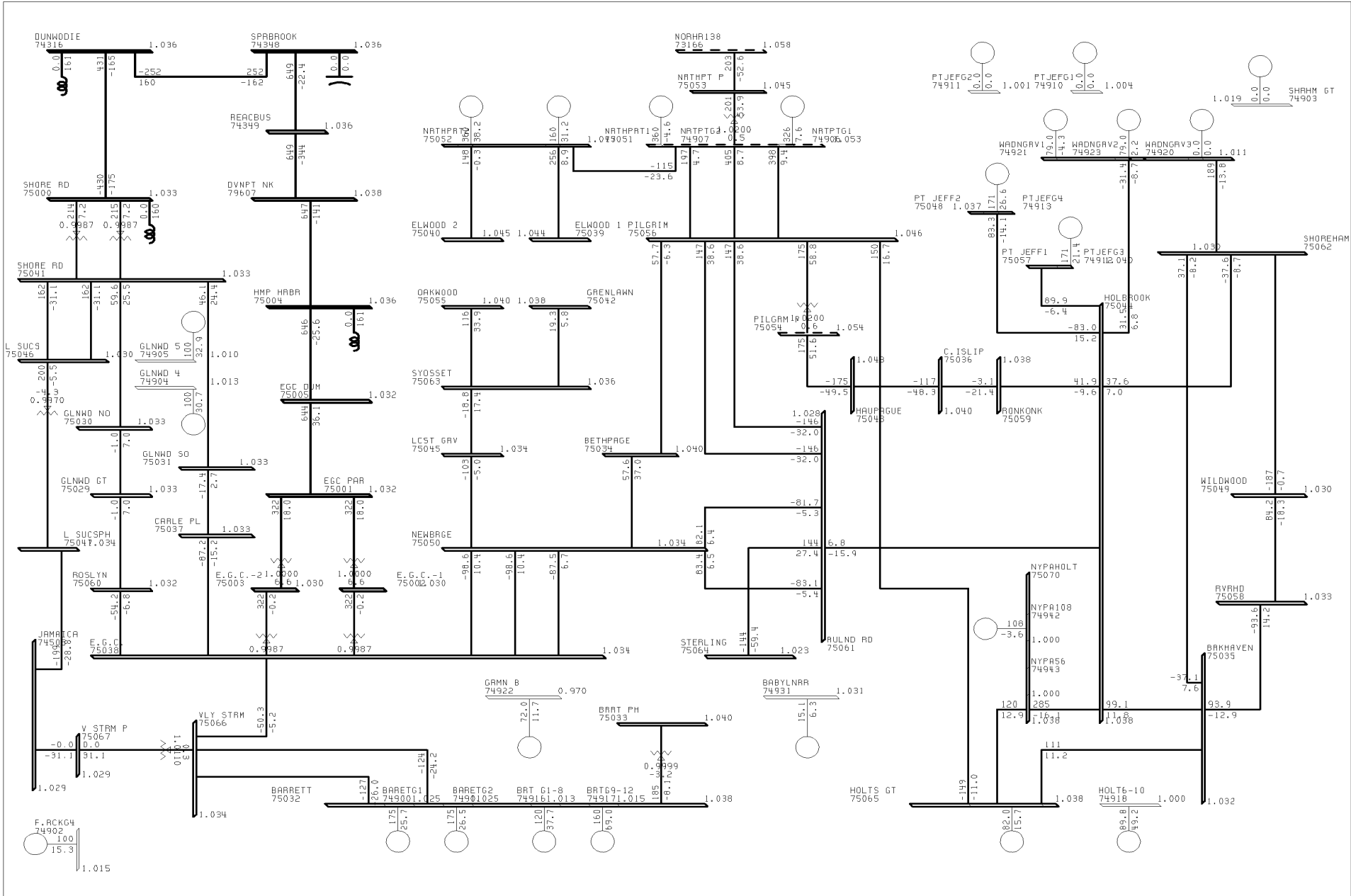
NYISO OPERATING STUDY  
SUMMER 2000



NYISO SUMMER 2000 REVISED BASE CASE  
 B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
 5) CON EDISON WED, MAR 22 2000 16:00

KV:  $\leq 34$  .4138 .4945

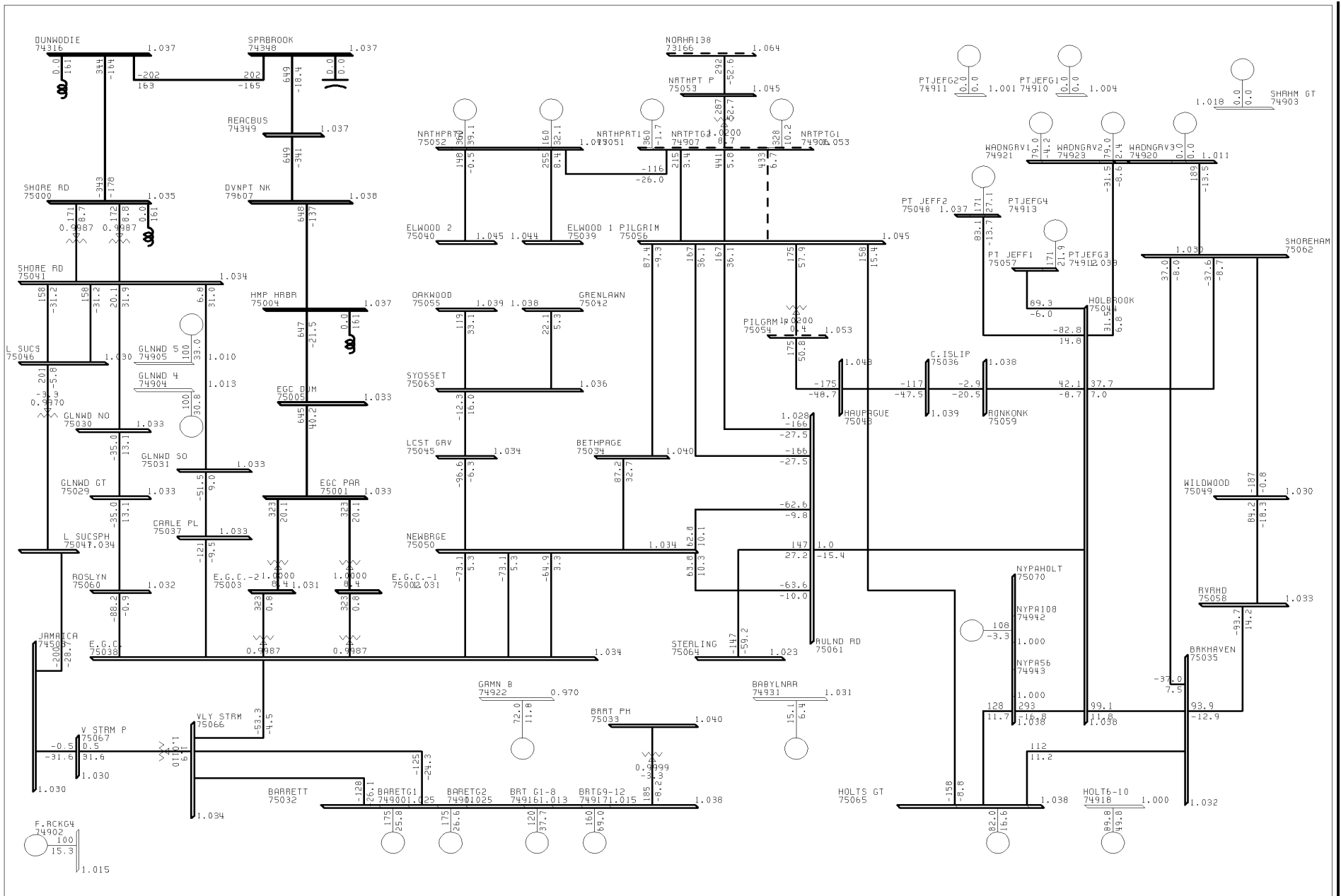
BUS - VOLTAGE (PU)  
 BRANCH - MW/MVAR  
 EQUIPMENT - MW/MVAR



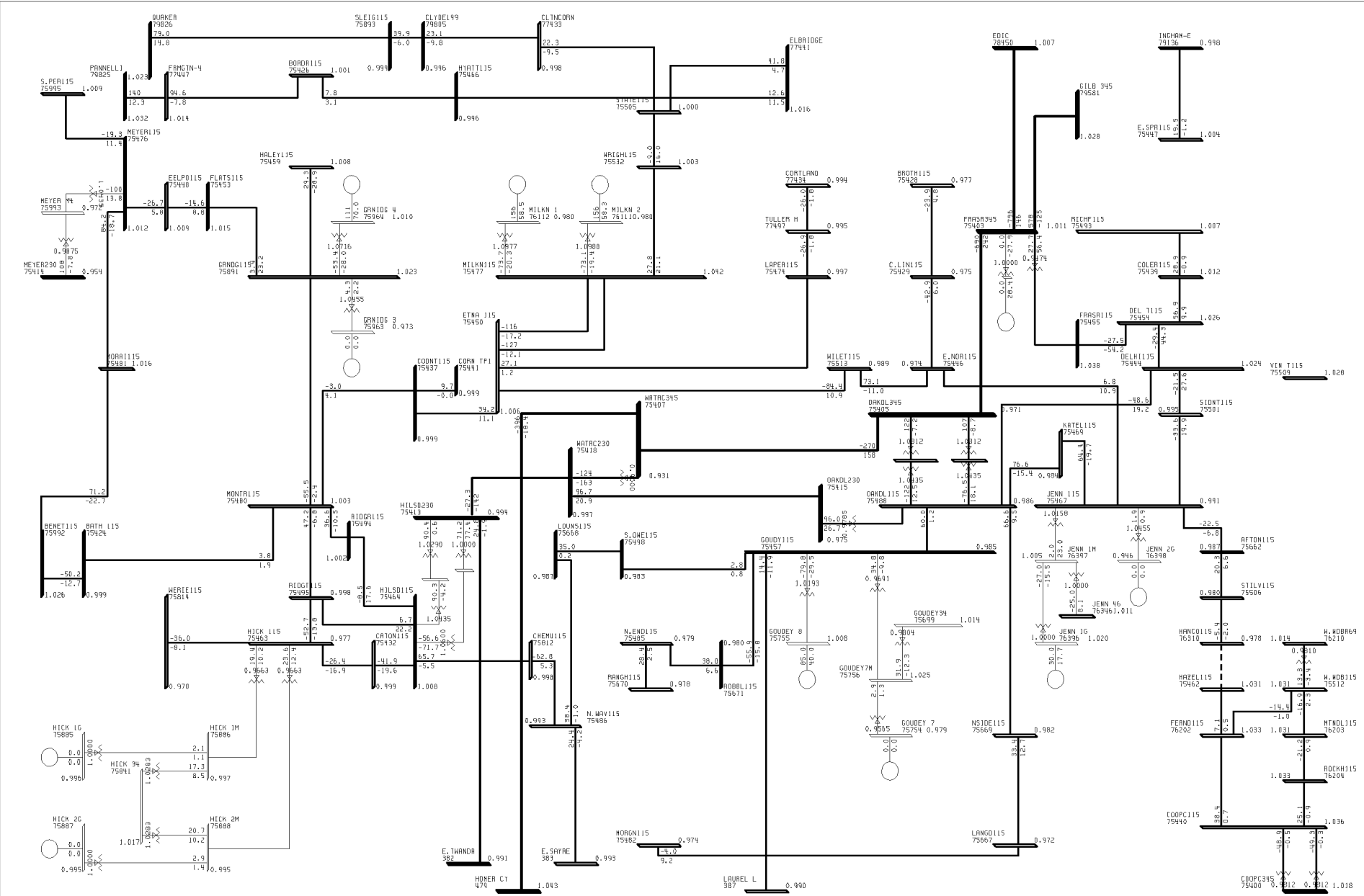
	<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 6) LIPA WED, MAR 22 2000 16:00</p>	<p>100% RATEC 0.950 UV 1.050 QV KV: ≤69 .≤138 .≤345</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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NYISO OPERATING STUDY  
SUMMER 2000



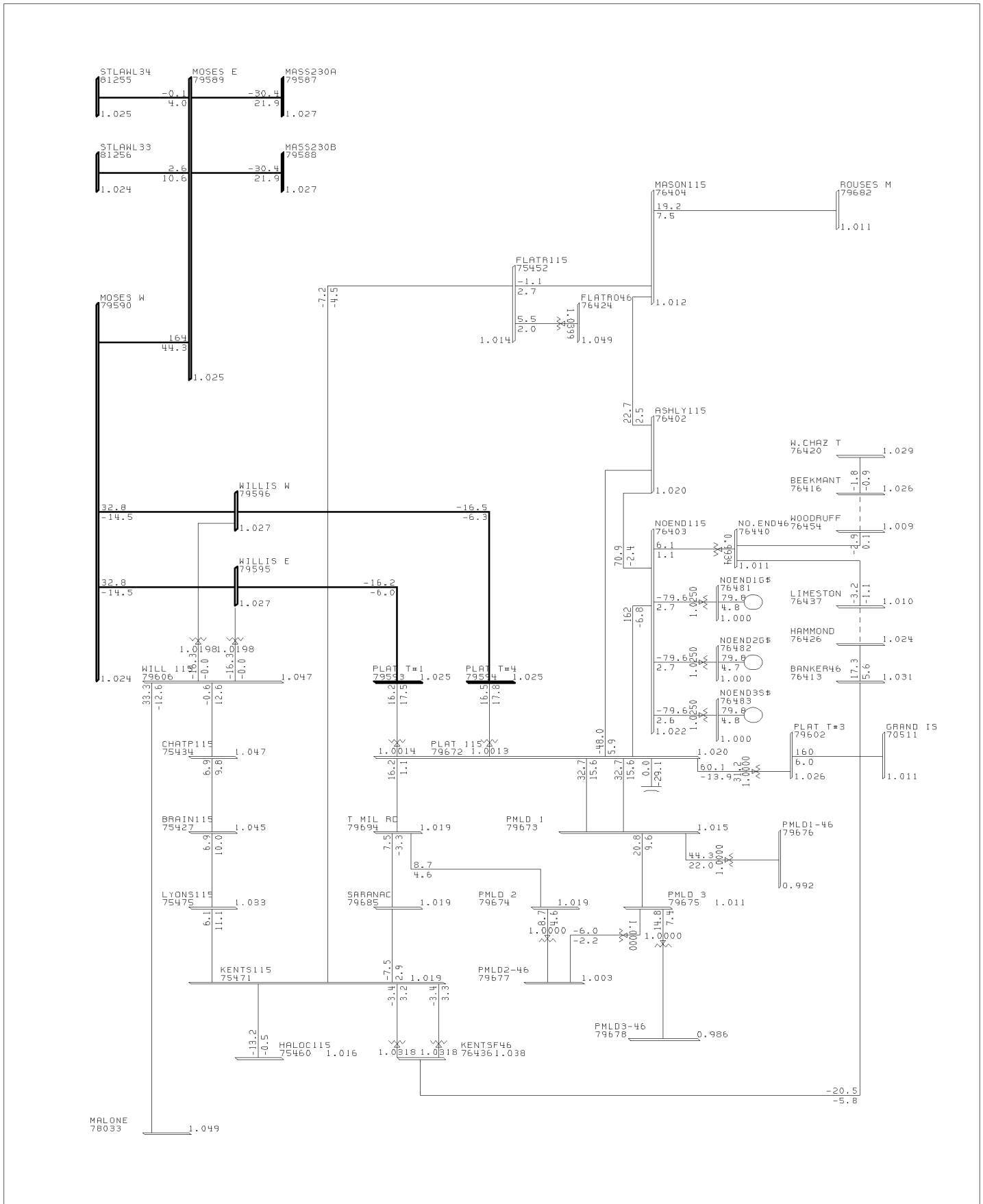
	NYISO SUMMER 2000 REVISED CASE (LIPAEMERG) B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 7) LIPA EMERGENCY IMPORT CASE WED, MAR 22 2000 16:01	100% RATEC 0.950 UV 1.050 OV KV: ≤69, ≤138, ≤345	BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR
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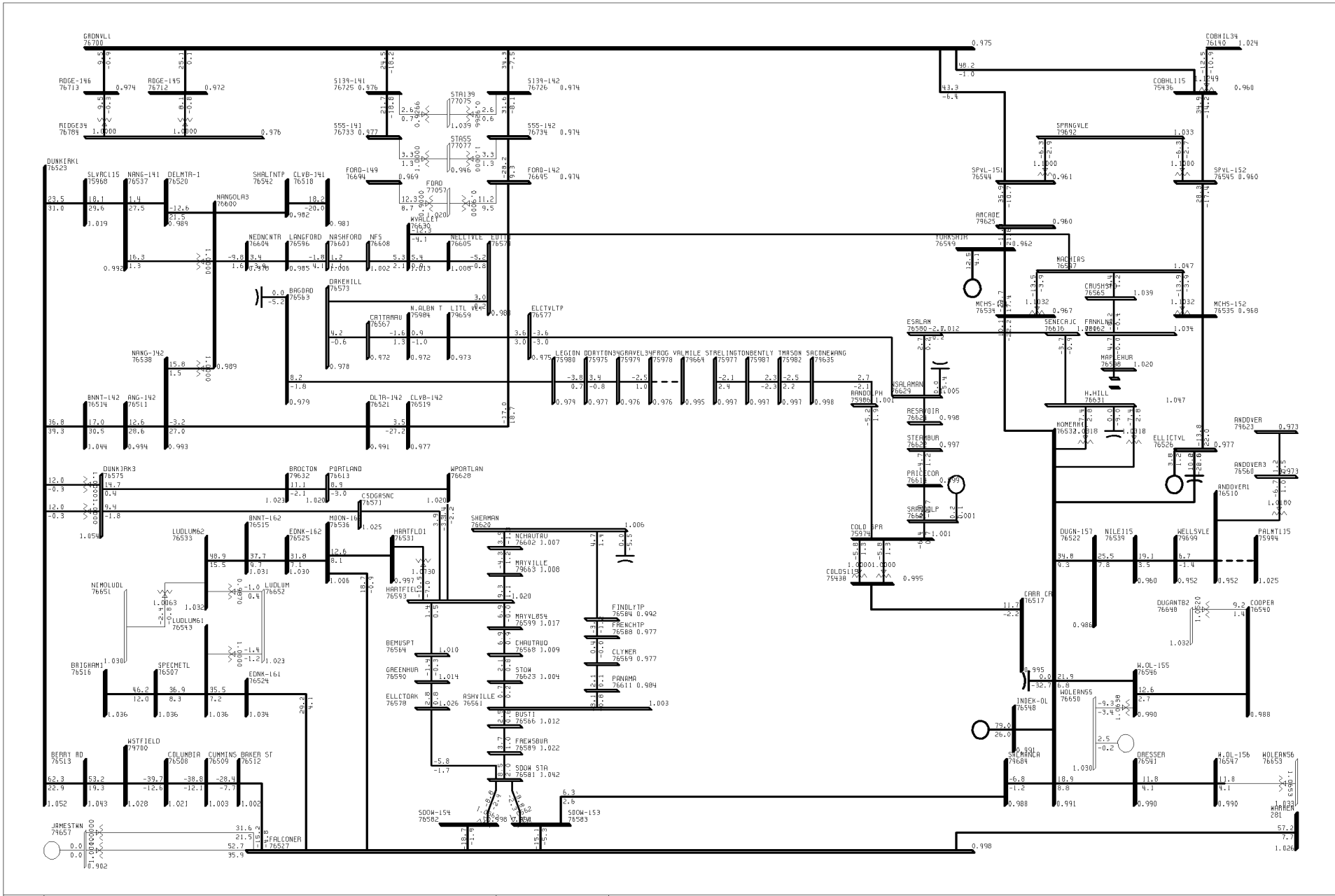
NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
8) NYSEG WED, MAR 22 2000 16:01

KV: <math>\leq 35 .5115 .4230</math>

BUS - VOLTAGE (PU)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR



	<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 9) NYSEG PLATTSBG WED, MAR 22 2000 16:01</p>	<p>KV: ≤138 .#230 .#345</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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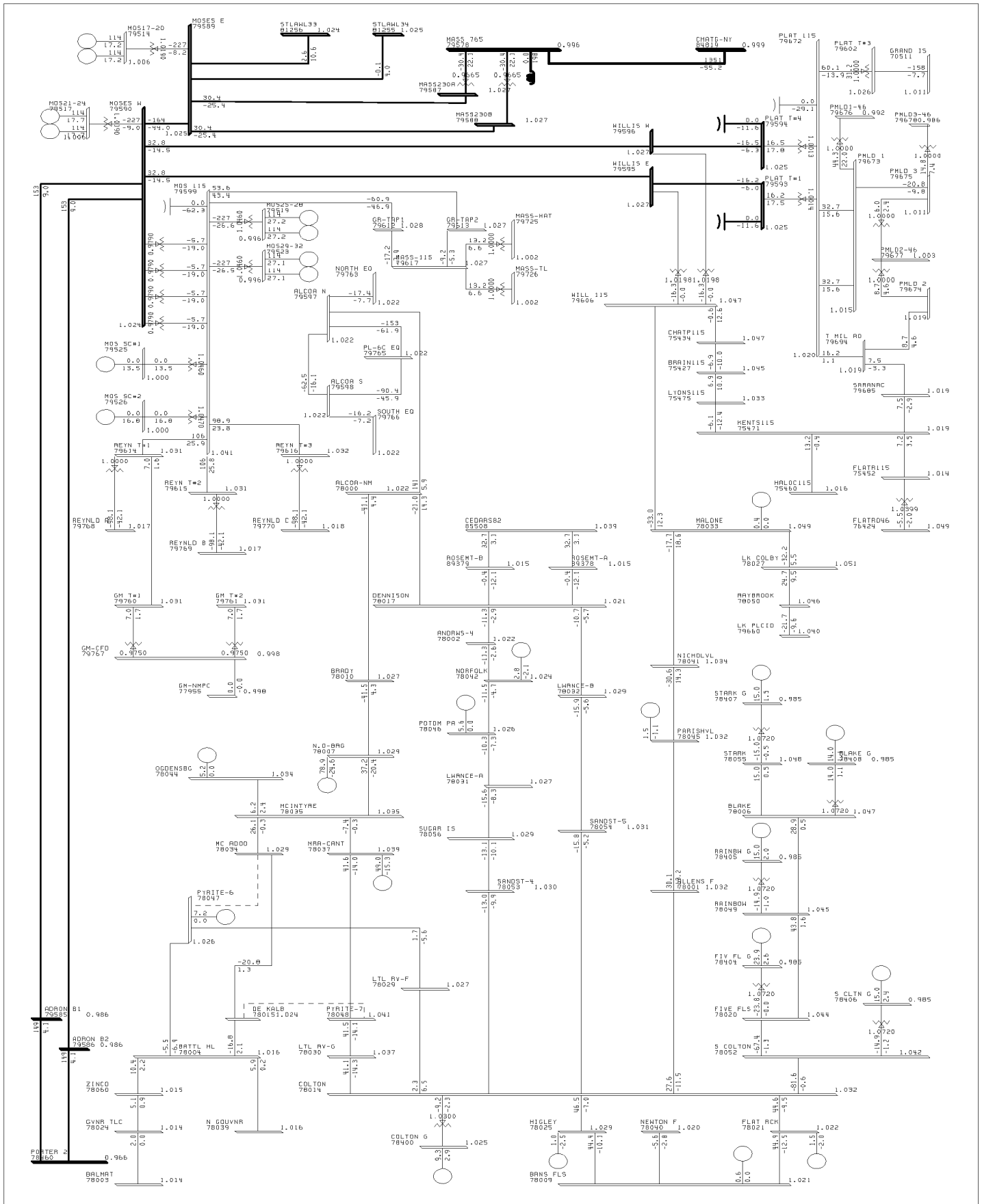


NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
10) NMPC SOUTHWEST WED, MAR 22 2000 16:01

