

TABLE 1.a – NYISO CROSS-STATE INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018
ALL LINES I/S

	Dysinger East	UPNY - ConEd ₁	Sprain Brook Dunwoodie - So.	ConEd – LIPA Transfer Capability
NORMAL	675 (1)	5050 (3)	4200 (5)	875 (7)
EMERGENCY	1725 (2)	5775 (4)	4225 (6)	1500 (8)
	LIMITING ELEMENT		RATING	LIMITING CONTINGENCY
(1)	Niagara – Packard (61) 230 kV	@STE ₄	846 MW	L/O Niagara – Packard (62) 230 kV Beck – Packard (BP76) 230 kV
(2)	Packard – Niagara Boulevard (181-922) 115 kV	@NORM	160 MW	Pre-Contingency Loading
(3)	Leeds – Pleasant Valley (92) 345 kV	@LTE	1538 MW	L/O Athens – Pleasant Valley (91) 345 kV
(4)	Leeds – Pleasant Valley (92) 345 kV	@STE	1724 MW	L/O Athens – Pleasant Valley (91) 345 kV
(5)	Mott Haven – Rainey (Q11) 345 kV	@MTE ₂	1066 MW	L/O (SB:RAIN345_4W) Mott Haven – Rainey (Q12) 345 kV Rainey 345/138 kV Transformer 3W Rainey – East 75 St. 138 kV
(6)	Dunwoodie – Mott Haven (71) 345 kV	@NORM	707 MW	Pre-Contingency Loading
(7)	Dunwoodie