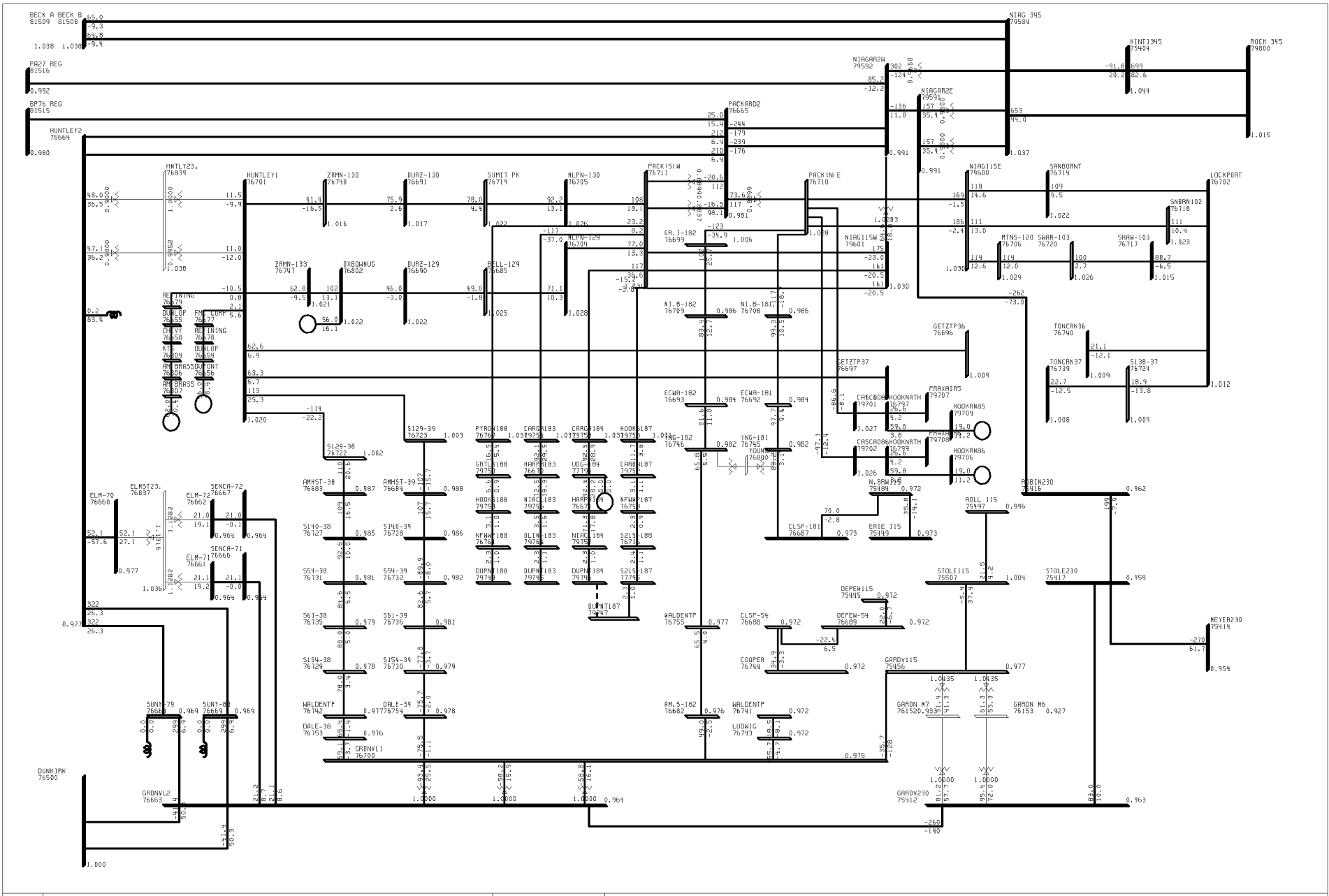
KV: 523 . 535 . 4115

BUS - VOLTAGE (KV)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR

NYISO OPERATING STUDY  
SUMMER 2000

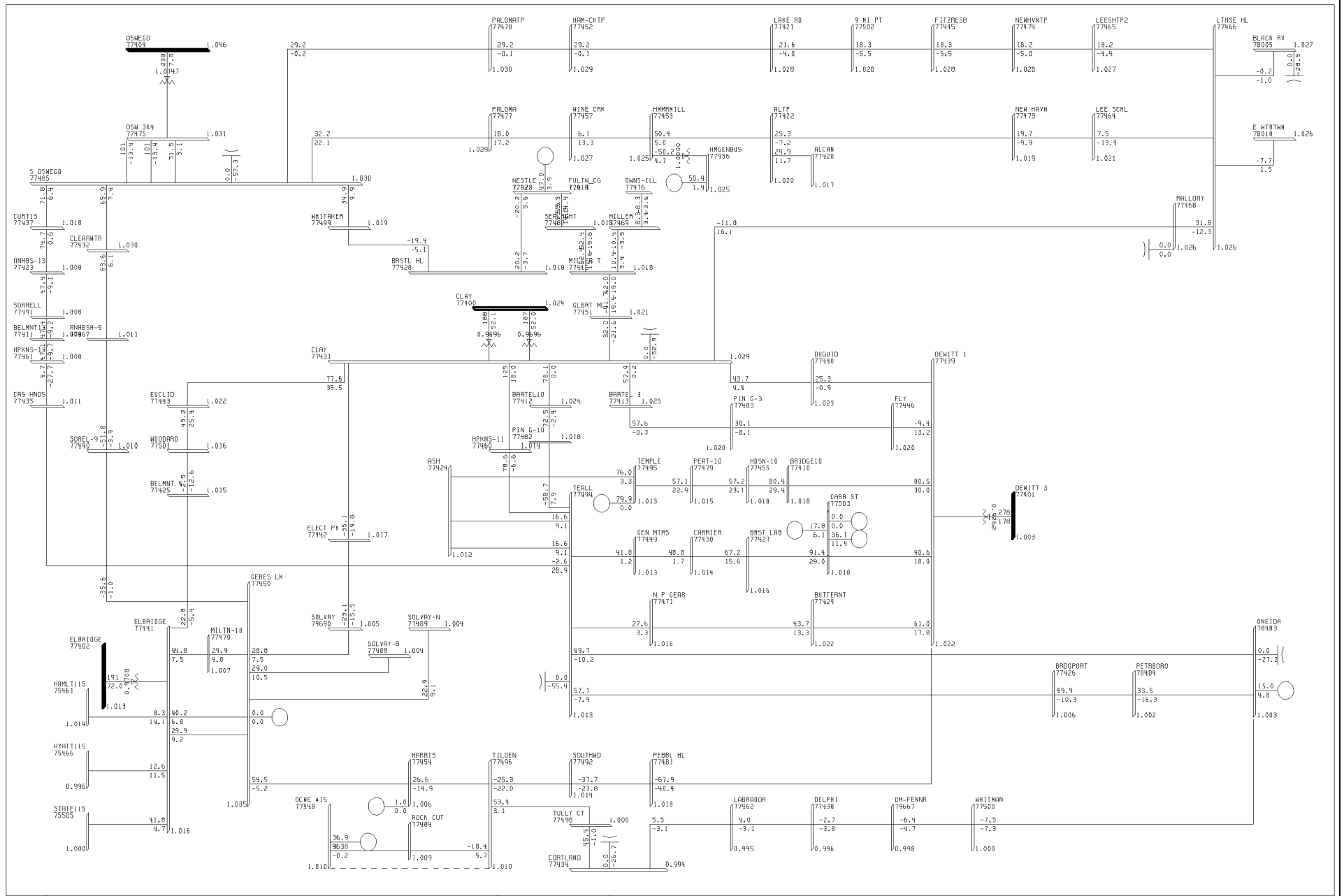


NYISO SUMMER 2000 REVISED BASE CASE  
 B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
 11) NMPC NORTH WED, MAR 22 2000 16:01  
 KW: <math>\leq 138.4230.4345</math>  
 BUS - VOLTAGE (PU)  
 BRANCH - MW/MVAR  
 EQUIPMENT - MW/MVAR

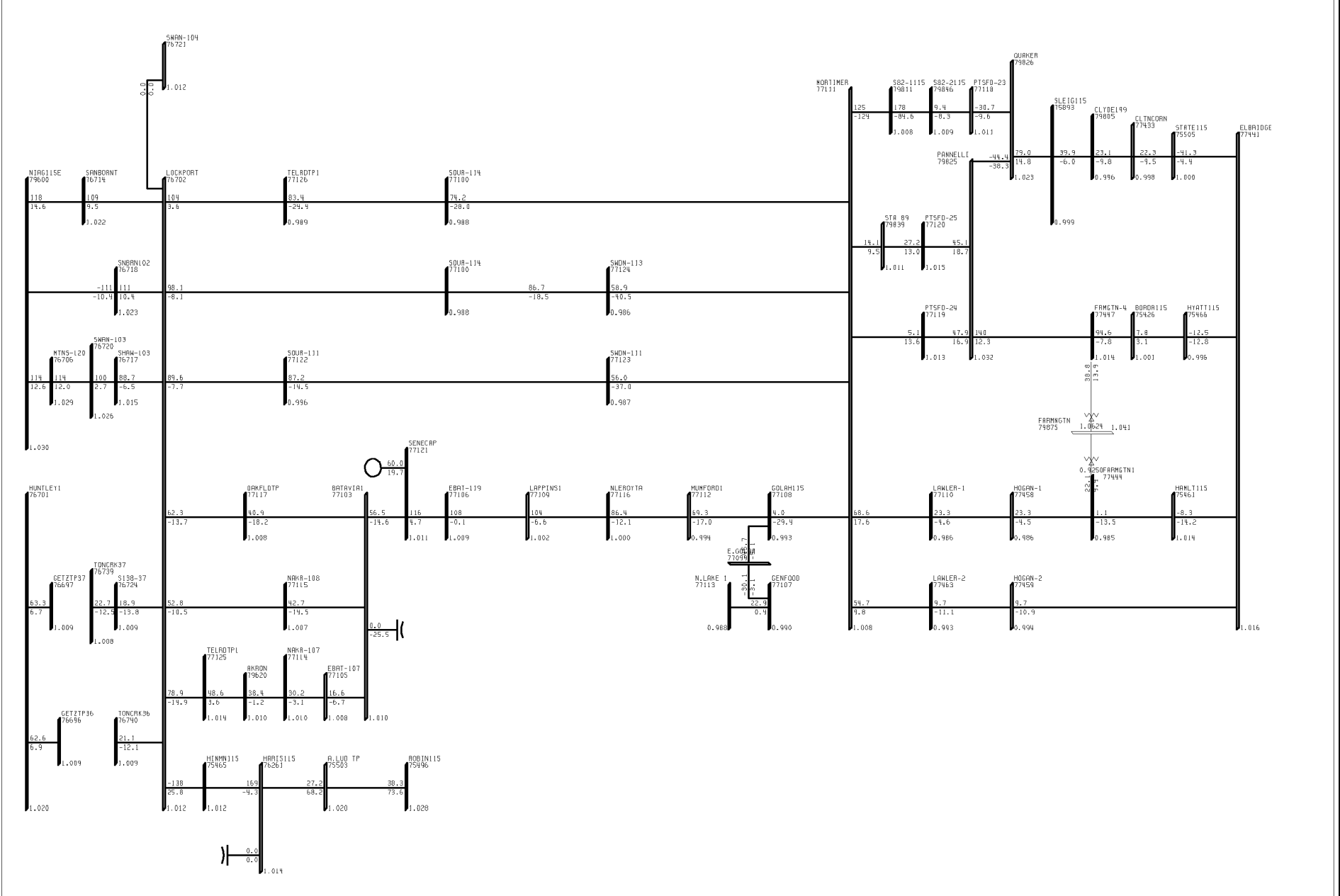


	<p>NYSIO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 12) NMPC BUFFALO WED, MAR 22 2000 16:01</p>	<p>KV: &lt;math&gt;\leq 35 . \leq 115 . \leq 230&lt;/math&gt;</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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NYISO OPERATING STUDY  
SUMMER 2000



	<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 14) NMPC SYRACUSE WED, MAR 22 2000 16:01</p>	<p>KV: ≤138 .4230 .4315</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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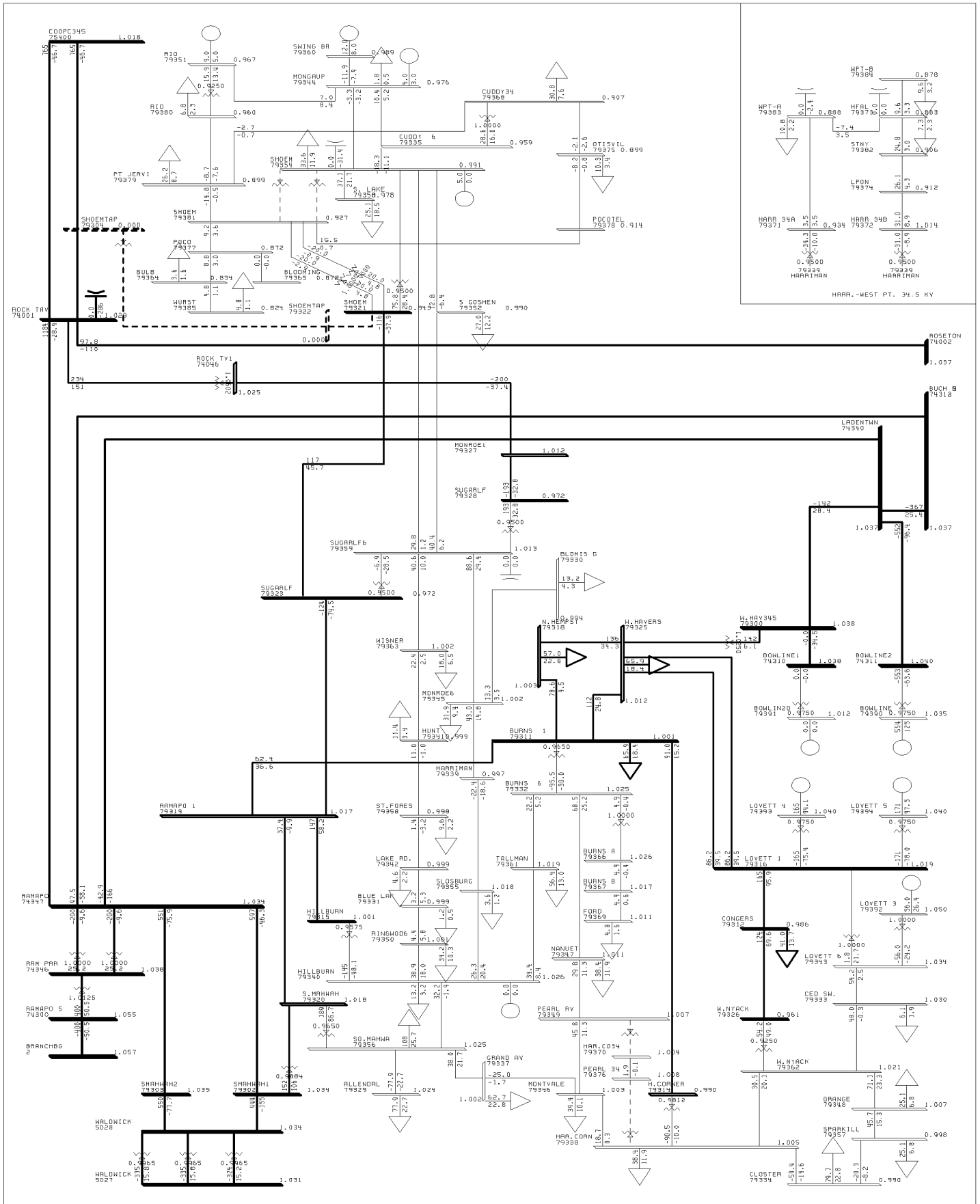


NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
15) NMPC LOCKPORT 115 WED, MAR 22 2000 16:01

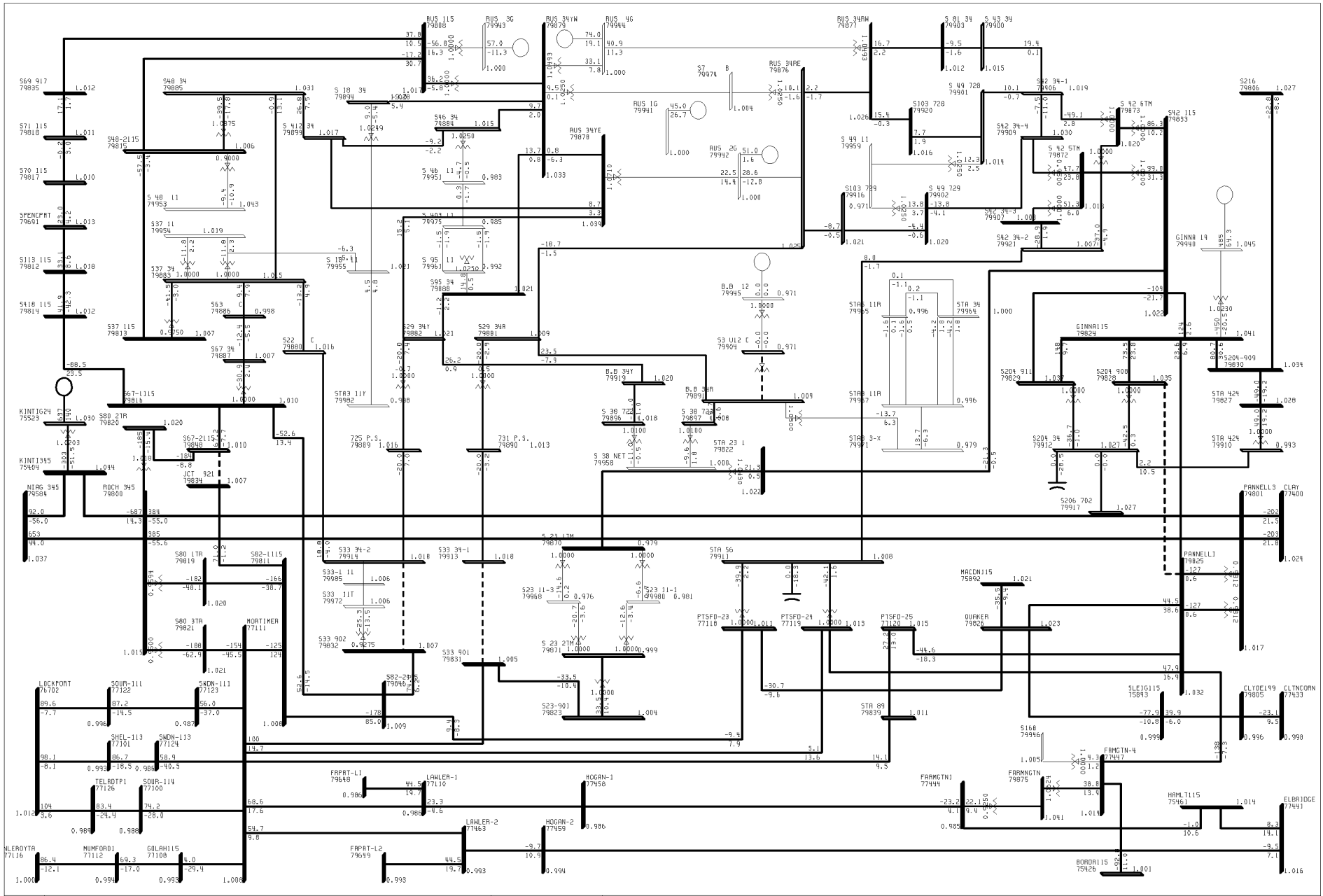
BUS - VOLTAGE (PU)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR

KV: <math>\leq 69</math> <math>\leq 138</math> <math>\leq 345</math>

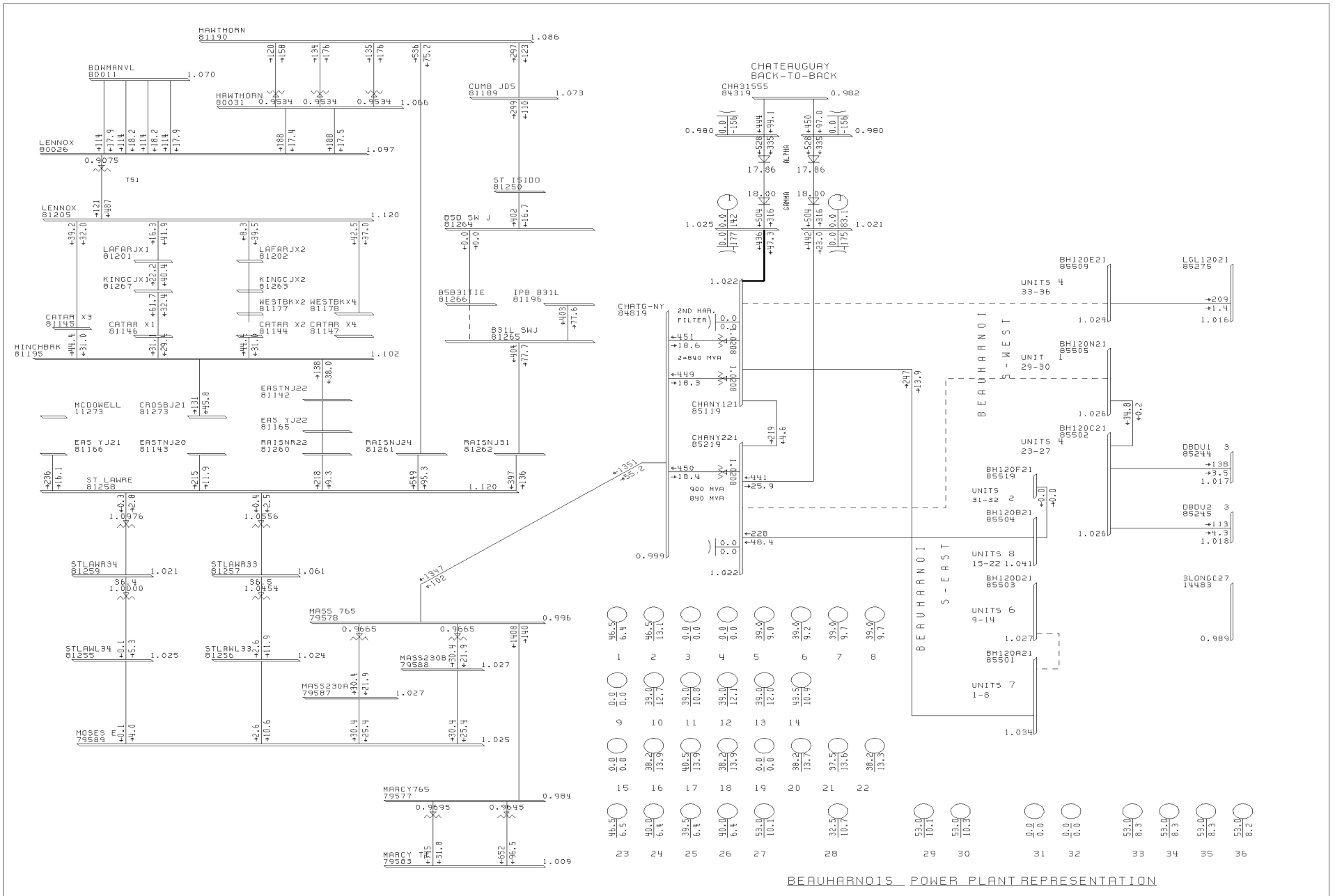




<p>NYISO OPERATIONS</p>	<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 ORANGE &amp; ROCKLAND MON, MAY 22 2000 10:27</p>	<p>KV: ≤69, ≤138, ≤230</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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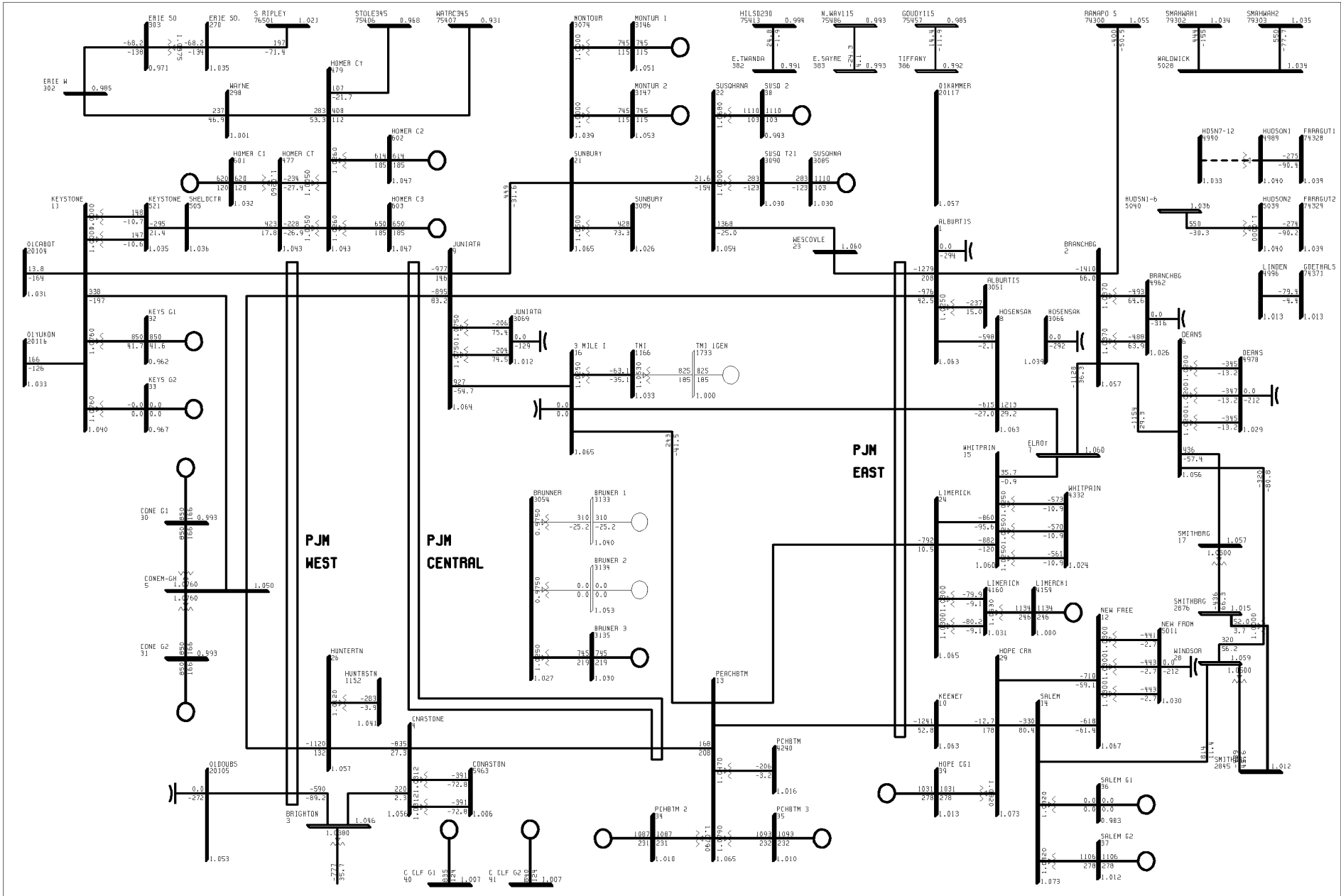
	<p>NYSIO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 17) ROCHESTER WED, MAR 22 2000 16:02</p>	<p>KV: ≤20 .535 .4115</p>	<p>BUS - VOLTAGE (PUI) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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BEAUHARNOIS POWER PLANT REPRESENTATION

NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
18) BEAU WED, MAR 22 2000 16:02

BUS - VOLTAGE (PU)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR

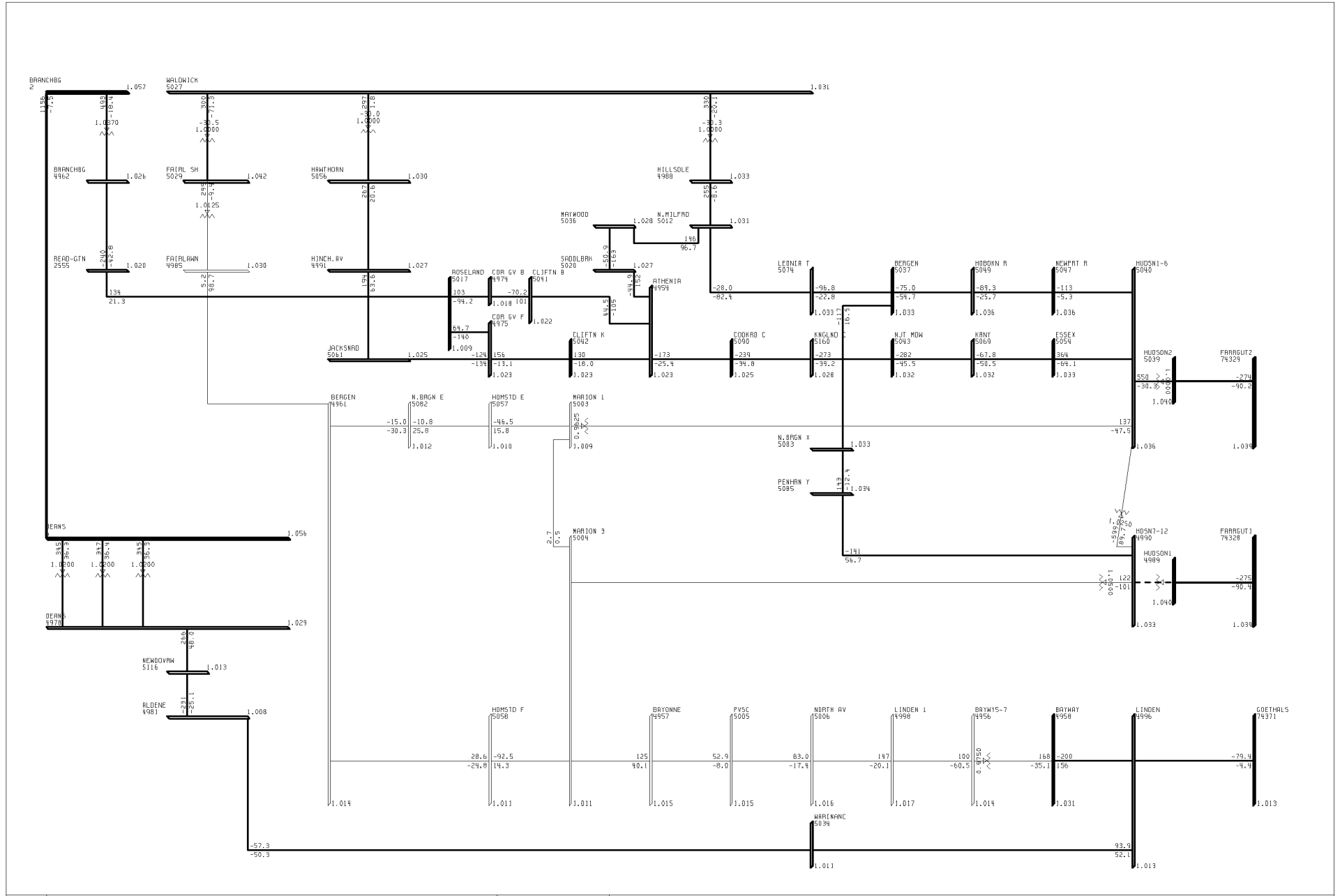


NYISO SUMMER 2000 REVISED BASE CASE  
B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000  
19) PJM WED, MAR 22 2000 16:02

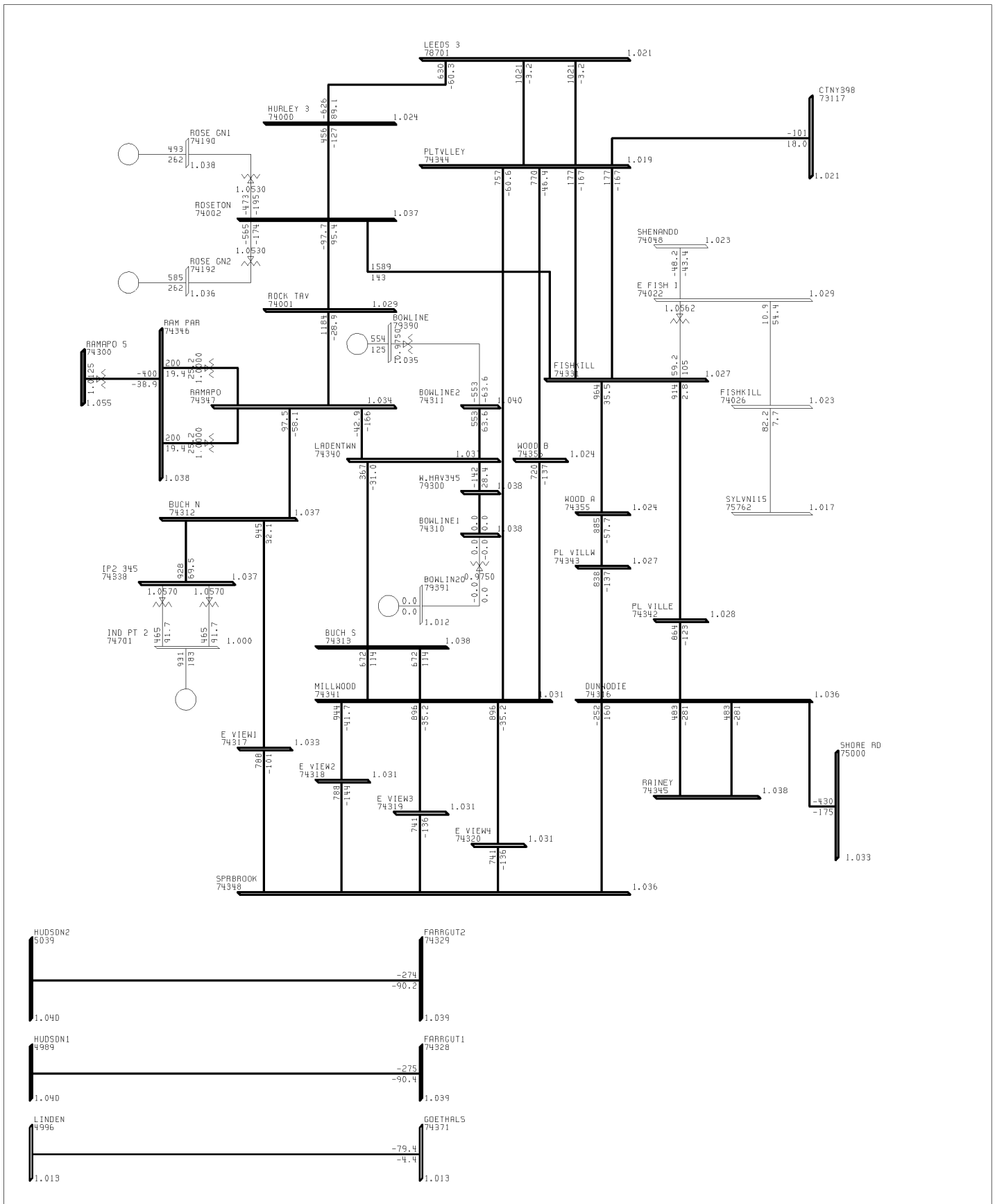
KV: ≤20 .535 .5115

BUS - VOLTAGE (PUI)  
BRANCH - MW/MVAR  
EQUIPMENT - MW/MVAR

NYISO OPERATING STUDY  
SUMMER 2000



<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 20) PSE&amp;G WED, MAR 22 2000 16:02</p>	<p>BUS - VOLTAGE (PU) BRANCH - MW/MVAR EQUIPMENT - MW/MVAR</p>
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	<p>NYISO SUMMER 2000 REVISED BASE CASE B/O VEM/MEN TR3A WITH OSTF REVISIONS 2/25/2000 21) UPNY - CONED THU, MAR 23 2000 8:47</p>	<p>KV: &lt;115 .4230 .4945</p>
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APPENDIX D  
RATINGS OF MAJOR TRANSMISSION FACILITIES  
IN NEW YORK





LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
ADRON B1 - MOSES W	MA-1	348	359	440	782	25269
ADRON B2 - MOSES W	MA-2	348	386	440	784	25270
ALBANY - AIR INDE	8	278	321	368	2817	25496
ALCOA N - GR-TAP1	MAL-6	218	253	291	792	25582
ALCOA-NM - ALCOA N	R8105	206	247	310	786	25202
ALCOA-NM - BRADY	13	128	147	159	787	25230
ALCOA-NM - BRADY	9	159	159	159	820	25230
ALCOA-NM - DENNISON	12	166	191	210	788	25227
ALLENS F - COLTON	3	119	128	152	846	25241
ALPS345 - N.SCOT77	2	1204	1326	1589	993	25217
ALPS345 - REYNLD3	1	459	562	755	994	25587
ANDRWS-4 - DENNISON	5	182	197	248	861	25226
ASTORIAE - CORONA	34186	154	239	387	133	25282
ASTORIAE - CORONA	34185	154	239	387	132	25281
ASTORIAE - CORONA	34184	154	239	387	131	25280
ASTORIAE - CORONA	34183	154	239	387	130	25279
ASTORIAE - CORONA	34182	154	239	387	129	25278
ASTORIAE - CORONA	34181	154	239	387	128	25277
ASTORIAE - HG 1	34052	161	245	393	134	25324
ASTORIAE - HG 4	34051	161	245	393	135	25323
ASTORIAW - HG 2	24054	140	186	186	146	25213
ASTORIAW - HG 3	24053	140	186	186	147	25212
ASTORIAW - HG 5	24051	177	249	480	148	25210
ASTORIAW - HG 6	24052	177	249	480	149	25211
ASTORIAW - QUENBRDG	28244	308	478	645	153	25318
ASTORIAW - QUENBRDG	28243	308	478	645	152	25317
ASTORIAW - QUENBRDG	28241	154	239	387	151	25315
ASTORIAW - QUENBRDG	28242	154	239	387	150	25316
BARRETT - BRRT PH	461	184	243	297	7	25155
BARRETT - VLY STRM	291	233	289	364	9	25312
BARRETT - VLY STRM	292	233	289	364	10	25313
BATAVIA1 - EBAT-107	107	119	128	152	636	25124
BATAVIA1 - NAKR-108	108	130	136	159	647	25125
BATAVIA1 - OAKFLDTP	112	128	136	159	446	25126
BELL-129 - DURZ-129	129	168	185	199	765	69854
BELL-129 - MLPN-129	129	168	185	199	765	69854
BLUE LAK - LAKE RD.	89/993	112	130	137	483	69353
BLUE LAK - RINGWOD6	89/993	112	130	137	483	69353
BORDR115 - FRMGTN-4	977/4	150	179	195	507	25057
BORDR115 - HYATT115	979	129	148	160	506	25106
BOWLINE1 - W.HAV345	67	687	747	747	164	25567
BOWLINE2 - LADENTWN	68	687	747	747	166	25249

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
BRANCHBG - RAMAPO 5	5018	999	1303	1751	366	25019
BRDGPORT - PETRBORO	5	116	120	145	940	25896
BRDGPORT - TEALL	5	116	120	145	940	25896
BRKHAVEN - HOLBROOK	887	390	435	498	11	25340
BRKHAVEN - HOLBROOK	888	703	817	935	2927	25542
BRKHAVEN - RVRHD	864	250	288	322	14	25553
BRKHAVEN - SHOREHAM	861	433	480	586	16	25114
BUCH N - E VIEW1	W93	1720	1890	2401	175	25133
BUCH N - RAMAPO	Y94	1703	1890	2401	178	25184
BUCH S - LADENTWN	Y88	1703	1890	2401	180	25185
BUCH S - MILLWOOD	W98	1493	1680	1902	182	25146
BUCH S - MILLWOOD	W97	1493	1680	1902	181	25247
BURNS 1 - W.HAVERS	530/531	224	260	274	473	68644
BURNS 6 - TALLMAN	59/591	50	104	110	469	68642
CARLE PL - E.G.C.	361	250	288	322	18	25533
CARML115 - UNION115	991/992	215	247	270	190	68885
CATON115 - HICK 115	958/960	102	113	120	574	69341
CLAY - CLAY	BK#1	308	367	405	826	25387
CLAY - CLAY	BK#2	308	367	405	827	25421
CLAY - DEWITT 3	13	1032	1284	1434	835	25168
CLAY - DUGUID	5	193	213	240	829	25519
CLAY - EDIC	15-Feb	1032	1284	1434	837	25200
CLAY - EDIC	16-Jan	1032	1284	1434	836	25169
CLAY - HPKNS-11	11	220	239	239	831	25516
CLAY - HPKNS-11	10	116	120	145	834	25520
CLAY - PANNELL3	2	1032	1284	1434	768	25050
CLAY - PANNELL3	1	1032	1284	1434	769	25058
CLAY - VOLNEY	6	1032	1284	1434	838	25198
CLAY - 9MI PT1	8	1032	1271	1562	839	25167
CLINTON - MARSH115	12-Nov	125	143	154	1012	68794
CLTNCORN - CLYDE199	971/3	108	128	145	510	25063
CLYDE199 - CLYDE 34	3	125	143	154	509	25221
COBHL115 - COBHIL34	906	40	41	45	513	25426
CODNT115 - ETNA 115	998	227	253	283	515	25734
CODNT115 - MONTR115	982	108	128	144	516	25728
COFFEEN - E WTRTWN	5	116	119	119	840	25504
COOPC345 - COOPC115	#2	212	266	300	519	25433
COOPC345 - COOPC115	#3	232	296	300	520	25434
COOPC345 - FRASR345	33	1207	1404	1703	521	25236
COOPC345 - MARCY T1	41	1345	1345	1345	2803	25113
CORONA1R - JAMAICA	18001	161	245	393	185	25285
CORONA2R - JAMAICA	18002	161	245	393	186	25286

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
CORTLAND - LABRADOR	3	125	143	154	855	25894
CORTLAND - TULLER H	947	108	128	143	631	25059
CROTN115 - UNION115	991/992	215	247	270	190	68885
DELPHI - LABRADOR	3	125	143	154	855	25894
DELPHI - OM-FENNR	3	125	143	154	855	25894
DENNISON - LWRNCE-B	4	182	197	248	796	25225
DENNISON - LWRNCE-B	4	182	197	248	935	25225
DEWITT 3 - DEWITT 1	2	516	657	796	862	25418
DEWITT 3 - LAFAYTTE	22	1434	1434	1434	866	25174
DUN NO - DUN SO	99997	226	317	342	194	25532
DUN NO1R - S CREEK	99031	129	188	290	197	25193
DUN NO2R - S CREEK	99032	129	188	290	198	25239
DUN SO1R - E179 ST	99153LM	223	314	396	203	25287
DUNKIRK - DUNKIRK1	41	139	177	226	657	25386
DUNKIRK - DUNKIRK1	31	138	173	223	656	25430
DUNKIRK - GRDNVL2	73	556	637	637	663	25166
DUNKIRK - GRDNVL2	74	556	637	637	664	25197
DUNWODIE - DUN NO	W74	352	484	578	195	25209
DUNWODIE - DUN SO	W73	352	484	578	202	25208
DUNWODIE - PL VILLE	W89	1720	1976	2265	206	25182
DUNWODIE - PL VILLW	W90	1720	1976	2265	205	25250
DUNWODIE - RAINEY	72	715	817	1081	208	25191
DUNWODIE - RAINEY	71	715	817	1081	207	25151
DUNWODIE - SHORE RD	Y50	599	877	1416	115	25091
DUNWODIE - SPRBROOK	W75	2384	2708	3247	209	25071
DURZ-130 - SUMIT PK	130	168	181	206	764	69855
DURZ-130 - ZRMN-130	130	168	181	206	764	69855
E FISH I - FISHKILL	F33	412	445	445	2868	25724
E VIEW1 - EASTVIEW	87874	370	424	424	211	25471
E VIEW1 - SPRBROOK	W79	1720	2214	2657	224	25153
E VIEW2 - EASTVIEW	87873	370	424	424	210	25472
E VIEW2 - MILLWOOD	W82	2293	2708	3236	225	25147
E VIEW2 - SPRBROOK	W64	2293	2708	3236	223	25143
E VIEW3 - EASTVIEW	87872	370	424	424	212	25470
E VIEW3 - MILLWOOD	W99	2293	2708	3236	222	25255
E VIEW3 - SPRBROOK	W65	1720	2214	2657	226	25144
E VIEW4 - EASTVIEW	87871	370	424	424	2835	25373
E VIEW4 - MILLWOOD	W85	2293	2708	3236	325	25258
E VIEW4 - SPRBROOK	W78	2293	2708	3236	2834	25346
E.G.C. - NEWBRGE	463	200	294	396	25	25304
E.G.C. - NEWBRGE	462	200	294	396	24	25303
E.G.C. - NEWBRGE	465	216	311	424	26	25535

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
E.G.C. - ROSLYN	362	258	297	332	28	25534
E.G.C. - VLY STRM	262	218	275	353	30	25244
E.G.C.-1 - E.G.C.	BK#2	444	556	761	2860	25552
E.G.C.-2 - E.G.C.	BK#1	444	556	761	2859	25551
E.NOR115 - JENN 115	946	80	110	131	530	25729
E.NOR115 - WILET115	945	108	128	145	531	25732
E.SAYRE - N.WAV115	956	90	124	124	608	25013
E.SPR115 - INGHAM-E	941	80	106	131	536	25061
E.TWANDA - HILSD230	70	483	531	554	582	25014
E.WALD 1 - ROCK TV1	D	232	265	311	416	69038
EDIC - JA FITZP	1	1434	1434	1912	867	25077
EDIC - MARCY T1	UE1-7	1677	1792	1792	868	25229
EDIC - N.SCOT77	14	1331	1538	1724	873	25170
EDIC - PORTER 1	10	455	539	679	871	25424
EDIC - PORTER 1	20	505	629	794	870	25454
EDIC - PORTER 2	17	478	562	637	872	25422
ELBRIDGE - ELBRIDGE	BK#1	470	557	717	874	25448
ELBRIDGE - LAFAYTTE	17	940	1562	1912	880	25149
ELBRIDGE - OSWEGO	17	1206	1326	1685	881	25234
ELWOOD 1 - NRTHPRT2	681	352	504	604	33	25544
ELWOOD 2 - NRTHPRT2	678	352	504	604	2863	25543
ERIE E - S RIPLEY	69	499	607	617	665	25016
ETNA 115 - WILET115	945	108	128	145	540	25731
E15ST 45 - E13 ST	37375	232	305	321	228	25468
E15ST 45 - FARRAGUT	45	726	882	1258	234	25190
E15ST 45 - W 49 ST	M55	774	866	1291	237	25222
E15ST 46 - E13 ST	37373	225	299	362	230	25465
E15ST 46 - FARRAGUT	46	726	882	1258	236	25251
E15ST 46 - W 49 ST	M54	774	866	1291	235	25228
E15ST 47 - ASTOR345	Q35L	538	621	1476	139	25134
E15ST 47 - E RIVER	44371	240	254	275	217	25459
E15ST 47 - E13 ST	37378	240	305	384	231	25469
E15ST 47 - FARRAGUT	B47	419	683	1124	238	25177
E15ST 48 - ASTOR345	Q35M	538	621	1476	140	25142
E15ST 48 - E13 ST	37376	232	305	321	232	25463
E15ST 48 - FARRAGUT	48	419	683	1124	239	25252
E179 ST - HG 1	15054	161	245	393	240	25290
E179 ST - HG 4	15053	161	245	393	241	25289
E179 ST - HG 6	15055	222	328	480	242	25288
E179 ST - PK-CITY1	38X01	108	151	189	243	25327
E179 ST - PK-CITY2	38X02	108	151	189	244	25328
E179 ST - PK-CITY3	38X03	108	151	189	245	25330

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
E179 ST - PK-CITY4	38X04	108	151	189	246	25329
E179 ST - S CREEK	15032	161	245	393	248	25156
E179 ST - S CREEK	15031	161	245	393	247	25157
FARRAGUT - GOWANUSN	41	618	807	1183	260	25141
FARRAGUT - GOWANUSS	42	618	807	1183	261	25140
FARRAGUT - RAINEY	63	661	758	1081	267	25152
FARRAGUT - RAINEY	62	694	791	1097	266	25253
FARRAGUT - RAINEY	61	661	758	1081	265	25254
FISHKILL - PLTVLLEY	F36	1720	2214	2657	268	25256
FISHKILL - PLTVLLEY	F37	1720	2214	2657	269	25257
FISHKILL - SYLVN115	A/990	232	253	312	376	25066
FISHKILL - WOOD A	F38/Y86	1839	2606	3105	270	25367
FISHKILL - WOOD A	F39	1839	2606	3400	271	25368
FOXHLLS1 - GREWOOD	29231	154	239	387	276	25321
FOXHLLS2 - GREWOOD	29232	154	239	387	278	25322
FR KILLS - FRKILLR2	TA1	275	387	486	283	25457
FR KILLS - FRKILLSR	TB1	272	372	440	284	25458
FR KILLS - GOTHLS N	22	982	1390	1624	285	25137
FR KILLS - GOTHLS S	21	920	1010	1283	286	25138
FR-KILLS - FRKILLR2	21192	275	387	486	2804	25639
FR-KILLS - FRKILLSR	21192	272	372	440	280	25640
FR-KILLS - WILOWBK1	29211	169	271	452	277	25319
FR-KILLS - WILOWBK1	29212	169	271	452	281	25319
FR-KILLS - WILOWBK2	29212	169	271	452	279	25320
FR-KILLS - WILOWBK2	29211	169	271	452	282	25320
FRASR345 - EDIC	EF24-40	1380	1380	1380	2802	25112
FRASR345 - FRASR115	BK#2	305	386	420	2851	25391
FRASR345 - GILB 345	35	1428	1524	1524	544	25060
FRASR345 - OAKDL345	32	1255	1380	1380	543	25235
FRMGTN-4 - PANNELLI	4	207	247	280	887	25080
GALEVILE - KERHNKMK	MK	33	41	51	427	69391
GALEVILE - MODENA 6	MK	41	44	51	425	69391
GARDV115 - LANGN115	903/904	139	163	183	524	68914
GARDV230 - GARDN M6	#6	316	409	420	545	25405
GARDV230 - GARDN M6	#7	204	246	300	546	25435
GARDV230 - GRDNVL2	T8-12	663	739	773	550	25089
GARDV230 - STOLE230	66	474	478	478	549	25180
GERES LK - SOREL-9	9	142	151	185	890	25510
GINNA115 - PANNELLI	912	207	247	285	1074	25260
GLNWD GT - ROSLYN	364	291	320	372	42	25556
GLNWD NO - SHORE RD	366	447	499	572	44	25154
GLNWD SO - CARLE PL	363	291	321	372	19	25554

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
GLNWD SO - SHORE RD	365	492	549	630	46	25205
GOETH T - GOETHALS	BKA2253	528	727	817	287	25642
GOTHLS N - GOWANUSN	25	460	683	1022	290	25139
GOTHLS R - GOETH T	BKA2253	528	727	817	287	25642
GOTHLS S - GOWANUSS	26	460	683	1022	291	25571
GOUDY115 - S.OWE115	961	112	131	143	555	25725
GOWANUSN - GOWNUS1T	T2	238	276	328	292	25476
GOWANUSS - GOWNUS2T	T14	238	276	328	293	25475
GOWNUS1R - GREWOOD	42232	226	301	409	301	25214
GOWNUS2R - GREWOOD	42231	226	301	409	297	25215
GRDNVL2 - GRDNVL1	2	257	280	354	677	25385
GRDNVL2 - GRDNVL1	4	141	183	250	679	25417
GRDNVL2 - GRDNVL1	3	141	182	250	678	25416
GRDNVL2 - SUNY-79	79	566	654	755	690	25165
GRDNVL2 - SUNY-80	80	566	654	755	691	25196
GREWOOD - VERNON-E	31232	154	239	387	305	25298
GREWOOD - VERNON-E	31231	154	239	387	304	25299
HAE TR1 - HUDAVE E	32077	110	155	195	264	25291
HAE TR1 - HUDAVE E	32711	110	155	195	262	25293
HAE TR3 - HUDAVE E	32078	110	155	195	263	25292
HAMLT115 - ELBRIDGE	983	125	143	154	878	69053
HAMLT115 - FARMGTN1	983	125	143	154	884	69138
HAMLT115 - HAMLTN34	1	30	37	56	563	25394
HAR.CORN - W.NYACK	751	65	76	79	478	69314
HARRIMAN - SLOSBURG	31/311	112	130	137	479	69318
HILLBURN - RINGWOD6	89/993	112	130	137	483	69353
HILLBURN - SLOSBURG	31/311	112	130	137	479	69318
HILLBURN - TALLMAN	59/591	50	104	110	469	68642
HILSD230 - HILSD M3	BK#3	231	294	336	576	25397
HILSD230 - WATRC230	69	504	584	657	581	25181
HINMN115 - LOCKPORT	100	220	252	280	585	25087
HOLBROOK - PT JEFF1	886	284	312	373	61	25540
HOLBROOK - RONKONK	883/889	468	515	654	67	25682
HOLBROOK - RONKONK	925	275	300	355	136	25682
HOLBROOK - RULND RD	882	468	520	623	68	25538
HOLBROOK - SHOREHAM	925	203	226	239	547	25116
HOLBROOK - SHOREHAM	885	433	480	586	71	25117
HOMER CY - STOLE345	37	605	757	840	630	25036
HOMER CY - WATRC345	30	926	927	927	635	25018
HONK FLS - KERHNKMK	P	33	41	44	427	69391
HUDAVE E - JAMAICA	702	129	213	366	317	25295
HUDAVE E - JAMAICA	701	129	213	366	316	25294

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
HUNT - ST.FORES	89/993	112	130	137	483	69353
HUNT - WISNER	89/993	112	130	137	483	69353
HUNTLEY1 - S129-39	38	129	151	185	703	69428
HUNTLEY1 - ZRMN-130	129	168	181	199	705	69426
HUNTLEY2 - PACKARD2	78	556	644	746	707	25164
HUNTLEY2 - PACKARD2	77	556	644	746	706	25195
HUNTLEY2 - SUNY-79	79	566	654	755	708	25127
HUNTLEY2 - SUNY-80	80	566	654	755	709	25128
HURLEY 3 - HURLEY 1	BK 1	419	481	488	431	25419
HURLEY 3 - LEEDS 3	301	1529	1766	1912	435	25055
HURLEY 3 - ROSETON	303	1395	1623	1870	434	25218
HYATT115 - ELBRIDGE	15	129	148	160	587	25109
INGMS-CD - INGHAM-E	2	167	197	239	898	25242
JAMAICA - L SUCSPH	903	238	341	428	78	25090
JAMAICA - V STRM P	901L&M	272	361	441	118	25048
KINTI345 - ROCH 345	39	1301	1501	1685	624	25073
KNAPPS 6 - LAGRANGE	G	45	47	55	438	69534
LADENTWN - RAMAPO	W72	1720	1890	2401	320	25233
LADENTWN - W.HAV345	67	1720	2214	2657	321	25248
LAGRANGE - PL.VAL 6	G	41	44	51	438	69534
LAKE RD. - ST.FORES	89/993	112	130	137	483	69353
LAUREL L - GOUDY115	952	108	128	143	556	25012
LCST GRV - NEWBRGE	558	393	466	568	2898	25158
LEEDS 3 - GILB 345	GL-3	1428	1605	1912	1017	25219
LEEDS 3 - N.SCOT77	93	1331	1538	1724	1029	25171
LEEDS 3 - N.SCOT99	94	1331	1538	1724	1028	25203
LOCKPORT - NAKR-108	108	130	136	165	712	25266
LOCKPORT - OAKFLDTP	112	131	144	159	646	25300
LOCKPORT - SHEL-113	113	143	165	180	718	25263
LOCKPORT - SOUR-111	111	131	144	159	717	25262
LOCKPORT - TELRDTP1	107	199	199	199	637	25265
LOCKPORT - TELRDTP1	114	143	165	180	721	25264
LONGTAP - NIAG115E	180	160	166	206	681	25104
LTHSE HL - BLACK RV	6	106	114	134	805	25506
LTHSE HL - E WTRTWN	5	116	119	119	840	25504
MACDN115 - QUAKER	930	60	75	112	594	25093
MALONE - NICHOLVL	3	119	128	152	905	25585
MALONE - WILL 115	910	129	159	175	906	25586
MARCY765 - MARCY T1	MAR-AT2	1488	1793	2338	908	25456
MARCY765 - MARCY T1	MAR-AT1	1488	1654	1654	907	25455
MARCY765 - MASS 765	MSU1	3975	3975	5300	911	25224
MASS 765 - CHATG-NY	MSC7040	3975	3975	5300	825	25301

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
MASS 765 - MASS230A	MAS-AT1	936	1151	1348	912	25665
MASS 765 - MASS230B	MAS-AT2	936	1151	1348	914	25666
MASS230A - MOSES E	MMS1	936	1151	1348	913	25274
MASS230B - MOSES E	MMS2	936	1151	1348	915	25275
MEYER230 - MEYER M4	BK#4	231	294	336	595	25398
MEYER230 - STOLE230	67	430	494	540	598	25064
MILAN - N.CAT. 1	T7	124	138	159	441	69719
MILAN - PL.VAL 1	R10	129	166	206	338	69896
MILLWOOD - MLWD TA	96922	216	307	346	323	25530
MILLWOOD - MLWD TA	96921	205	297	321	322	25531
MILLWOOD - WOOD B	W80	1720	2214	2657	326	25148
MLPN-129 - PACK(S)W	133	168	181	199	465	69854
MLPN-130 - PACK(S)W	130	168	181	206	764	69855
MLPN-130 - SUMIT PK	130	168	181	206	764	69855
MORAI115 - BENET115	966	124	139	159	503	68439
MORTIMER - PTSFD-24	24	129	148	160	728	25096
MORTIMER - STA 89	25	114	123	142	729	25095
MORTIMER - SWDN-111	111	129	136	153	723	25347
MORTIMER - S33 901	901	129	159	159	731	25097
MORTIMER - S33 901	902	123	139	159	1117	25097
MORTIMER - S80 3TR	904	227	251	284	732	25081
MORTIMER - S82-1115	7X8272	259	366	480	730	25098
MOS 115 - GR-TAP1	MAL-6	218	253	291	792	25582
MOS 115 - GR-TAP2	MAL-5	238	275	310	794	25583
MOSES W - MOS 115	SL-AT1	401	490	646	922	25411
MOSES W - MOS 115	SL-AT2	401	490	646	923	25451
MOSES W - MOS 115	SL-AT3	192	240	287	920	25452
MOSES W - MOS 115	SL-AT4	537	598	773	921	25453
MOSES W - WILLIS E	MW-2	349	418	512	927	25188
MOSES W - WILLIS W	MW-1	349	418	512	926	25271
MOUNTAIN - NIAG115E	121	176	211	240	2902	25070
MOUNTAIN - NIAG115E	122	176	211	240	2903	25072
MTNS-120 - NIAG115E	120	176	211	239	733	25135
N.SCOT1 - AIR INDE	8	278	321	368	2817	25496
N.SCOT1 - RTRDM1	13	241	265	318	1041	25494
N.SCOT77 - N.SCOT1	BK#1	458	474	489	1039	25445
N.SCOT99 - GILB 345	GNS-1	1242	1386	1589	1018	25052
N.SCOT99 - MARCY T1	18	1488	1792	1792	910	25276
N.SCOT99 - N.SCOT1	BK#2	455	461	484	2816	25460
N.WAV115 - CHEMU115	962	112	131	143	577	25726
N.WAV115 - LOUNS115	962	112	131	143	607	25727
NEWBRGE - RULND RD	561	255	294	329	81	25305



LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
NEWBRGE - RULND RD	562	255	294	329	80	25306
NI.B-181 - PACK(N)E	181/922	124	139	159	737	69816
NIAG 345 - BECK A	PA302	1070	1322	1714	759	25041
NIAG 345 - BECK B	PA301	1070	1322	1714	758	25040
NIAG 345 - NIAGAR2E	N-AT5	384	479	575	745	25408
NIAG 345 - NIAGAR2E	N-AT3	384	479	575	744	25450
NIAG 345 - NIAGAR2W	N-AT4	767	943	1104	752	25449
NIAGAR2W - NIAG115E	N-AT1	192	239	288	739	25409
NIAGAR2W - NIAG115W	N-AT2	229	276	359	747	25410
NIAGAR2W - PA27 REG	PA27	400	460	558	756	25025
NRTHPRT1 - NRTHPRT2	BUS/PS2	407	505	570	91	25599
NRTHPRT1 - PILGRIM	672	204	288	353	94	25307
NRTHPRT1 - PILGRIM	677	409	575	604	92	25308
NRTHPRT1 - PILGRIM	679	409	575	604	93	25309
OAKDL230 - OAKDL115	BK#1	275	400	440	609	25400
OAKDL230 - WATRC230	71	275	400	440	612	25179
OAKDL345 - LAFAYTTE	Apr-36	1255	1380	1380	614	25049
OAKDL345 - OAK2M115	BK#3	428	556	600	571	25399
OAKDL345 - OAK3M115	BK#2	428	556	600	610	25401
OAKDL345 - WATRC345	31	926	1076	1076	613	25178
OAKWOOD - SYOSSET	675	269	358	541	96	25547
ONEIDA - PETRBORO	5	116	120	145	940	25896
OSW 3&4 - S OSWEGO	5	209	239	239	952	25508
OSW 3&4 - S OSWEGO	8	400	462	478	953	25509
OSWEGO - OSW 3&4	BK 7	496	552	690	966	25372
OSWEGO - VOLNEY	11	1200	1326	1685	948	25199
OSWEGO - VOLNEY	12	1200	1326	1685	949	25201
OW CRN W - UNVL 9TP	2	116	120	145	450	25067
PACK(N)E - NIAG115E	191	248	299	354	742	25075
PACK(N)E - NIAG115E	192	248	299	354	741	25099
PACK(S)W - NIAG115W	194	248	299	354	750	25100
PACK(S)W - NIAG115W	193	248	299	354	749	25101
PACK(S)W - NIAG115W	195	233	253	335	751	25102
PACKARD2 - BP76 REG	76	478	492	569	763	25024
PACKARD2 - NIAGAR2W	62	620	717	841	755	25186
PACKARD2 - NIAGAR2W	61	620	717	841	754	25220
PACKARD2 - PACK(N)E	3	141	182	250	760	25414
PACKARD2 - PACK(S)W	2	106	136	183	761	25383
PACKARD2 - PACK(S)W	4	141	182	250	762	25415
PALMT115 - ANDOVER1	932	78	85	98	615	25094
PALOMA - S OSWEGO	6	114	120	142	903	25513
PALOMA - S OSWEGO	6	116	120	145	954	25513

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
PANNELLI - QUAKER	914	207	247	285	1081	25261
PANNELL3 - PANNELLI	122 2TR	255	320	330	771	25396
PANNELL3 - PANNELLI	122 1TR	255	320	330	770	25431
PARK TR1 - PARK1REG	R11	215	301	379	330	25649
PARK TR2 - PARK2REG	R12	215	301	379	333	25650
PAWLN115 - SYLVN115	990/994	176	179	179	188	68887
PEEK13.8 - MLWD TA	96952	275	302	384	173	25283
PEEK13.8 - MLWD TA	96951	275	302	384	172	25284
PILGRIM - RULND RD	661	549	549	549	105	25310
PILGRIM - RULND RD	662	549	549	549	104	25311
PL VILLE - PLTVILLE	1	59	67	67	345	25477
PL VILLW - PLTVILLE	2	59	67	67	344	25478
PL VILLW - WOOD A	Y87	1839	2605	3105	352	25132
PL.VAL 1 - PLTVLLEY	BK S1	415	450	450	334	25382
PLAT T#1 - WILLIS E	WP-1	170	203	249	967	25272
PLAT T#4 - WILLIS W	WP-2	170	203	249	956	25273
PLAT 115 - T MIL RD	PS-1/B	96	123	150	959	25078
PLTVLLEY - LEEDS 3	91	1331	1538	1724	347	25054
PLTVLLEY - LEEDS 3	92	1331	1538	1724	348	25056
PLTVLLEY - WOOD B	F30	1720	2214	2657	346	25237
PORTER 1 - ILION	5	116	120	145	896	25232
PORTER 1 - ILION	2	116	120	145	991	25232
PORTER 1 - VALLEY	4	116	120	145	973	25231
PORTER 2 - ADRON B1	11	321	353	449	783	25051
PORTER 2 - ADRON B2	12	321	353	449	785	25082
PORTER 2 - PORTER 1	2	268	320	338	972	25389
PORTER 2 - PORTER 1	1	268	320	338	971	25423
PORTER 2 - ROTRDM.2	30	440	505	560	974	25173
PORTER 2 - ROTRDM.2	31	439	505	560	975	25194
PTSFD-24 - PANNELLI	24	129	148	160	1079	69863
PTSFD-25 - PANNELLI	25	114	123	142	1080	69862
QUENBRDG - VERNON-E	31282	308	478	602	354	25159
QUENBRDG - VERNON-W	31281	312	542	602	353	25160
RAINEY - 8E DUM	36311	215	302	348	358	25296
RAINEY - 8W DUM	36312	215	305	358	359	25297
RAM PAR - RAMAPO	BK4500	545	741	999	2806	25370
RAM PAR - RAMAPO	BK3500	545	741	999	2805	25371
RAMAPO - RAMAPO 1	1300	391	513	567	363	25441
RAMAPO - RAMAPO 1	2300	391	513	567	362	25442
RAMAPO - SMAHWAH1	69	1226	1737	2271	364	25021
RAMAPO - SMAHWAH2	70	1720	1890	2401	365	25259
RAMAPO 5 - RAM PAR	1500	995	1304	1752	360	25656

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
REYNLD3 - REY. RD.	BK#2	459	562	755	1050	25403
ROBIN230 - NIAGAR2E	64	496	598	704	618	25088
ROBIN230 - ROBIN M1	BK#1	297	367	420	616	25395
ROBIN230 - STOLE230	65	550	637	717	617	25065
ROCH 345 - PANNELL3	1	1301	1501	1685	767	25192
ROCH 345 - PANNELL3	2	1301	1501	1685	766	25172
ROCH 345 - S80 1TR	BK #1TR	207	247	284	772	25412
ROCH 345 - S80 3TR	BK #3TR	245	296	360	774	25446
ROCK TAV - COOPC345	CRT-34	1464	1793	1793	2800	25110
ROCK TAV - COOPC345	CRT-42	1554	1733	1793	2801	25111
ROCK TAV - RAMAPO	77	1720	1890	2283	361	25183
ROCK TAV - ROCK TV1	BK TR	396	445	445	457	25406
ROCK TAV - ROSETON	311	1395	1623	1870	458	25069
ROCK TV1 - SUGARLF	SL/6108	176	203	217	498	25420
ROSETON - FISHKILL	305	1935	2677	3137	272	25108
RTRDM1 - ROTRDM.2	BK#6	345	375	522	1056	25407
RTRDM1 - ROTRDM.2	BK#7	300	355	402	1057	25392
RTRDM1 - ROTRDM.2	BK#8	326	369	423	1058	25413
S.PER115 - STA 162	7X16272	125	152	180	625	25062
SANBORNT - NIAG115E	101	233	253	318	713	25267
SARANAC - T MIL RD	PS-1/B	96	123	150	959	25078
SCRIBA - JA FITZP	FS-10	1434	1434	1912	900	25076
SCRIBA - VOLNEY	20	1200	1396	1686	978	25204
SCRIBA - VOLNEY	21	1670	1912	1912	979	25314
SCRIBA - 9M PT 2G	23	1670	1931	2211	981	70513
SCRIBA - 9MI PT1	9	994	1109	1271	980	25359
SHEL-113 - SWDN-113	113	129	149	153	724	25263
SHORE RD - L SUCS	368	228	317	518	76	25150
SHORE RD - L SUCS	367	228	317	518	75	25145
SHORE RD - SHORE RD	BK#2	457	569	731	114	25440
SHORE RD - SHORE RD	BK#1	457	569	731	113	25439
SLEIG115 - QUAKER	980	150	170	189	621	25079
SMAHWAH1 - S.MAHWAH	258	436	528	602	496	25393
SNBRN102 - NIAG115E	102	233	253	318	743	25103
SOUR-114 - MORTIMER	114	129	149	153	725	25349
SPRBROOK - REACBUS	Y49	660	936	1392	2856	25105
SPRBROOK - TREMONT	X28	452	656	879	373	25175
SPRBROOK - W 49 ST	M52	774	866	1291	375	25223
SPRBROOK - W 49 ST	M51	774	866	1291	374	25053
STATE115 - CLTNCORN	971/3	108	128	145	510	25063
STATE115 - ELBRIDGE	972/5	108	128	145	627	25107
STILV115 - HANCO115	954/955	102	113	120	565	69271

LINE NAME	LINE_ID	NORMAL	LTE	STE	MGF_NO	PTID
STOLE345 - STOLE115	#4	305	387	420	629	25462
STOLE345 - STOLE115	#3	300	370	420	628	25461
SUGARLF6 - WISNER	89/993	112	130	137	483	69353
TEALL - ONEIDA	2	116	120	145	939	25895
TREMONT - PARK TR1	R11	215	301	379	350	25473
TREMONT - PARK TR2	R12	215	301	379	351	25474
VOLNEY - MARCY T1	19	1434	1793	1912	909	25345
W.HAV345 - W.HAVERS	BK#194	432	600	623	382	25447
W.WDB115 - W.WDBR69	T152	48	50	50	467	25404
WALDA113 - AM.S-182	923	38	39	42	633	25429
WARREN - FALCONER	171	82	120	136	673	25015
WATRC345 - WATRC230	BK#1	452	584	600	634	25402
WHITMAN - ONEIDA	3	125	143	154	855	25894
WILLIS E - WILL 115	WIL-AT1	150	184	216	984	25388
WILLIS W - WILL 115	WIL-AT2	150	184	216	983	25390
WOODA345 - WOODS115	BK#1	327	409	420	384	25437
WOODB345 - WOODS115	BK#2	325	406	420	383	25438
WOODS115 - AMWLK115	996	215	247	275	327	25574
WYANT115 - REY. RD.	13	186	214	237	1052	69928

APPENDIX E  
INTERFACE DEFINITIONS  
and  
GENERATION CHANGES ASSUMED  
FOR THERMAL ANALYSIS



NYISO OPERATING INTERFACES & OASIS TRANSMISSION PATHS

<b>CENTRAL EAST</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage(kV)</b>
Edic-New Scotland*	14	345
Marcy-New Scotland*	UNS-18	345
Porter-Rotterdam*	30	230
Porter-Rotterdam*	31	230
*Plattsburgh - Grand Isle	PV-20	115
East Springfield - Inghams*	942	115
Inghams Bus Tie	PAR	115

<b>TOTAL EAST</b>		
<b>Central-Capital/MidHudson</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage(kV)</b>
Coopers-Rock Tavern*	CCRT-34	345
Coopers-Rock Tavern*	CCRT-42	345
Edic-New Scotland*	14	345
*Fraser-Gilboa	35	345
Marcy-New Scotland*	UNS-18	345
Porter-Rotterdam*	30	230
Porter-Rotterdam*	31	230
East Springfield - Inghams*	941	115
Inghams Bus Tie	PAR	115
West Woodbourne* 115/69	T152	BK
<b>PJM East-Capital/MidHudson</b>		
Branchburg-Ramapo*	5018	500
*Waldwick- S.Mahwah	J3410	345
* Waldwick-S.Mahwah	K3411	345
<b>PJM East-New York City</b>		
Hudson-Farragut*	C3403	345
Hudson-Farragut*	B3402	345
Linden-Goethals*	A2253	230
<b>Adirondack-ISO-NE</b>		
*Plattsburgh-Grand Isle	PV-20	115

<b>MOSES SOUTH</b>		
<b>Adirondack-Central</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage (kV)</b>
*Massena-Marcy	MSU1	765
*Moses-Adirondack	MA-1	230
*Moses-Adirondack	MA-2	230
*Dennison-Colton	4	115
*Dennison-Colton	5	115
*Alcoa-N. Ogdensburg	13	115
Malone-Colton*	3	115

\* indicates the metered end of circuit

<b>DYSINGER EAST</b>		
<b>Frontier-Genessee</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage (kV)</b>
*AES Somerset-Rochester (Sta 80)	SR-1/39	345
Niagara-Rochester*	NR2	345
*Stolle-Meyer	67	230
Palmiter - Bennett*	932	115
*Lockport-Batavia	107	115
*Lockport-N. Akron	108	115
*Lockport-Oakfield	112	115
*Lockport-Sweden 1	111	115
*Lockport-Sweden 3	113	115
*Lockport-Telegraph	114	115

<b>WEST CENTRAL</b>		
<b>Genessee-Central</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage(kV)</b>
Pannell Road-Clay	PC-1	345
Pannell Road-Clay*	PC-2	345
*Stolle-Meyer	67	230
Palmiter-Bennett*	932	115
Macedon-Quaker*	930	115
*Mortimer-Elbridge	1	115
*Mortimer-Elbridge	2	115
*Pannell-Farmington	4	115
*Quaker Road-Sleight Road	980	115
St. 162 - S. Perry	906	115
*Clyde 199-Sleight Rd		115
Clyde 199-Clinton Corn		115
*Farmington (RGE-NMPC)		
(Farmington 34.5/115kV)	#1	34.5/115
(Farmington 34.5/ 115kV)	#4	34.5/115

<b>UPNY-CONED</b>		
<b>Capital/MidHudson-Westchester</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage(kV)</b>
Ladentown-Buchanan South*	Y88	345
*Pleasant Valley-Wood St.	F30	345
*Pleasant Valley-E. Fishkill	F36	345
*Pleasant Valley-E. Fishkill	F37	345
*Pleasant Valley-Millwood	F31	345
*Ramapo-Buchanan North	Y94	345
Roseton-E. Fishkill*	305	345
*Fishkill Plains - Sylvan Lake	A/990	115
East Fishkill *345/115	F33	345
East Fishkill 115/345		115/345

\* indicates the metered end of circuit



<b>SPRAINBROOK-DUNWOODIE SOUTH</b>			
<b>Name</b>	<b>Line ID</b>	<b>Voltage(kV)</b>	
*Dunwoodie-Rainey	71	345	
*Dunwoodie-Rainey	72	345	
Sprainbrook-Tremont*	28	345	
*Sprainbrook-West 49th Street	M51	345	
*Sprainbrook-West 49th Street	M52	345	
*Lake Success-Jamaica	903	138	
*Valley Stream-Jamaica	901L/M	138	
*Dunwoodie-Sherman Creek	99031	138	
Dunwoodie-Sherman Creek*	99032	138	
*Dunwoodie-East 179th Street	99153	138	

<b>NYISO-ISO-NE</b>			
<b>Adirondack-ISO-NE</b>			
<b>Name</b>	<b>Line ID</b>	<b>Voltage (kV)</b>	
*Plattsburgh-Grand Isle	PV-20	115	
<b>Capital/MidHudson-ISO-NE</b>			
*Alps-Berkshire	393	345	
*Pleasant Valley-Long Mnt.	398	345	
Rotterdam-Bear Swamp*	E205W	230	
North Troy-Bennington*	6	115	
*Whitehall-Rutland (Velco)	7/K37	115	
<b>Long Island-ISO-NE</b>			
*Northport-Norwalk	1385	138	

<b>PJM-NYISO</b>			
<b>PJM East-New York City</b>			
<b>Name</b>	<b>Line ID</b>	<b>Voltage (kV)</b>	
Hudson-Farragut*	C3403	345	
Hudson-Farragut*	B3402	345	
Linden-Goethals*	A2253	230	
<b>PJM West-Central</b>			
*Homer City-Watercure	30	345	
E. Towanda-Hillside*	70	230	
Tiffany-Goudey*	952	115	
*E. Sayre-N. Waverly	956	115	
<b>PJM West-Frontier</b>			
*Homer City-Stolle Road	37	345	
Erie South-South Ripley*	69	230	
*Warren-Falconer	171	115	
<b>PJM East-Capital/MidHudson</b>			
Branchburg-Ramapo*	5018	500	
*Waldwick-S.Mahwah	J3410	345	
*Waldwick-S.Mahwah	K3411	345	

\* indicates the metered end of circuit

<b>IMO (Ontario)-NYISO</b>		
<b>Ontario East-Adirondack</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage (kV)</b>
St. Lawrence-Moses*	L33P	240
St.Lawrence-Moses*	L34P	230
<b>Ontario South-Frontier</b>		
Beck-Niagara*	PA301	345
Beck-Niagara*	PA302	345
Beck-Niagara*	PA27	230
*Beck-Packard	BP76	230

<b>CONED - LIPA</b>		
<b>Westchester - Long Island</b>		
<b>Name</b>	<b>Line ID</b>	<b>Voltage (kV)</b>
*Dunwoodie-Shore Road	Y50	345
*Sprainbrook-East Garden City	Y49	345
<b>New York City - Long Island</b>		
Jamaica-Valley Stream*	901L/M	138
Jamaica-Lake Success*	903	138

\* indicates the metered end of circuit

GENERATION PARTICIPATION FOR INTERFACES

UPNY-CONED, SPRAINBROOK/DUNWODIE SOUTH

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->					
<---- GENERATOR MW ---->					<---- GENERATOR MW ---->					
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE	
76641	DUNKGEN413.8	185.0	235.0	50.0	74302	ER G7	13.2	166.0	96.0	-70.0
77051	HNTLY68G13.8	185.0	235.0	50.0	74705	AST 4	20.0	361.0	161.0	-200.0
77951	9M PT 1G23.0	628.3	1128.3	500.0	74706	AST 5	20.0	361.0	161.0	-200.0
79515	MOS19-2013.8	114.0	214.0	100.0	74707	RAV 1	20.0	385.0	185.0	-200.0
80900	LAKEVWG518.0	248.3	398.3	150.0	74708	RAV 2	20.0	385.0	185.0	-200.0
81765	NANTICG622.0	480.0	630.0	150.0	74906	NRTPTG1	22.0	326.3	196.3	-130.0

MOSES - SOUTH

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->					
<---- GENERATOR MW ---->					<---- GENERATOR MW ---->					
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE	
79513	MOS17-1813.8	114.0	214.0	100.0	74702	RAV 3	22.0	899.7	879.7	-20.0
79516	MOS21-2213.8	114.0	214.0	100.0	76641	DUNKGEN413.8	185.0	165.0	165.0	-20.0
					77051	HNTLY68G13.8	185.0	165.0	165.0	-20.0
					77951	9M PT 1G23.0	628.3	528.3	528.3	-100.0
					79546	POLETTI	26.0	774.4	734.4	-40.0

CONED - LONG ISLAND POWER AUTHORITY

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->					
<---- GENERATOR MW ---->					<---- GENERATOR MW ---->					
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE	
74190	ROSE GN124.0	493.1	586.0	92.9	74906	NRTPTG1	22.0	326.3	236.3	-90.0
74302	ER G7	13.2	166.0	193.3	74908	NRTPTG3	22.0	160.0	70.0	-90.0
74702	RAV 3	22.0	899.7	1036.3	74909	NRTPTG4	22.0	360.0	270.0	-90.0
74705	AST 4	20.0	361.0	388.3	74913	PTJEFG4	20.0	171.0	-9.0	-180.0
74706	AST 5	20.0	361.0	407.4	74942	NYPA108	13.8	108.0	58.0	-50.0
74707	RAV 1	20.0	385.0	472.4						
79546	POLETTI	26.0	774.4	856.4						

GENERATION PARTICIPATION FOR INTERFACES

PJM - NYISO

<----- STUDY SYSTEM ----->						<----- OPPOSING SYSTEM ----->				
<---- GENERATOR MW ---->						<---- GENERATOR MW ---->				
BUS	BUS NAME	BASE	SHIFT	CHANGE		BUS	BUS NAME	BASE	SHIFT	CHANGE
34	PCHBTM	222.0	1108.4	1408.4	300.0	74190	ROSE GN124.0	489.9	89.9	-400.0
424	SHAWVL	118.0	129.4	529.4	400.0	74702	RAV 3 22.0	888.2	488.2	-400.0
2907	KITTGEN	113.8	140.0	340.0	200.0	75523	KINTIG2424.0	607.5	207.5	-400.0
3135	BRUNER	324.0	745.0	945.0	200.0	76640	DUNKGEN313.8	0.0	-100.0	-100.0
3146	MONTUR	124.0	745.0	945.0	200.0	77051	HNTLY68G13.8	185.0	85.0	-100.0
4110	EDDYSTN	120.0	279.0	579.0	300.0	79547	JAFITZ1G24.0	885.0	285.0	-600.0
5055	BERGEN	124.0	0.0	200.0	200.0					
5140	MERCER	124.0	324.0	524.0	200.0					

NYISO - PJM

<----- STUDY SYSTEM ----->						<----- OPPOSING SYSTEM ----->				
<---- GENERATOR MW ---->						<---- GENERATOR MW ---->				
BUS	BUS NAME	BASE	SHIFT	CHANGE		BUS	BUS NAME	BASE	SHIFT	CHANGE
74190	ROSE GN124.0	496.2	996.2	500.0		424	SHAWVL 118.0	124.0	-116.0	-240.0
74702	RAV 3 22.0	929.7	1229.7	300.0		2897	S RIV G113.8	87.0	27.0	-60.0
74807	WTSD 6G13.0	69.0	269.0	200.0		2907	KITTGEN113.8	140.0	-80.0	-220.0
76642	DUNK115G13.8	100.0	300.0	200.0		3150	MTN CK 324.0	785.0	465.0	-320.0
77951	9M PT 1G23.0	628.3	1228.3	600.0		3151	MTN CK 424.0	0.0	-320.0	-320.0
78955	ALBY STM13.2	291.0	491.0	200.0		4953	ATHENIA3 138	11.0	-209.0	-220.0
						4961	BERGEN 138	21.0	-199.0	-220.0
						5077	LINDEN A26.0	39.0	-21.0	-60.0
						5911	PERRYG5118.0	142.0	22.0	-120.0
						8101	BLE#1 ST15.0	129.0	-91.0	-220.0

GENERATION PARTICIPATION FOR INTERFACES

ONTARIO - NEW YORK

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->				
<----- GENERATOR MW ----->					<----- GENERATOR MW ----->				
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE
81424	LENNOXG320.0	400.0	900.0	500.0	74190	ROSE GN124.0	494.7	194.7	-300.0
81425	LENNOXG420.0	200.0	700.0	500.0	74702	RAV 3 22.0	896.6	646.6	-250.0
					76640	DUNKGEN313.8	0.0	-50.0	-50.0
					77051	HNTLY68G13.8	185.0	135.0	-50.0
					78955	ALBY STM13.2	291.0	241.0	-50.0
					79547	JAFITZ1G24.0	885.0	585.0	-300.0

NEW YORK - ONTARIO

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->				
<----- GENERATOR MW ----->					<----- GENERATOR MW ----->				
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE
74190	ROSE GN124.0	492.7	792.7	300.0	81424	LENNOXG320.0	400.0	-100.0	-500.0
74193	DANSK G416.1	233.0	533.0	300.0	81425	LENNOXG420.0	200.0	-300.0	-500.0
78955	ALBY STM13.2	291.0	391.0	100.0					
79390	BOWLINE 20.0	553.7	703.7	150.0					
79546	POLETTI 26.0	774.9	924.9	150.0					

GENERATION PARTICIPATION FOR INTERFACES

NEW YORK - NEW ENGLAND

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->				
<---- GENERATOR MW ---->					<---- GENERATOR MW ---->				
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE
74190	ROSE GN124.0	493.4	793.4	300.0	71063	MYST G7 22.0	565.0	315.0	-250.0
74193	DANSK G416.1	233.0	533.0	300.0	71252	CANAL G218.0	576.0	276.0	-300.0
78955	ALBY STM13.2	291.0	391.0	100.0	72868	NWNGT G124.0	422.0	172.0	-250.0
79390	BOWLINE 20.0	554.4	704.4	150.0	73563	MILL#3 24.0	1136.7	936.7	-200.0
79546	POLETTI 26.0	773.9	923.9	150.0					

NEW ENGLAND - NEW YORK

<----- STUDY SYSTEM ----->					<----- OPPOSING SYSTEM ----->				
<---- GENERATOR MW ---->					<---- GENERATOR MW ---->				
BUS	BUS NAME	BASE	SHIFT	CHANGE	BUS	BUS NAME	BASE	SHIFT	CHANGE
71063	MYST G7 22.0	565.0	815.0	250.0	74190	ROSE GN124.0	493.0	193.0	-300.0
71252	CANAL G218.0	576.0	876.0	300.0	74193	DANSK G416.1	233.0	183.0	-50.0

72868	NWNGT	G124.0	422.0	672.0	250.0	78955	ALBY STM	13.2	291.0	191.0	-100.0
73563	MILL#3	24.0	1136.7	1336.7	200.0	79390	BOWLINE	20.0	554.1	404.1	-150.0
						79394	LOVETT	520.0	171.1	21.1	-150.0
						79527	GILBOA#	117.0	250.0	0.0	-250.0

TABLE 1

DISTRIBUTION FACTORS FOR DYSINGER EAST CIRCUITS

Summer 2000

←----- FACILITY ----->	% Pickup of Transfer	KINTI -ROCH	NIAGAR -ROCH	STOLLE -MEYER	LOCKPT -SOUR	LOCKPT -SHEL	NIAGAR -ROCH
GOLAH66K MORT66KV # 1	**	**	**	**	**	**	**
KINTI345 ROCH 345 # 1	29.3	TRIP	45.8	14.9	15.0	13.6	O/S
LOCKPORT NAKR-108 # 1	1.3	1.4	1.6	1.4	4.2	3.9	3.0
LOCKPORT OAKFLDTP # 1	1.6	1.6	1.9	1.7	4.9	4.6	3.6
LOCKPORT SHEL-113 # 1	3.5	3.5	4.3	3.8	14.3	TRIP	7.9
LOCKPORT SOUR-111 # 1	3.3	3.3	4.1	3.6	TRIP	12.2	7.5
LOCKPORT TELRDTP1 # 1	3.3	1.6	1.9	1.7	6.2	6.7	3.6
LOCKPORT TELRDTP1 # 1		3.4	4.1	3.7	11.8	19.4	7.7
NIAG 345 ROCH 345 # 1	43	55.3	TRIP	21.8	21.9	19.9	TRIP
STOLE230 MEYER230 # 1	13.2	6.0	7.3	TRIP	6.5	5.9	13.4
*** SUB-TOTALS ***	----- 98.5	----- 76.4	----- 71.3	----- 52.9	----- 85.6	----- 86.9	----- 47.3
*** L33P-L34P ***	**	8.3	10.0	8.4	4.3	3.9	18.5
*** PJM-NYPP ***		14.9	18.1	35.9	10.5	9.6	33.4
*** TOTALS ***	----- 98.5	----- 100.0	----- 100.0	----- 100.0	----- 100.0	----- 100.0	----- 100.0

\*\* Less than 1.0% pickup



TABLE 2

DISTRIBUTION FACTORS FOR WEST CENTRAL CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	PANNEL -CLAY	STOLLE -MEYER	QUAKER -SLEGH	PANNEL -FARM	PALLEL -CLAY
MORTIMER LAWLER-1 # 1	3	2.6	1.3	4.1	17.0	6.2
MORTIMER LAWLER-2 # 1	3.2	2.9	1.1	4.6	4.0	7.0
PANNELLI FRMGTN-4 # 1	4.1	6.2	8.9	18.1	TRIP	14.9
PANNELL3 CLAY # 1	36.3	TRIP	10.9	18.8	20.3	O/S
PANNELL3 CLAY # 2	36.4	58.4	10.9	18.8	20.4	TRIP
QUAKER MACDN115 # 1	0.3	**	**	19.9	2.7	1.0
QUAKER SLEIG115 # 1	2.9	3.6	2.0	TRIP	11.2	8.6
STA 162 S.PER115 # 1	0.5	1.9	17.1	2.4	5.0	4.5
STOLE230 MEYER230 # 1	13.2	3.1	TRIP	3.0	8.3	7.4
*** SUB-TOTALS ***	99.9	79.1	52.5	89.7	88.9	49.6
*** L33P-L34P ***		7.4	8.4	3.0	2.3	17.8
*** PJM-NYPP ***		13.4	35.9	6.6	6.8	32.1
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 3

DISTRIBUTION FACTORS FOR TOTAL EAST CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	PORTER -RTRDM	EDIC34 -NSCOT	MARCY3 -NSCOT	FRASER -GILBA	BRBURG -RAMPO	WALDWK -SMAWA	HUDSON -FARGT	LINDEN -GOETH	WALDWK -SMAWA	HUDSON -FARGT
BRANCHBG RAMAPO 5 # 1	**	2.0	3.3	3.4	3.1	TRIP	3.0	4.8	21.5	28.3	11.2
COOPC345 ROCK TAV # 1	16.5	3.8	6.8	7.1	17.9	4.6	**	**	1.6	3.6	**
COOPC345 ROCK TAV # 2	16.5	3.8	6.8	7.1	17.9	4.6	**	**	1.6	3.6	**
E.SPR115 INGHAM-E # 1	0.9	1.1	**	**	2.6	**	**	**	**	**	**
EDIC N.SCOT77 # 1	18.9	14.1	TRIP	33.3	19.6	3.4	**	1.0	2.8	2.0	2.3
FRASR345 GILB 345 # 1	16.2	9.4	23.1	23.6	TRIP	3.7	**	1.5	3.9	1.9	3.4
HUDSON1 FARRGUT1 # 1	**	**	1.4	1.4	1.8	7.0	2.3	TRIP	15.6	22.4	O/S
HUDSON2 FARRGUT2 # 1	**	**	1.4	1.4	1.8	7.0	2.3	57.3	15.6	22.4	TRIP
INGMS-CD INGHAM-E # 1	**	9.3	3.6	3.6	**	**	**	**	**	**	**
LINDEN GOETHALS # 1	**	1.1	1.8	1.9	2.1	14.1	1.3	6.9	TRIP	12.0	16.2
MARCY T1 N.SCOT99 # 1	20.4	15.0	35.1	TRIP	21.2	3.7	**	1.0	3.1	2.1	2.4
PLAT T#3 GRAND IS # 1	1.1	2.4	2.0	2.2	1.2	**	**	**	**	**	**
PORTER 2 ROTRDM.2 # 1	4.5	TRIP	5.5	5.6	3.1	**	**	**	**	**	**
PORTER 2 ROTRDM.2 # 2	4.6	34.2	5.7	5.7	3.2	**	**	**	**	**	**
WALDWICK SMAHWAH1 # 1	**	1.0	1.7	1.8	1.4	24.7	89.6	13.4	16.2	O/S	31.3
WALDWICK SMAHWAH2 # 1	**	**	1.6	1.7	1.3	24.3	TRIP	12.9	15.6	TRIP	30.1
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 4

DISTRIBUTION FACTORS FOR UPNY - CONED CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	PLVLLY -MILLW	PLVLLY -FISHK	RAMAPO -BUCHN	LADNTW -BUCHS	LINDEN -GOETH	HUDSON -FARGT	ROSETN -FISHK
E FISH I FISHKILL # 1	1.7	**	2.4	**	**	**	**	5.9
FISHKILL SYLVN115 # 1	1	**	**	**	**	**	**	**
LADENTWN BUCH S # 1	12.8	17.7	-3.6	57.3	TRIP	27.5	15.5	24.2
PLTVLLEY FISHKILL # 1	7.9	23.9	TRIP	**	-7.2	1.2	**	32.6
PLTVLLEY FISHKILL # 2	7.9	23.9	66.6	**	-7.2	1.2	**	32.6
PLTVLLEY MILLWOOD # 1	17.7	TRIP	8.8	3.1	12.9	3.2	1.2	-8.7
PLTVLLEY WOOD B # 1	17.4	35.4	9.2	3.1	12.5	3.2	1.2	-8.4
RAMAPO BUCH N # 1	13.2	3.3	**	TRIP	43.9	19.0	10.5	13.5
ROSETON FISHKILL # 1	20.4	-11.1	15.2	16.3	22.3	10.7	5.4	TRIP
*** SUB-TOTALS ***	100.0	93.4	98.4	80.2	78.7	66.9	35.0	92.2
*** HUDSON-FAR#1 ***	**	**	**	6.5	7.3	15.6	57.3	2.8
*** HUDSON-FAR#2 ***	**	**	**	6.5	7.3	15.6	TRIP	2.8
*** LINDEN-GOETH ***	**	**	**	5.2	5.8	TRIP	6.9	2.4
*** NORHBR-NRPT ***	**	4.1	1.3	1.7	**	1.9	**	**
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 5

DISTRIBUTION FACTORS FOR SPRAINBROOK \ DUNWOODIE-SOUTH CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	SPRAIN -TRMNT	SPRAIN -W49TH	DUNWDE -RAINY	DUNWDE -SHORE	SPRAIN -DVNPT	SPRAIN -W49TH	DUNWDE -RAINY
DUN NO1R S CREEK # 1	**	15.4	**	**	2.4	1.7	**	**
DUN NO2R S CREEK # 1	**	15.7	**	**	2.4	1.8	**	**
DUN SO1R E179 ST # 1	**	22.9	**	**	3.5	2.6	**	1.2
DUNWODIE RAINEY # 3	28.7	7.6	24.1	TRIP	9.7	3.3	44.0	O/S
DUNWODIE RAINEY # 4	28.7	7.6	24.1	45.8	9.7	3.3	44.0	TRIP
DUNWODIE SHORE RD # 1	**	6.3	**	1.2	TRIP	53.1	1.0	2.2
REACBUS DVNPT NK # 1	**	4.5	**	**	46.1	TRIP	1.5	**
SPRBROOK TREMONT # 1	**	TRIP	**	**	4.6	3.8	1.4	1.3
SPRBROOK W 49 ST # 1	21.3	8.4	TRIP	23.6	4.6	7.3	O/S	43.5
SPRBROOK W 49 ST # 2	21.3	8.4	45.1	23.6	4.6	7.3	TRIP	43.5
*** SUB-TOTALS ***	100.0	96.8	96.5	96.7	87.6	84.2	93.7	94.0
*** HUDSON-FAR#1 ***	**	**	1.2	1.2	**	**	2.3	2.1
*** HUDSON-FAR#2 ***	**	**	1.2	1.2	**	**	2.3	2.1
*** LINDEN-GOETH ***	**	1.8	**	**	**	**	1.6	1.7
*** NORHBR-NRPRT ***	**	1.1	**	**	12.5	16.0	**	**
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 6

DISTRIBUTION FACTORS FOR MOSE SOUTH CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	MASSEN -MARCY	MASSEN -CHAT	MOSES2 -ADRON	MOSES2 -PORTR
ALCOA-NM BRADY # 1	1.1	2.1	**	**	1.9
COLTON PARISHVL # 9	1.3	**	**	**	**
DENNISON ANDRWS-4 # 1	2.3	4.5	**	1.5	3.9
DENNISON LWRNCE-B # 1	2.3	4.5	**	1.5	3.9
MASS 765 MARCY765 # 1	74.1	TRIP	67.9	45.4	O/S
MOSES W ADRON B1 # 1	9.5	20.2	3.5	TRIP	TRIP
MOSES W ADRON B2 # 1	9.5	20.2	3.5	36.6	50.4
*** SUB-TOTALS ***	100.0	51.5	77.1	85.7	60.1
*** MOSES-L33P ***		17.5	9.5	4.9	14.2
*** MOSES-L34P ***		19.3	10.5	5.4	15.6
*** MOSES-WILLE ***		5.8	1.5	1.9	5.0
*** MOSES-WILLW ***		5.8	1.5	1.9	5.0
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 7

DISTRIBUTION FACTORS FOR NYISO-NEISO CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	ALPS34 -MANY	PV.345 -LNGMT	NHHA -GEN	VTYANK -GEN	YRMTH -GEN	SBRK -GEN	HIGATE -DC	ELLRIV ER	MADWAS -DC
ALPS345 MANY393 # 1	36.7	TRIP	42.7	21.8	44.2	38.2	37.8	16.4	38.2	38.2
HOOSICK BNNINGTN # 1	3.1	10.4	3.0	1.5	2.2	2.7	2.7	**	2.7	2.7
NRTHPT P NORHR138 # 1	**	12.5	39.3	20.2	9.5	10.4	10.5	5.7	10.4	10.4
PLAT T#3 GRAND IS # 1	1.7	5.8	3.6	2.8	4.9	5.3	5.3	50.6	5.3	5.3
PLTVLLEY CTNY398 # 1	44.7	45.6	TRIP	47.0	27.1	30.7	31.1	14.4	30.7	30.7
ROTRDM.2 BRWAMP # 1	7.6	16.9	7.6	4.6	6.6	8.1	8.2	2.5	8.1	8.1
WHITEHAL BLISSVIL # 1	4.5	8.9	3.9	2.0	5.4	4.5	4.4	9.8	4.5	4.5
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 8

DISTRIBUTION FACTORS FOR NYISO-ONTARIO CIRCUITS

Summer 2000

<----- FACILITY ----->	% Pickup of Transfer	PA27 -NIAGAR	BP76 -PACKD2	STLAWR -MOSES	STLAWR -MOSES	BECKB -NIAGAR
BECK A NIAG 345 # 1	31.6	33.7	30.8	9.6	9.1	52.7
BECK B NIAG 345 # 1	31.6	33.8	30.9	9.6	9.1	TRIP
BP76 REG PACKARD2 # 1	17.1	26.1	TRIP	4.9	4.7	17.7
PA27 REG NIAGAR2W # 1	19.7	TRIP	31.3	5.8	5.5	23.2
STLAWL33 MOSES E # 1	**	1.0	1.1	52.4	TRIP	1.2
STLAWL34 MOSES E # 1	**	1.1	1.2	TRIP	54.9	1.3
*** SUB-TOTALS ***	100.0	95.7	95.3	82.3	83.3	96.1
*** OH-MICH ***	**	2.4	2.7	9.9	9.3	2.2
*** TOTALS ***	100.0	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup

TABLE 9

DISTRIBUTION FACTORS FOR NYISO-PJM CIRCUITS

Summer 2000

←----- FACILITY -----→	% Pickup of Transfer	ERIESO -FALCS	HMRCTY -STOLL	HMRCTY -WATER	E.TOWD -HILLS	BRBURG -RAMPO	WALDWK -SMAWA	HUDSON -FARGT	LINDEN -GOETH	WALDWK -SMAWA	HUDSON -FARGT
BRANCHBG RAMAPO 5 # 1	**	6.5	6.6	11.7	7.5	TRIP	3.0	4.8	21.5	28.3	11.2
E.SAYRE N.WAV115 # 1	8.2	2.0	1.4	4.1	30.2	1.3	**	**	**	1.0	**
E.TWANDA HILSD230 # 1	23.1	6.1	3.6	19.7	TRIP	3.7	**	**	2.6	2.8	2.1
ERIE E S RIPLEY # 1	20.4	TRIP	21.8	7.5	4.8	2.5	**	**	1.7	1.5	1.2
HOMER CY STOLE345 # 1	13.4	15.6	TRIP	15.4	2.1	1.8	**	**	1.2	1.1	**
HOMER CY WATRC345 # 1	20.8	6.6	18.8	TRIP	13.6	3.9	**	**	2.6	2.3	1.8
HUDSON1 FARRGUT1 # 1	**	2.0	2.0	3.4	2.7	7.0	2.3	TRIP	15.6	22.4	O/S
HUDSON2 FARRGUT2 # 1	**	2.0	2.0	3.4	2.7	7.0	2.3	57.3	15.6	22.4	TRIP
LAUREL L GOUDY115 # 1	6.4	**	**	2.2	11.4	1.1	**	**	**	**	**
LINDEN GOETHALS # 1	**	2.9	2.9	5.1	3.4	14.1	1.3	6.9	TRIP	12.0	16.2
WALDWICK SMAHWAH1 # 1	**	3.5	3.6	6.2	5.2	24.7	89.6	13.4	16.2	O/S	31.3
WALDWICK SMAHWAH2 # 1	**	3.3	3.4	5.8	4.9	24.3	TRIP	12.9	15.6	TRIP	30.1
WARREN FALCONER # 1	7.7	22.1	8.4	1.8	3.0	**	**	**	**	**	**
*** SUB-TOTALS ***	100.0	73.5	75.2	86.3	91.5	92.3	99.6	98.7	94.9	95.1	96.5
*** OH-MICH ***	**	15.1	14.0	7.8	4.7	4.3	**	**	2.9	2.6	2.0
*** TOTALS ***	100.0	88.6	89.2	94.1	96.2	96.6	100.0	100.0	100.0	100.0	100.0

\*\* Less than 1.0% pickup



TABLE 10A

GENERATION SHIFT FACTORS WITH ALL PHASE ANGLE REGULATORS HOLDING MW FLOW  
Summer 2000

←----- FACILITY ----->	BBURG -RAMAPO	CENTRAL -EAST	MARCY -SOUTH	OH -MICH	OH -NYPP	PJM -NYPP	UTICA -ALBANY	WEST -CENTRA
ALBANY	**	14.8	-10.6	**	**	**	12.8	**
BRANCHBURG-RAMAPO	-100.0	43.7	17.5	-12.8	26.0	-26.1	41.3	49.2
BECK	**	-46.9	-22.1	-6.7	-86.3	-13.6	-44.7	-77.9
BOWEN	**	-44.2	-18.2	15.7	-31.9	-68.0	-41.8	-54.0
BOWLINE POINT	**	-1.2	1.0	**	**	**	-1.1	**
BRANDON SHORE	**	-43.9	-17.8	13.7	-27.8	-72.2	-41.5	-51.1
BRAYTON POINT	**	10.2	-7.6	**	**	**	7.8	**
CHATEAUGAY	**	-55.8	-33.1	**	**	**	-53.3	1.6
CONEMAUGH	**	-43.9	-17.7	13.1	-26.7	-73.2	-41.5	-50.9
DUNKIRK	**	-45.6	-20.3	1.6	-3.3	3.4	-43.4	-70.2
EDDYSTONE	**	-43.8	-17.6	12.9	-26.3	-73.7	-41.3	-49.5
GILBOA	**	-1.3	-1.4	**	**	**	**	**
HATFIELD	**	-44.0	-18.0	14.2	-28.9	-71.1	-41.7	-52.5
HUDSON	**	-43.7	-17.4	12.6	-25.7	-74.3	-41.2	-48.6
HUNTLEY	**	-46.6	-21.7	-3.5	7.1	-7.1	-44.4	-77.8
INDIAN POINT #2	**	-1.0	**	**	**	**	**	**
J.E. AMOS	**	-44.2	-18.3	15.7	-32.0	-68.0	-41.9	-54.2
LAMBTON	**	-45.4	-20.0	-22.7	-56.0	-43.9	-43.1	-64.9
LUDINGTON	**	-44.6	-18.8	19.0	-38.9	-61.0	-42.2	-57.4
MONROE	**	-44.7	-18.9	19.9	-40.4	-59.5	-42.3	-58.2
MOUNT STORM	**	-44.0	-18.0	14.4	-29.3	-70.7	-41.7	-52.5
NANTICOKE	**	-46.2	-21.2	-13.3	-73.1	-26.8	-44.0	-72.2
NEWTON	**	-44.3	-18.4	16.5	-33.5	-66.4	-41.9	-54.9
NIAGARA	**	-46.8	-22.0	-3.4	6.9	-6.9	-44.6	-78.7
NORWALK HARBOR	**	6.3	-4.8	**	**	**	5.0	**
OSWEGO	**	-51.7	-29.2	**	1.3	-1.3	-50.0	2.7
PORTLAND	**	-43.6	-17.4	12.5	-25.4	-74.6	-41.2	-48.1
ROSETON	**	**	**	**	**	**	**	**
SALEM	**	-43.8	-17.6	12.9	-26.3	-73.6	-41.3	-49.6

TABLE 10B

GENERATION SHIFT FACTORS WITH ALL PHASE ANGLE REGULATORS FREE FLOWING  
Summer 2000

←----- FACILITY ----->	BBURG -RAMAPO	CENTRAL -EAST	MARCY -SOUTH	OH -MICH	OH -NYPP	PJM -NYPP	UTICA -ALBANY	WEST -CENTRA
ALBANY	-1.9	20.3	-8.6	-2.4	4.2	-2.7	15.8	4.5
BRANCBURG-RAMAPO	-100.0	9.8	5.0	-4.3	7.6	41.4	8.7	8.8
BECK	-11.2	-30.8	-15.1	-12.8	-77.3	-31.1	-27.5	-47.8
BOWEN	-19.2	-16.9	-6.7	9.8	-18.0	-98.8	-15.0	-16.4
BOWLINE POINT	3.9	-1.5	**	**	**	11.4	-1.4	**
BRANDON SHORE	-21.4	-13.4	-4.8	6.1	-10.9	-108.1	-11.9	-11.7
BRAYTON POINT	-1.1	14.1	-5.8	-1.8	3.2	-1.3	9.3	3.1
CHATEAUGAY	-5.1	-45.9	-26.5	-5.8	10.3	-12.2	-40.5	3.9
CONEMAUGH	-20.7	-14.3	-5.1	5.9	-10.4	-108.0	-12.7	-12.3
DUNKIRK	-13.4	-26.1	-11.8	-4.3	7.6	-18.4	-23.3	-40.0
EDDYSTONE	-23.4	-10.3	-3.2	4.0	-7.1	-114.0	-9.1	-8.0
GILBOA	-2.0	4.1	1.3	-2.2	3.9	-2.5	4.5	4.6
HATFIELD	-19.7	-15.9	-6.0	7.8	-13.8	-103.6	-14.1	-14.7
HUDSON	-6.4	-3.7	**	1.2	-2.1	-132.7	-3.3	-2.4
HUNTLEY	-11.4	-29.9	-14.3	-9.4	16.6	-25.3	-26.7	-49.3
INDIAN POINT #2	3.1	-1.2	**	**	**	9.1	-1.1	**
J.E. AMOS	-19.0	-17.2	-6.8	10.1	-18.1	-98.5	-15.3	-16.8
LAMBTON	-15.1	-24.3	-11.1	-31.3	-44.5	-68.0	-21.5	-27.2
LUDINGTON	-17.6	-19.7	-8.3	14.9	-26.8	-88.4	-17.4	-20.4
MONROE	-17.2	-20.4	-8.7	17.8	-29.1	-85.6	-18.1	-21.5
MOUNT STORM	-20.1	-15.5	-5.8	7.8	-13.9	-103.8	-13.7	-14.3
NANTICOKE	-12.3	-29.4	-14.3	-20.3	-64.3	-45.3	-26.0	-34.5
NEWTON	-18.7	-17.8	-7.2	11.0	-20.4	-95.9	-15.8	-17.7
NIAGARA	-11.1	-30.4	-14.7	-9.2	16.3	-24.7	-27.3	-51.1
NORWALK HARBOR	**	5.1	-1.8	**	1.4	**	3.7	1.4
OSWEGO	-5.5	-41.9	-23.8	-4.8	8.5	-10.8	-38.4	13.1
PORTLAND	-17.9	-8.9	-2.5	2.9	-5.2	-123.1	-7.9	-5.9
ROSETON	**	1.5	1.3	**	1.4	2.9	1.4	1.7
SALEM	-23.4	-10.2	-3.2	4.0	-7.1	-113.9	-9.1	-8.0

APPENDIX F

ANNOTATED TLTG OUTPUT

**This Section Is Available  
On Computer Diskette If Requested**

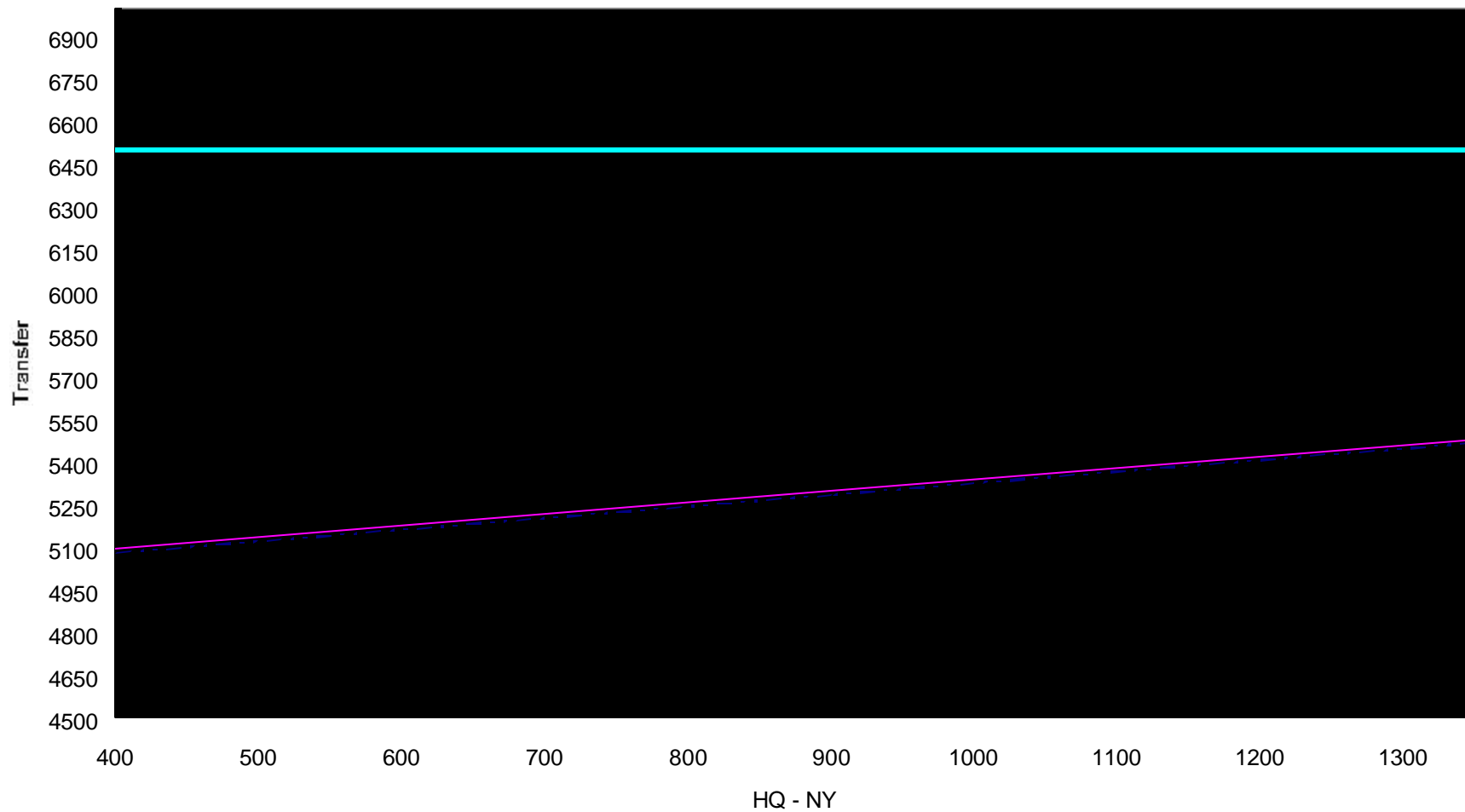
APPENDIX G  
TRANSFER LIMIT SENSITIVITY GRAPHS



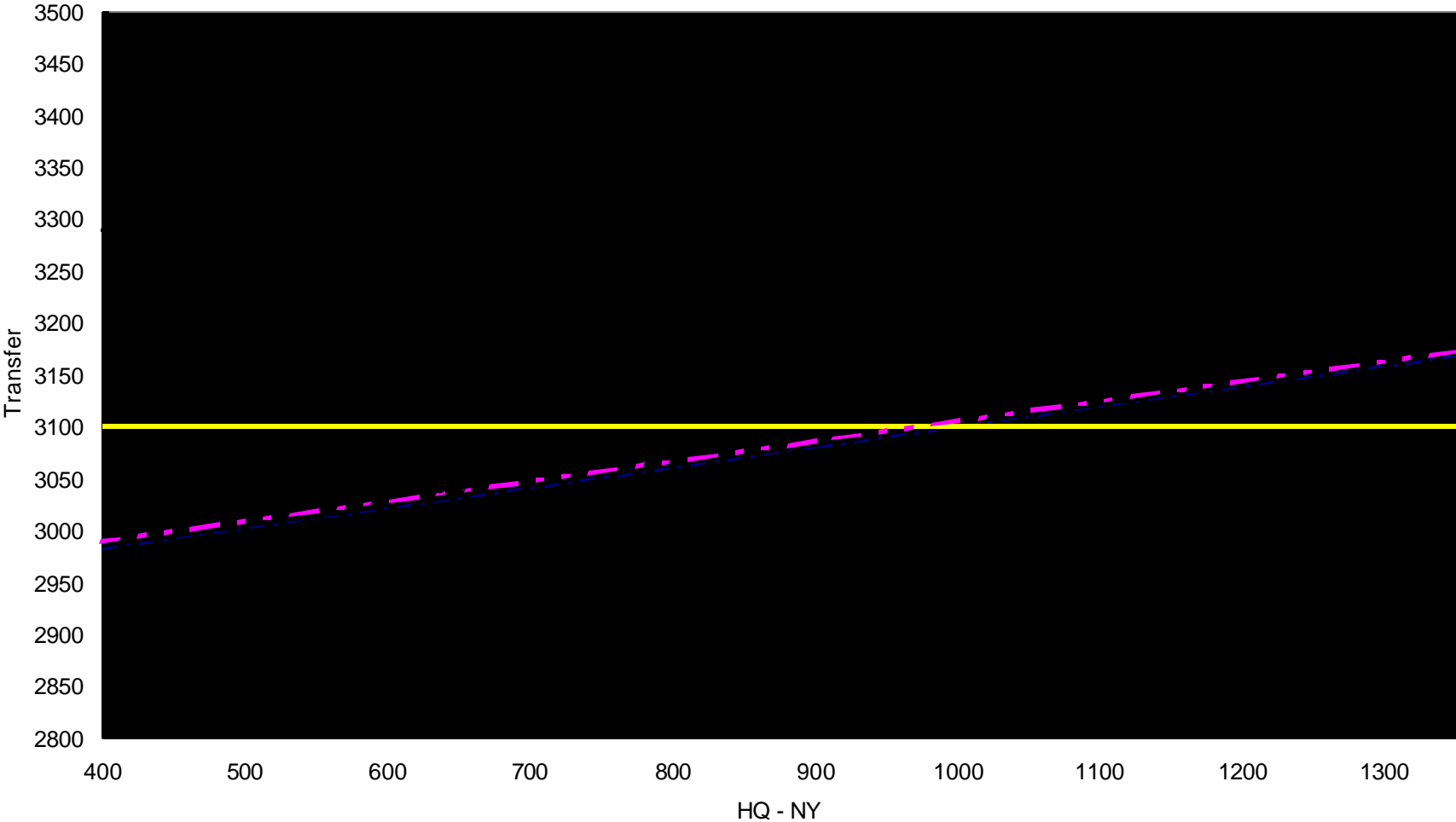
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### Total East vs. HQ For Normal Transfer Criteria Summer 2000

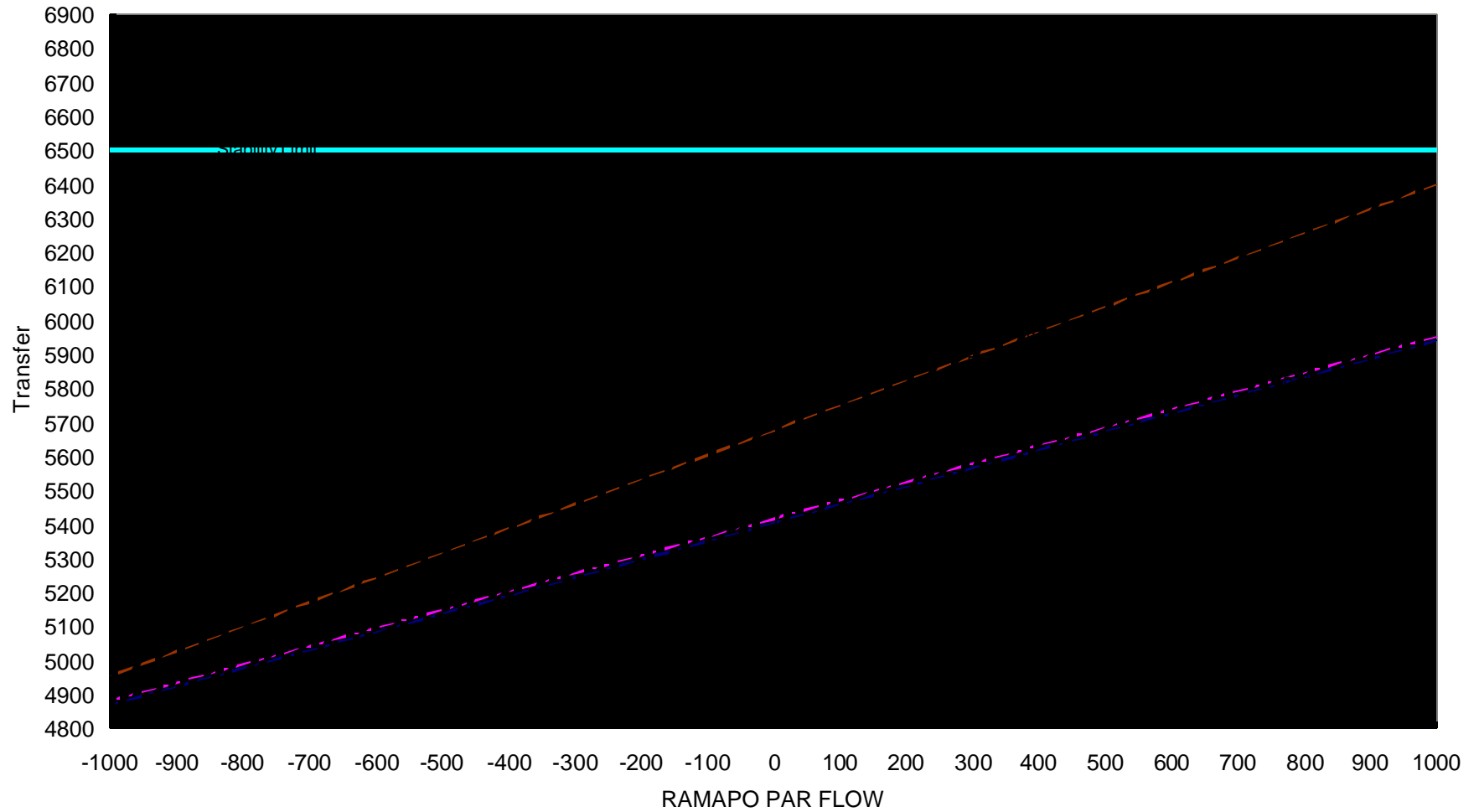


**Central East vs. HQ**  
**For Normal Transfer Criteria**  
**Summer 2000**

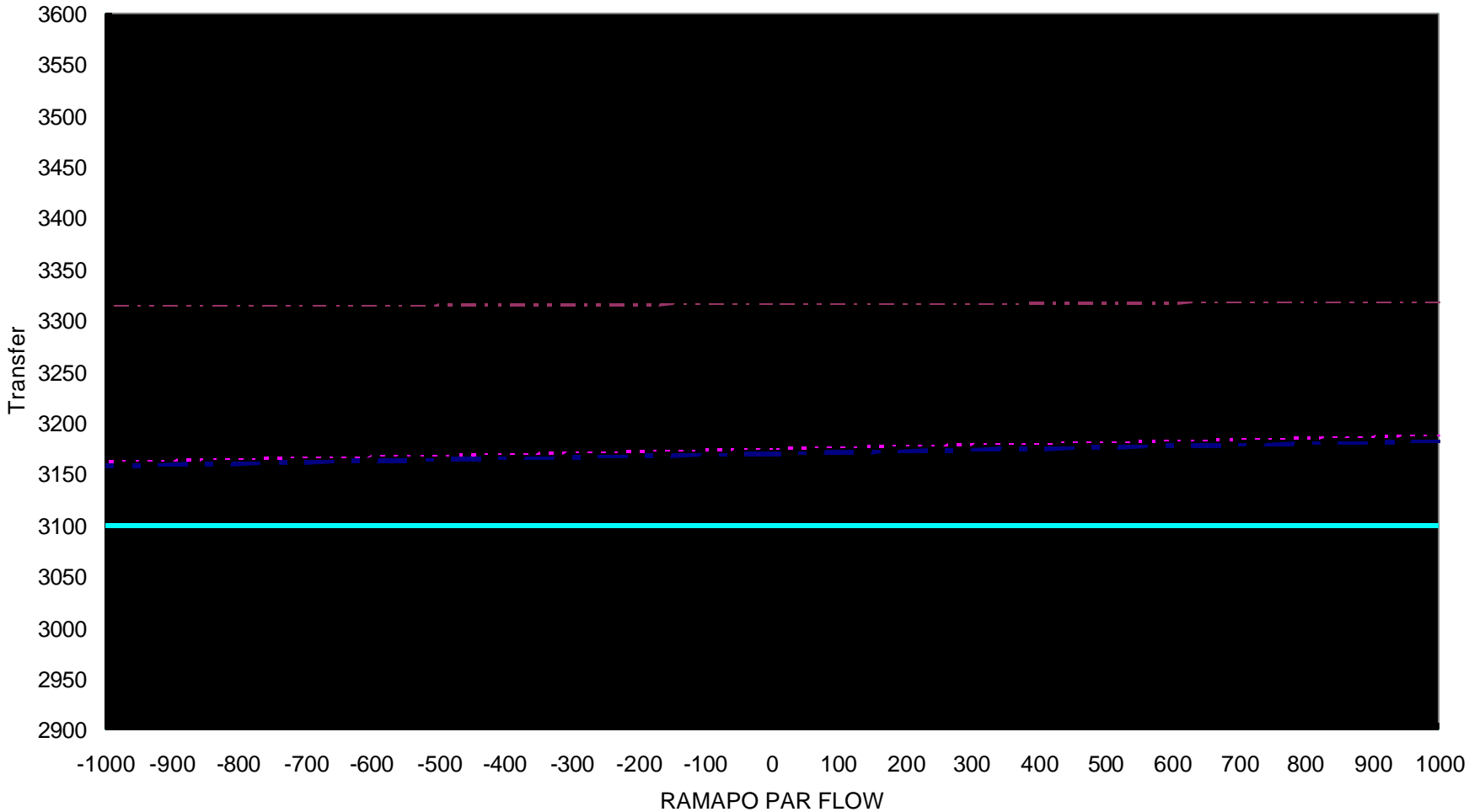




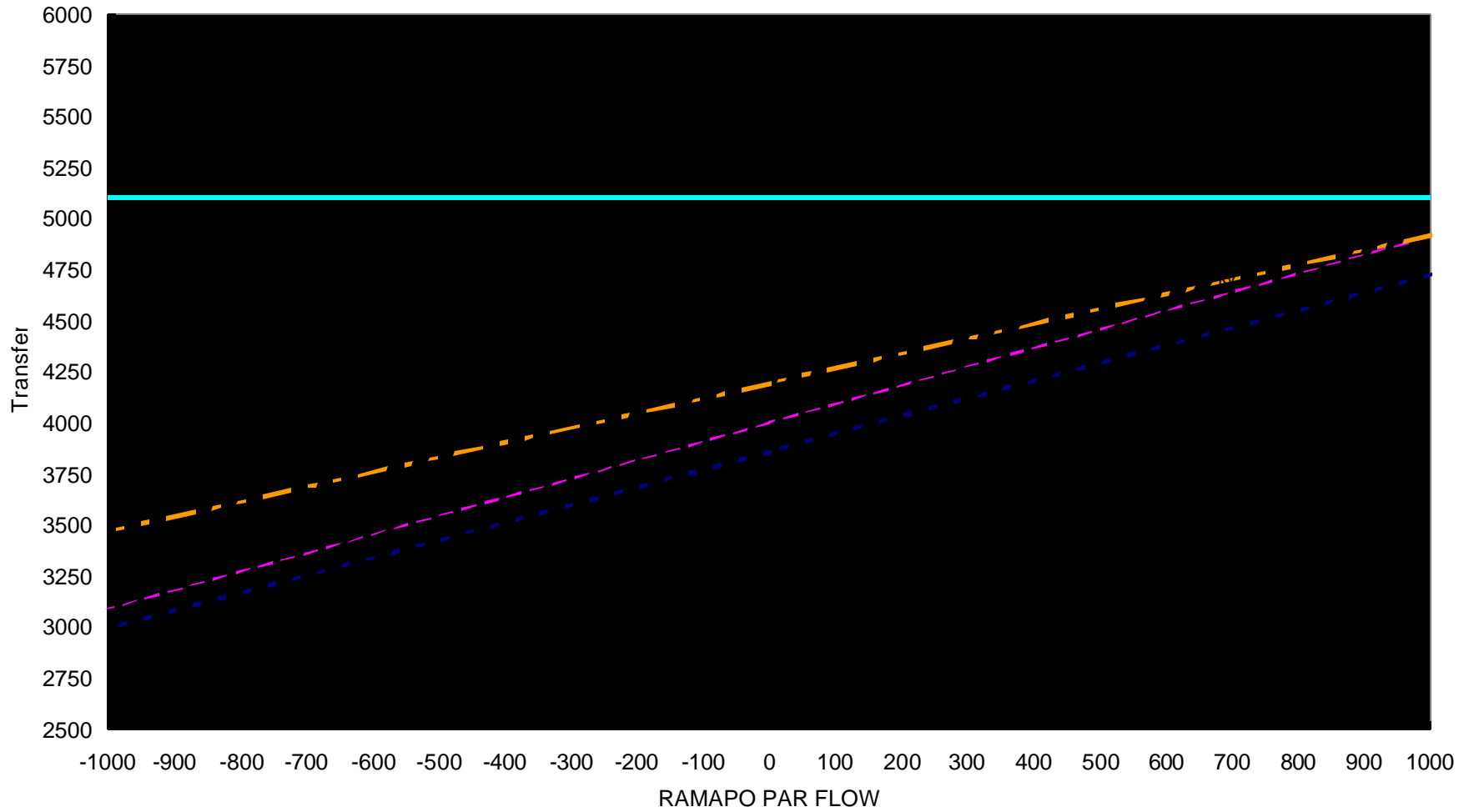
**Total East vs. RAMAPO PAR Flow**  
**For Normal Transfer Criteria**  
**Summer 2000**



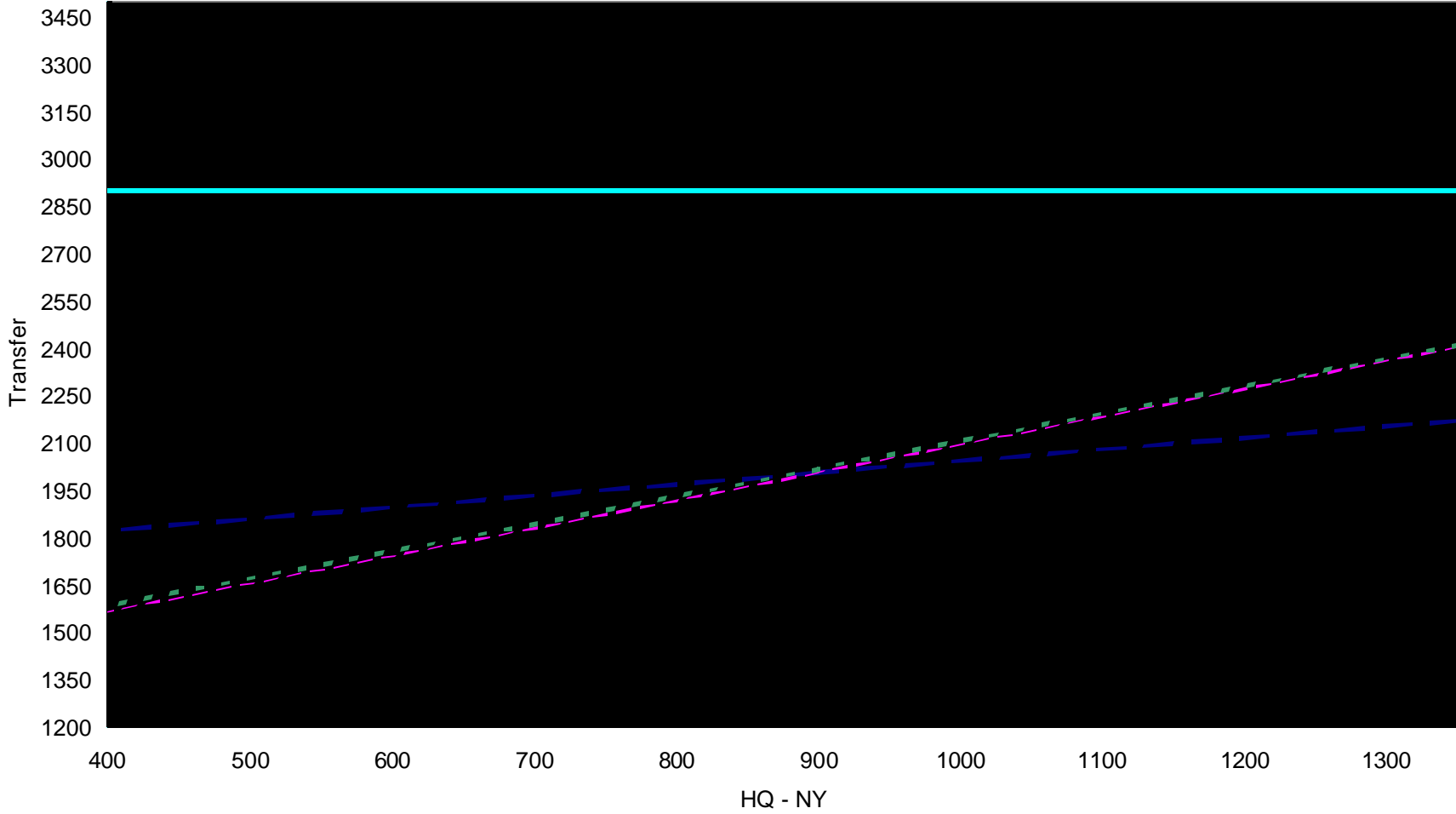
**Central East vs. RAMAPO PAR Flow**  
**For Normal Transfer Criteria**  
**Summer 2000**



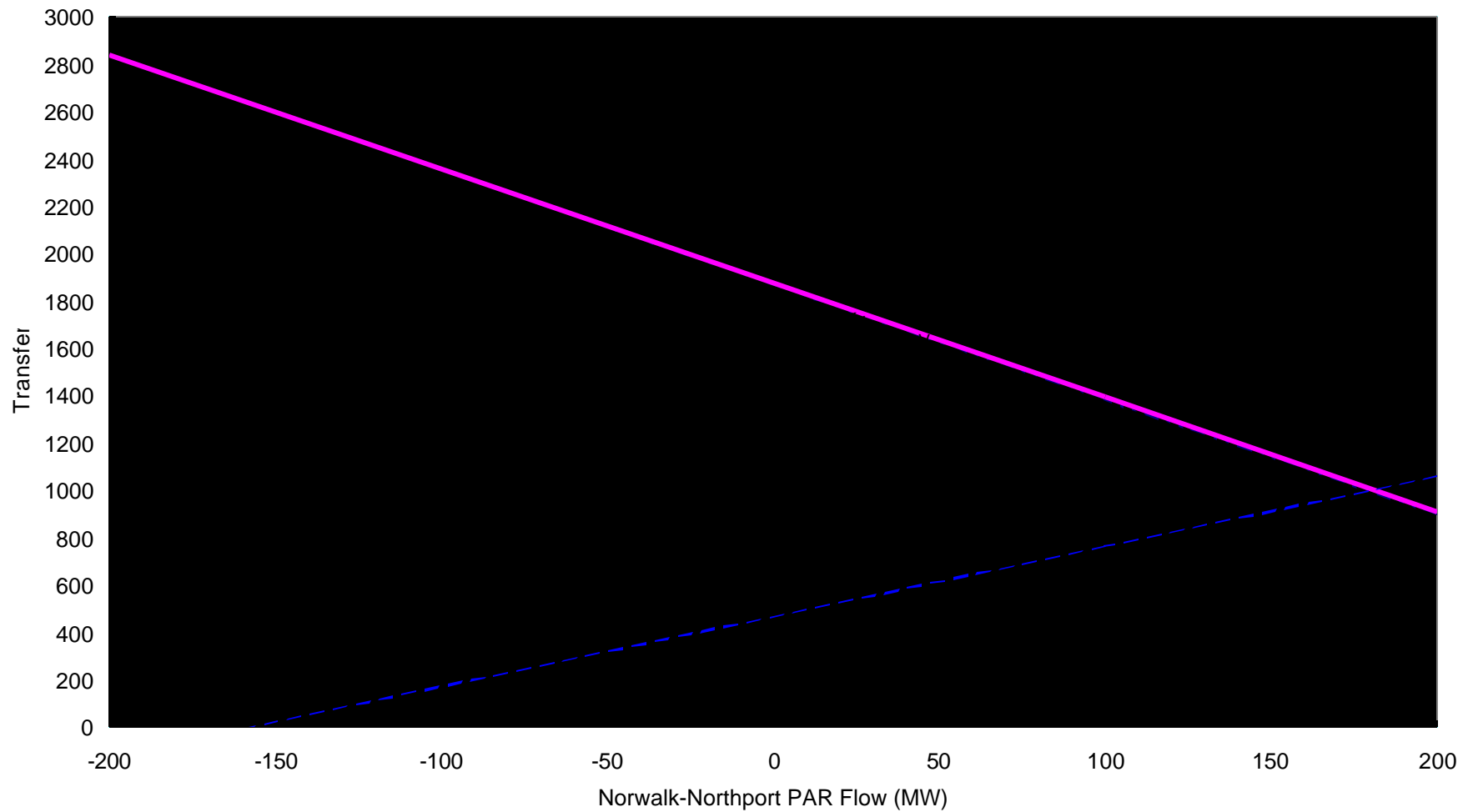
**UPNY CONED vs. RAMAPO PAR Flow**  
For Normal Transfer Criteria  
Summer 2000



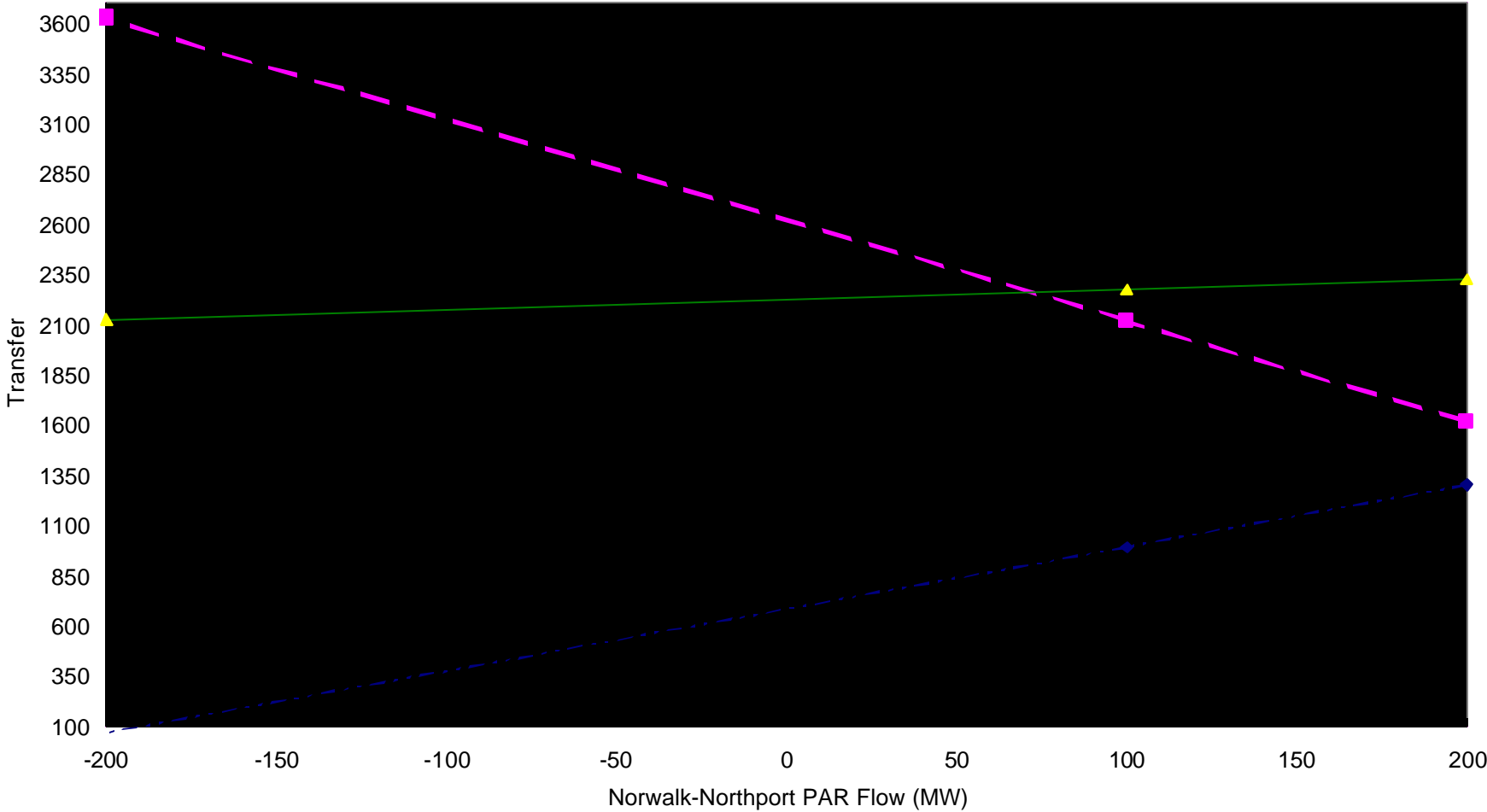
**Moses South vs. HQ Export to New York**  
**For Normal Transfer Criteria**  
**Summer 2000**



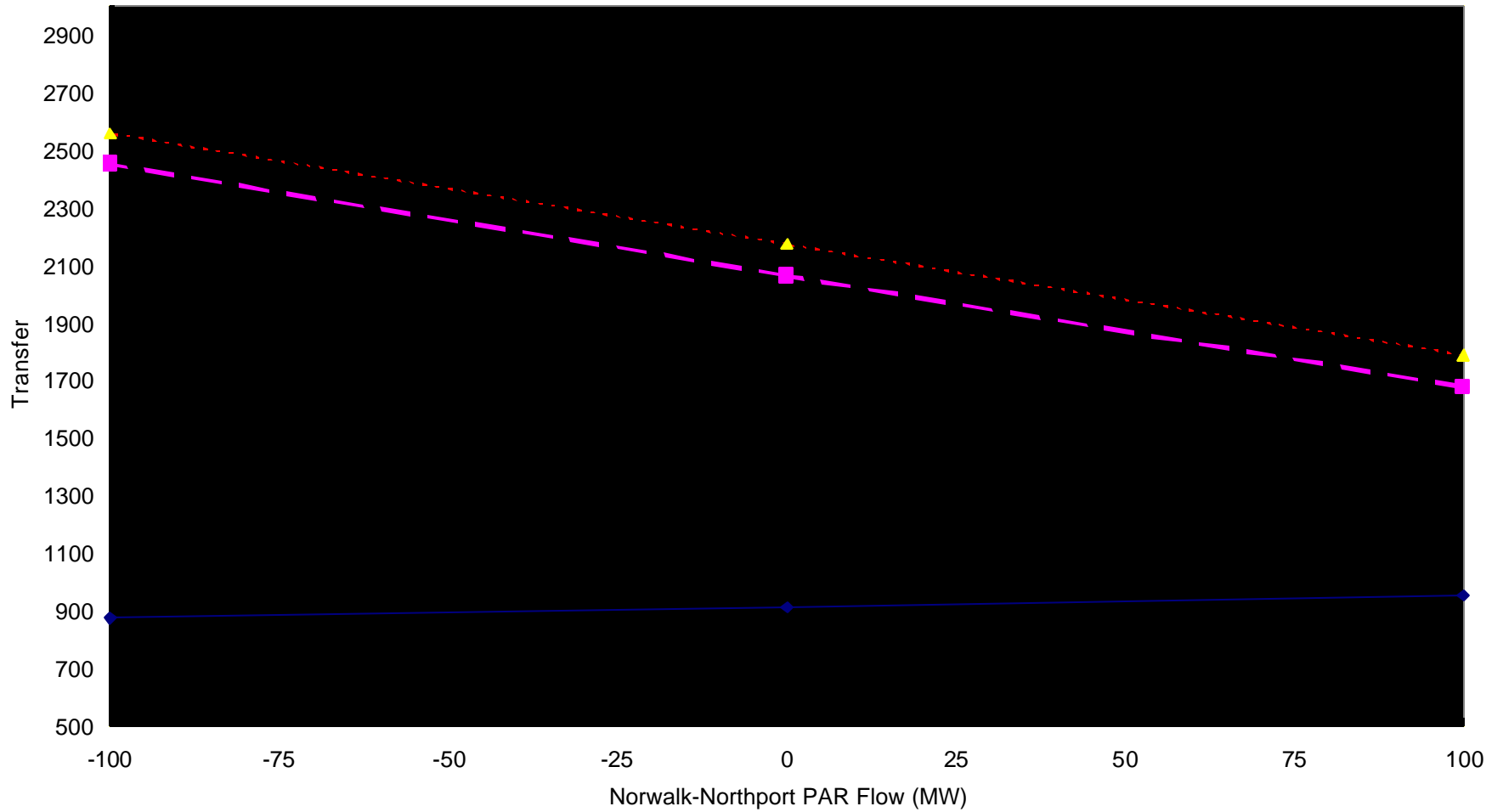
**NE-NY vs. NORWALK-NORTHPORT PAR Flow**  
**For Normal Transfer Criteria**  
**Summer 2000**



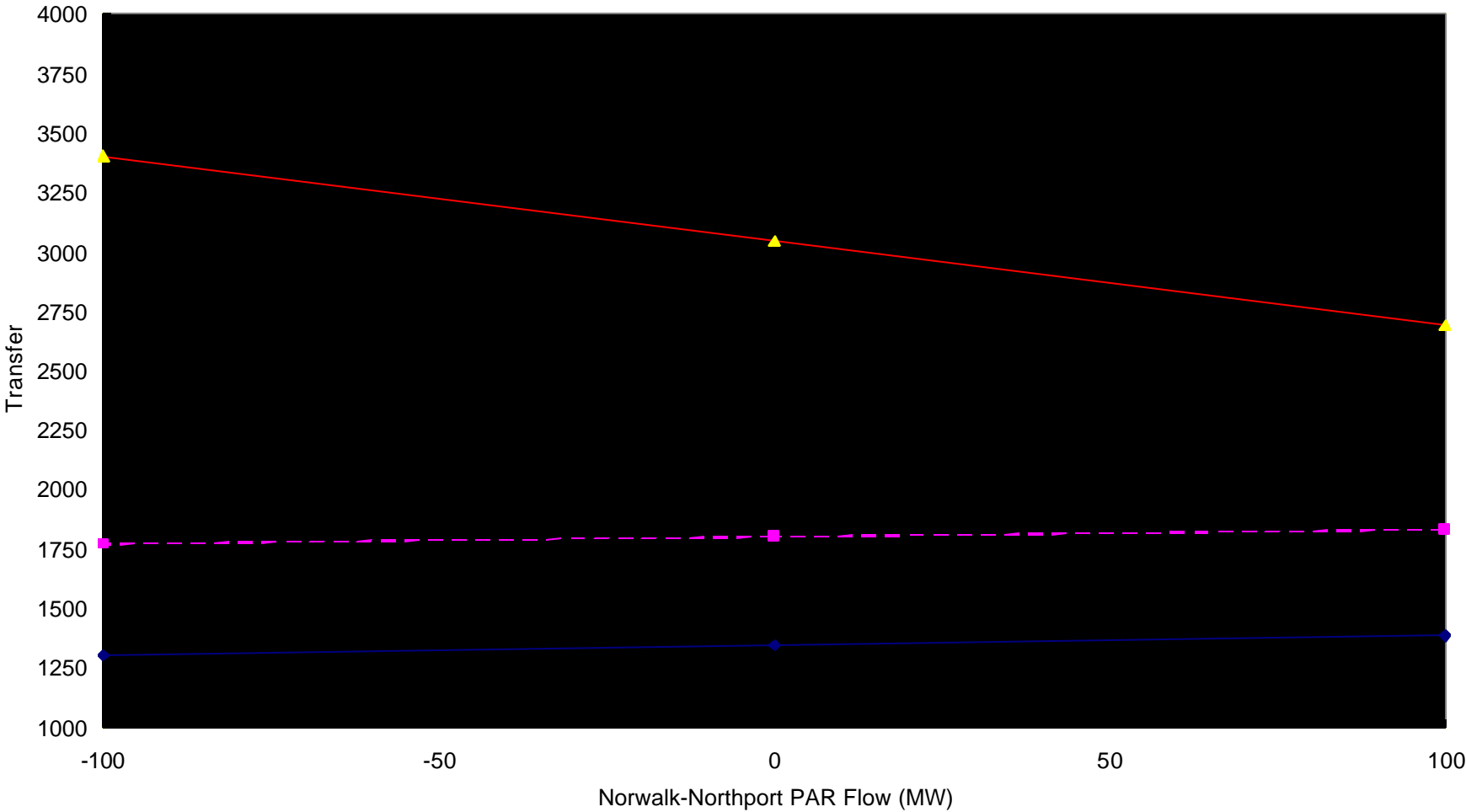
**NE-NY vs. NORWALK-NORTHPORT PAR Flow**  
**For Emergency Transfer Criteria**  
**Summer 2000**



### NY-NE vs. NORWALK-NORTHPORT PAR Flow For Normal Transfer Criteria Summer 2000

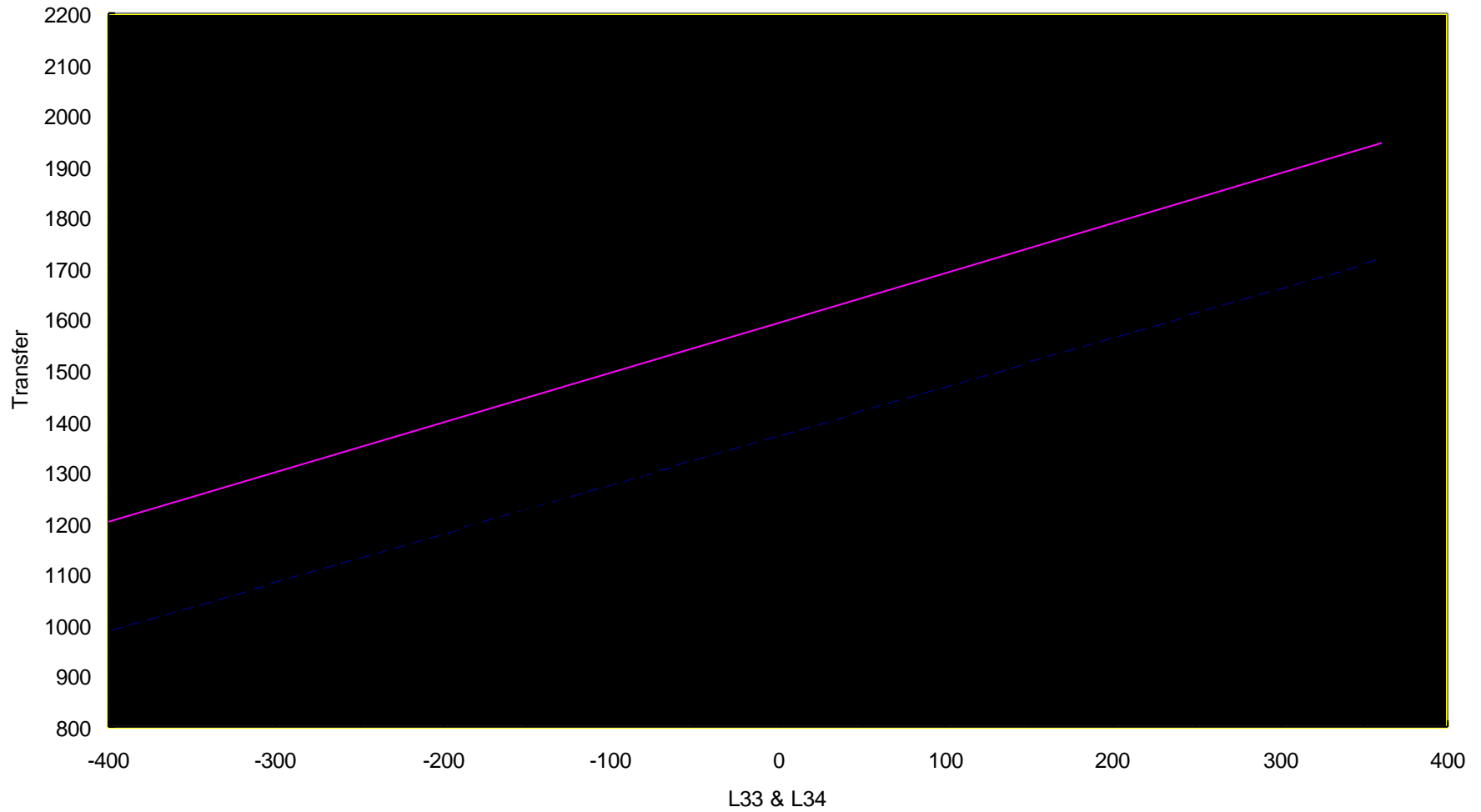


**NY-NE vs. NORWALK-NORTHPORT PAR Flow**  
**For Emergency Transfer Criteria**  
**Summer 2000**

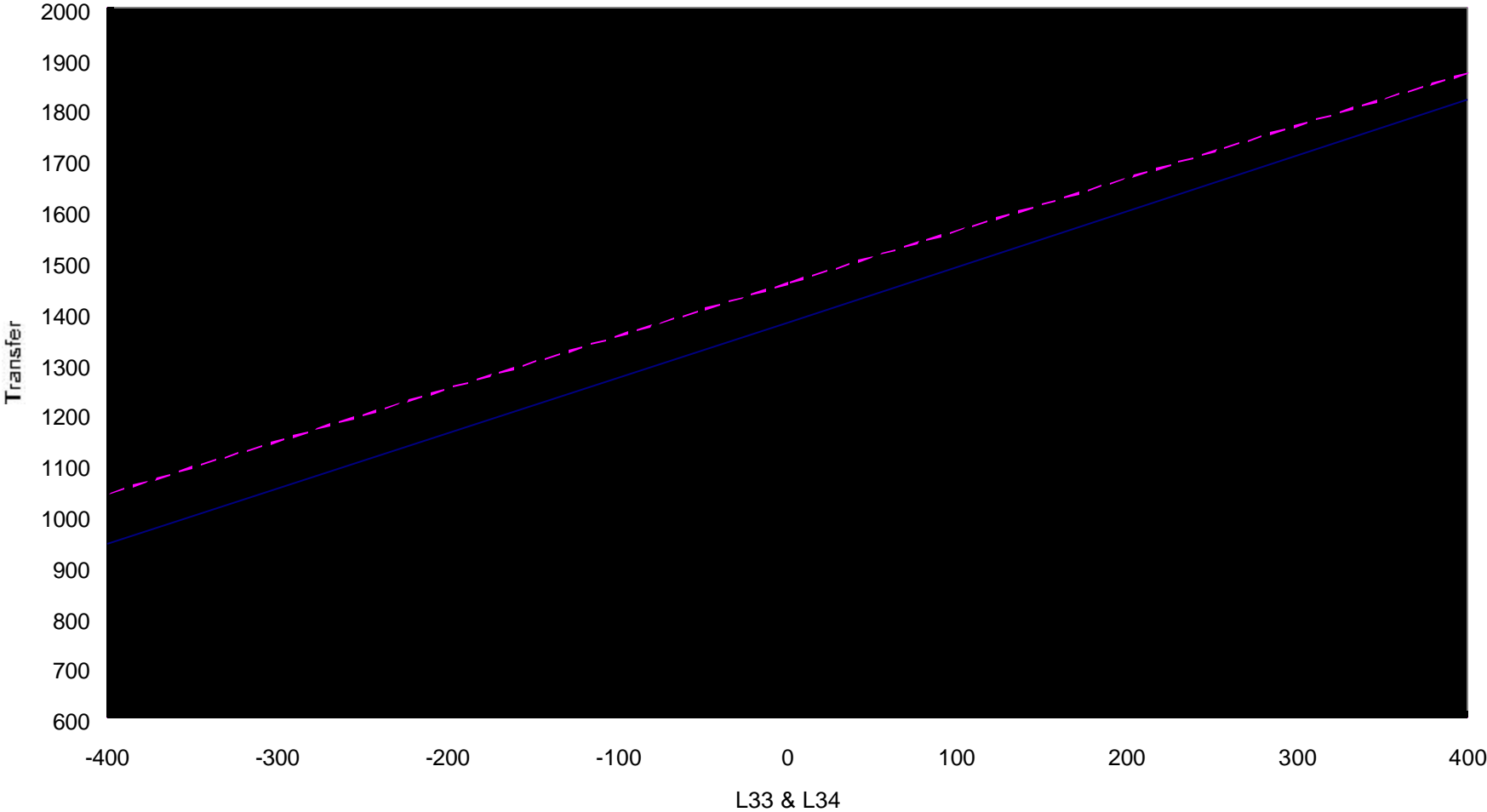




**NYISO- IMO (Ontario) Transfer vs. L33 & L34**  
**For Normal Transfer Criteria**  
**Summer 2000**



**IMO (Ontario)-NYISO Transfer vs. L33 & L34**  
**For Normal Transfer Criteria**  
**Summer 2000**



## **APPENDIX H**

### **COMPARISON OF TRANSFER LIMITS SUMMER 2000 vs. SUMMER 1999**



# SUMMER 2000

## NYISO SUMMER 2000 CROSS-STATE THERMAL LIMITS

Interface	Rating	SUMMER 2000		SUMMER 1999		DELTA
		Limit (MW)	Contingency	Limit (MW)	Contingency	
<b>Dysinger East</b>	Normal	3200	1	3100	1	100
	Emergency	3200	1a	3200	1a	0
<b>West Central</b>	Normal	2075	1	2100	1	-25
	Emergency	2500	2	2500	2	0
<b>Upny - ConEd</b>	Normal	4150	3	4275	3	-125
	Emergency	4800	4	4850	4	-50
<b>Sprn/Dun-South</b>	Normal	4175	5	3975	5	200
	Emergency	4175	5	3975	5	200
<b>Con Ed - LIPA</b>	Normal	975	6	950	6	25
	Emergency	1025	6a	1025	6a	0

## NYISO SUMMER 2000 CROSS-STATE THERMAL LIMITS

Interface	Rating	SUMMER 2000		SUMMER 1999		Delta
		Limit (MW)	Contingency	Limit (MW)	Contingency	
<b>Central East</b>						
HQ > NY 1350 MW	Normal	3150	7	3000	7	150
	Emergency	3475	8	3300	8	175
HQ > NY 900 MW	Normal	3075	7	2975	7	100
	Emergency	3375	8	3300	8	75
<b>Total East</b>						
HQ > NY 1350 MW	Normal	5450	7	5975	7	-525
	Emergency	6075	8	6600	8	-525
HQ > NY 900 MW	Normal	5275	7	6000	7	-725
	Emergency	5900	8	6625	8	-725
<b>Moses - South</b>						
HQ > NY 1350 MW	Normal	2425	11	2200	11	225
	Emergency	3075	13	3075	13	0
HQ > NY 900 MW	Normal	2000	12	1900	12	100
	Emergency	2900	13	2900	13	0

## **NYISO SUMMER 2000 CROSS-STATE THERMAL LIMIT CONTINGENCY LIST**

	<b>Limiting Element</b>			<b>Contingency</b>
(1)	Pannell Rd. - Rochester (RP-2) 345kV	@LTE=	1501 MW for L/O	(S. BKR@Rochester345kV) Rochester- Pannell Rd. 345kV Rochester 345/115kV
(1a)	Niagara - Rochester (NR-2) 345kV	@STE=	1686 MW for L/O	Kintigh - Rochester (SR-1) 345kV
(2)	Pannell Rd. - Rochester (RP-2) 345kV	@STE=	1685 MW for L/O	Rochester - Pannell Rd. (RP-1) 345kV
(3)	Leeds - Pleasant Valley (91) 345kV	@LTE=	1538 MW for L/O	Leeds - Pleasant Valley (92) 345kV
(4)	Leeds - Pleasant Valley (91) 345kV	@STE=	1724 MW for L/O	Leeds - Pleasant Valley (92) 345kV
(5)	Dunwoodie - Rainey 345kV	@Nor=	715 MW for L/O	Pre-Contingency Loading
(6)	Dunwoodie - Shore Road (Y50) 345kV	@LTE=	877 MW for L/O	Hmp Hrbr - Dvnpt (Y49) 345kV
(6a)	Dunwoodie - Shore Road (Y50) 345kV	@Nor=	599 MW for L/O	Pre-Contingency Loading
(6b)	Glnwd No. - Glnwd GT 138kV	@STE=	379 MW for L/O	Glnwd So. - Shore Road 138kV
(7)	New Scotland - Leeds (93) 345kV	@LTE=	1538 MW for L/O	New Scotland - Leeds (94) 345kV
(8)	New Scotland - Leeds (93) 345kV	@STE=	1724 MW for L/O	New Scotland - Leeds (94) 345kV
(9)	Moses - Adirondack B1 230kV	@LTE=	299 MW for L/O	Moses - Massena (A) 230kV Moses - Massena (B) 230kV
(10)	Moses - Adirondack B1 230kV	@STE=	398 MW for L/O	Moses - Adirondack B2 230kV
(11)	Adirondack - Porter B2 230kV	@LTE=	353 MW for L/O	Adirondack - Porter B1 230kV Edic - Porter 345/230 kV
(12)	Adirondack - Porter B1 230kV	@LTE=	353 MW for L/O	Moses - Massena (A) 230kV Moses - Massena (B) 230kV
(13)	Adirondack - Porter B1 230kV	@STE=	449 MW for L/O	Adirondack - Porter B2 230kV

## APPENDIX I

### SUMMARY OF EXISTING STABILITY LIMITS





**APPENDIX I  
NYISO STABILITY LIMITS**

				<i>LIMIT</i>	<i>REPORT</i>	<i>DATE</i>
<b>TOTAL-EAST</b>						
SEASONAL LIMIT				6500	TE-2	1995
5018 BRANCHBURG-RAMAPO 500 KV O/S				6400	TE-3	3/95
5018 BRANCHBURG-RAMAPO 500 KV O/S WITH ANY SVC O/S				6300	TE-3	3/95
<b>UPNY-CONED</b>						
SEASONAL LIMIT				5100	TE-1	1988
Y88 LADENTOWN-BUCHANAN 345 KV O/S				4150	UC-2	1/93
Y94 RAMAPO-BUCHANAN N. 345 KV O/S				4150	UC-2	1/93
RFK-305 ROSETON-E. FISHKILL 345 KV O/S				4100	UC-2	1/93
5018 BRANCHBURG-RAMAPO 500 KV O/S				4000	UC-1	1/93
<b>CENTRAL-EAST</b>						
SEASONAL LIMIT WITH 3 OSWEGO & 6 SITHE UNITS BOTH SVC'S				3100	CE-7	1995
4 LAFAYETTE-OAKDALE 345 KV O/S				2900	CE-8	6/95
32 OAKDALE-FRASER 345 KV O/S				3050	CE-8	6/95
<i>Leeds/Fraser SVC</i>						
<i>OSWEGO COMPLEX PENALTY</i>	<i>MIN SITHE UNITS I/S</i>	<i>Both I/S</i>	<i>One SVC O/S</i>	<i>BOTH SVC O/S</i>		
<i>4 OF 5 UNITS I/S</i>	<i>6</i>	<i>0</i>	<i>50</i>	<i>250</i>	<i>CE-12</i>	<i>11/99</i>
	<i>3</i>	<i>50</i>	<i>100</i>	<i>350</i>		
	<i>0</i>	<i>100</i>	<i>150</i>	<i>450</i>		
<i>3 OF 5 UNITS I/S</i>	<i>3</i>	<i>0</i>	<i>150</i>	<i>300</i>	<i>CE-8</i>	<i>1/30/96</i>
	<i>0</i>	<i>300</i>	<i>300</i>	<i>450</i>	<i>CE-8</i>	
<i>2 OF 5 UNITS I/S</i>	<i>3</i>	<i>0</i>	<i>150</i>	<i>300</i>	<i>CE-9</i>	<i>4/17/96</i>
	<i>0</i>	<i>300</i>	<i>300</i>	<i>450</i>	<i>CE-9</i>	
<i>1 OF 5 UNITS I/S</i>	<i>3</i>	<i>300</i>	<i>300</i>	<i>300</i>	<i>CE-10</i>	<i>4/17/96</i>
	<i>0</i>	<i>600</i>	<i>600</i>	<i>600</i>	<i>CE-10</i>	
<i>0 OF 5 UNITS I/S</i>	<i>5</i>	<i>600</i>	<i>600</i>	<i>600</i>	<i>CE-11</i>	<i>6/97</i>
	<i>4</i>	<i>700</i>	<i>700</i>	<i>700</i>		
	<i>3</i>	<i>800</i>	<i>800</i>	<i>800</i>		
	<i>0</i>	<i>1200</i>	<i>1200</i>	<i>1200</i>		
MOSES GEN REJECTION O/S: LESS 150MW W/ANY SVC O/S OR 300MW W/BOTH SVC'S O/S						

2 CHAT HVDC POLES O/S OR 1 CHAT HVDC POLE I/S <100 MW OR 2 CHAT HVDC POLES <150 MW LIMIT OSWEGO COMPLEX TO 3200 MW FOR 4 UNITS I/S & SITHE O/S LIMIT OSWEGO COMPLEX TO 3500 MW FOR 5 UNITS I/S & SITHE O/S OR 4600 FOR 5 UNITS I/S & SITHE I/S		CE-3	9/20/93
NEW SCOTLAND 77 OR 99 BUS O/S	2050	CE-1	5/10/89
14 EDIC-NEW SCOTLAND 345 KV O/S	2050	CE-1	5/10/89
UNS-18 MARCY-NEW SCOTLAND 345 KV O/S	2050	CE-1	5/10/89
MSU-1 MASSENA-MARCY 765 KV O/S	2000	CE-1	7/12/90
SUBTRACT 350 FOR ANY SVC O/S FOR ABOVE LIMITS			
<b>MOSES-SOUTH</b>			
SEASONAL LIMIT WITH 2 HVDC POLES I/S (MAX CHAT-MASSENA = 2370)	2900	MS-6	5/6/93
R8105 ALCOA BUS TIE 115 KV O/S	2600	MS-1	1/23/91
3 CHAT BANKS 765/120 KV I/S, (MAX CHAT-MASSENA = 1800)	2500		
ONE MOSES-ADIRONDACK-PORTER 230 KV CKT O/S	2450	MS-2	1/9/88
4 CHAT 765/120 kV BANKS I/S - SPLIT BUS & 1 HVDC POLE I/S (MAX CHAT - MASSENA = 1870 MW)	2600	MS-7	3/15/94
2 CHAT 765/120 KV BANKS I/S & 1 HVDC POLE I/S (MAX CHAT-MASSENA = 1650 MW)	2350	MS-5	1/14/94
3 CHAT 765/120 KV BANKS I/S & 1 HVDC POLE I/S (MAX CHAT-MASSENA = 1400)	2150	MS-5	1/14/94
2 HVDC POLES O/S (MAX CHAT-MASSENA = 1170)	2000	MS-4	1990
MSU-1 I/S WITH NO DIRECT TRANSFER TRIP FOR GEN REJECTION AT QUEBEC (MAX CHAT-MASSENA = 650)	1100	MS-2	11/29/84
MSU-1 MASSENA-MARCY 765KV O/S (MAX CHAT-MASSENA= 475)	675		2/9/84
MSU-1 MASSENA-MARCY 765 KV AND ONE MOSES-ADIRONDACK-PORTER 230 KV O/S	500		

<b>MOSES-NORTH</b>			
SEASONAL LIMIT	1600	MN-1	12/1/89
ONE OR TWO MOSES-ADIRONDACK-PORTER 230 KV CKTS O/S	1600	MN-2	2/10/90
MSU-1 MASSENA-MARCY 765 KV O/S	1100	MN-2	
<b>WEST-CENTRAL</b>			
SEASONAL LIMIT	2350	WC-1	9/18/89
NR-2 NIAGARA-ROCHESTER 345 KV OR SR-1 KINTIGH-ROCHESTER 345 KV O/S	2150	WC-2	10/14/91
<b>DYSINGER-EAST</b>			
SEASONAL LIMIT	2850	DE-1	7/27/92
67 STOLLE ROAD-MEYER 230 KV OR 68 MEYER-HILLSIDE 230 KV O/S	2650	DE-1	7/27/92
NR-2 NIAGARA - ROCHESTER 345 KV OR SR-1 KINTIGH - ROCHESTER 345 KV O/S	2500	DE-1	7/27/92
<b>NYISO-PJM</b>			
SEASONAL LIMIT	3600	NP-1	9/94
<b>PJM-NYISO</b>			
SEASONAL LIMIT	3600	NP-1	9/94
<b>NYISO-OH</b>			
SEASONAL LIMIT	2500	NOH-1	11/10/93
PA301 OR PA302 BECK-NIAGARA 345 KV O/S	2300	NOH-1	11/10/93
PA27 OR BP76 OR L33P OR L34P O/S	2300	NOH-1	11/10/93
PA301 & PA302 BECK-NIAGARA 345 KV O/S	500	NOH-3	1995
<b>OH-NYISO</b>			
SEASONAL LIMIT	2500	NOH-1	11/10/93
PA301 OR PA302 BECK-NIAGARA 345 KV O/S	2300	NOH-1	11/10/93
PA27 OR BP76 OR L33P OR L34P O/S	2300	NOH-1	11/10/93
PA301 & PA302 BECK-NIAGARA 345 KV O/S	800	NOH-3	1995

<b>WESTERN NY EXPORT</b>			
BOTH BECK-NIAGARA 345 KV CKTS O/S W/ NIAGARA GEN REJ I/S	1700	NOH-3	2/95
BOTH BECK-NIAGARA 345 KV CKTS O/S W/ NIAGARA GEN REJ O/S OR BOTH BECK-NIAGARA 345 KV CKTS O/S & PA27 CKT O/S OR ONE BECK-NIAGARA 345KV CKT O/S & PA27 & BP76 CKTS O/S	1100	NOH-3	2/95
<b>NYISO-NE</b>			
SEASONAL LIMIT	2200	NE-1	10/92-1996
2 NEW SCOTLAND - ALPS 345 KV O/S	2150	NE-1	10/92
329 FROST BRIDGE - SOUTHTON 345 KV O/S	2100	NE-1	10/92
312 BERKSHIRE - NORTHFIELD 345 KV O/S	1950	NE-1	10/92
352 LONG MOUNTAIN - FROST BRIDGE 345 KV O/S	1850	NE-1	10/92
393 ALPS - BERKSHIRE 345 KV O/S	1600	NE-1	10/92
393/312 ALPS-BERKSHIRE-NORTHFIELD 345 KV O/S	1500	NE-1	10/92
398 PLEASANT VALLEY - LONG MOUNTAIN 345 KV O/S	1150	NE-1	10/92
<b>NE-NYISO</b>			
THIS LIMIT IS SET BY NE, NYISO SPD MUST CALL FOR LIMIT		NE-1	10/92

**NYISO STABILITY REPORT  
SUMMARY**

<b>REPORT</b>	<b>REPORT TITLE</b>	<b>LAST REVISED DATE</b>
TE-2	TOTAL EAST STABILITY ANALYSIS WITH SITHE GENERATION O/S	1/95
TE-3	NYISO TOTAL EAST ANALYSIS - A. HARGRAVE	3/95
UC-1	REVISED MAINTENANCE STABILITY TRANSFER LIMITS FOR BRANCH-RAMAPO O/S-NYPP	1/93
UC-2	RWW ANALYSIS - NYPP	1/93
CE-1	REVISED CENTRAL EAST STABILITY LIMITS BASED ON SVC RESERVE - K. TAMMAR TO C. COREY	5/10/89
CE-2	CENTRAL EAST STABILITY LIMIT W/ 765 KV SYSTEM O/S - NYPA TO K. TAMMAR	7/12/90
CE-3	CE & OSWEGO COMPLEX STABILITY LIMITS FOR THE CHATEAUGUAY HVDC O/S-NYPP/NYPA	9/20/93
CE-5	NYISO CE STABILITY LIMITS FOR LEEDS OR FRASER SVC O/S	4/12/94
CE-6	CENTRAL EAST STABILITY ANALYSIS PRE-SITHE CONFIGURATION	10/94
CE-7	CENTRAL EAST STABILITY ANALYSIS POST SITHE CONFIGURATION	2/95
CE-8	CENTRAL EAST STABILITY LIMITS FOR THREE OSWEGO UNITS I/S	6/1/95
CE-9	CENTRAL EAST STABILITY LIMITS FOR TWO OSWEGO UNITS I/S	4/17/96
CE-10	CENTRAL EAST STABILITY LIMITS FOR ONE OSWEGO UNIT I/S	4/1796
CE-11	CENTRAL EAST STABILITY LIMITS FOR ZERO OSWEGO UNITS I/S	6/27/97
CE-12	CENTRAL EAST STABILITY LIMITS FOR 4/5 OSWEGO UNIT I/S	11/99
MS-2	RT GONZALES ANALYSIS	1/9/88
MS-3	RW WALDELE ANLAYSIS	11/29/84
MS-4	NYPA ANALYSIS W/2 HVDC POLES O/S	1990
MS-5	OPERATION OF THE MSC-7040 LINE W/1650 MW IMPORT FROM HYDRO QUEBEC & ONE HVDC CONVERTER I/S	12/20/93
MS-6	CHATEAUGUAY 2370MW IMPORT ANAYLSIS	5/6/93
MS-7	SPLIT 120 KV BUS OPERATION OF THE CHAT/BEAU COMPLEX W/ ONE HVDC CONVERTER O/S -NYPA	3/15/94
MN-1	RWW ANALYSIS 12/13/89 KT MEMO TO JEK	12/1/89
MN-2	JAM ANALYSIS #89030S MOSES-SOUTH W/MAP OS	2/10/90

WC-1	AWH ANALYSIS - NYISO	9/18/89
WC-2	WEST CENTRAL TRANSIENT STABILITY LIMITS FOR LINE OUTAGE CONDITIONS - NYISO	10/14/91
DE-1	DYSINGER EAST TRANSIENT STABILITY LIMITS FOR LINE OUTAGE CONDITIONS - NYISO	7/27/92
NOH-1	NYISO-OH DIRECT TIE STUDY OCTOBER 1993 SEE CA KING LETTER TO SOAS DATED 11/10/93	10/93
NOH-2	OH-NYISO TS STUDY GROUP ANALYSIS	1983-1984
NOH-3	NYISO STABILITY ANALYSIS WITH PA301/PA303 O/S	2/95
NE-1	1992-1996 NYISO-NEPOOL TRANSFER LIMIT STUDY	10/92
NP-1	NYISO-PJM STABILITY ANALYSIS ON THE DIRECT TIE TRANSFER CAPABILITY	9/94

## **APPENDIX J**

### **NYISO OASIS PATHS NON-RECALLABLE TTC'S**

**NOTE: This information is included for reference only. Accurate TTC and ATC information is available only through the NYISO Market Information System**





*NYISO OASIS Transmission Paths*  
*Non-Recallable TTCs*

OASIS Path Name	NYISO Interface / Co.	TTC for all lines I/S forward	TTC for all lines I/S reverse
Adirondack-Central	MOSES SOUTH	2000	2000
Adirondack-ISO-NE Vt N	NYISO to NEPEX - PA	140	125
Capital/MidHudson-ISO-NE NU S.	NYISO to ISO-NE - (398)	700	700
Capital/MidHudson-ISO-NE NU S.	NYISO to ISO-NE / CH	28	28
Capital/MidHudson-ISO-NE VT/NE/NU	NYISO to ISO-NE (NM)	1200	1200
Capital/MidHudson-Westchester	UPNY-CONED	5100	5100
Central-Capital/MidHudson	TOTAL EAST (C-E)	4650	4650
Central-Capital/MidHudson	TOTAL EAST / NY	50	50
Frontier-Genesee	DYSINGER EAST	2850	2850
Genesee-Central	WEST CENTRAL	2350	2350
HQ-Adirondack	HQ to NYISO (PA)	2350	2350
HQ-Adirondack	HQ to NYISO (NM)	150	150
Long Island-ISO-NE NU S.	NYISO to ISO-NE (LI)	150	175
New York City-Long Island	CONED-LIPA	550	550
Ontario East-Adirondack	IEMO (Ontario) to NYISO (PA)	450	450
Ontario South-Frontier	IEMO (Ontario) to NYISO	1900	1900
PJM East-Capital/MidHudson	TOTAL EAST (5018/K3411)	1150	1150
PJM East-Capital/MidHudson	PJM to NYISO (J3410)	0	600
PJM East-New York City	TOTAL EAST (A/B/C)	400	400
PJM West-Central	PJM to NYISO C.	1300	1300
PJM West-Frontier	PJM to NYISO W.	1100	1100
Westchester-Long Island	CONED-LIPA (Y49)	625	625
Westchester-Long Island	CONED-LIPA Y50	600	600

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# NEW YORK INDEPENDENT SYSTEM OPERATOR OASIS Area & Transmission Paths & Interfaces

NY Transmission Paths	
NY Interfaces	10
1 - Ontario - NY	6 - Total East
2 - HQ - NY	7 - UPNY - ConEd
3 - Dysinger East	8 - Spr/Dunwoodie So.
4 - West Central	9 - ConEd - Lilco
5 - Moses South	10 - NE - NY
	11 - PJM - NY

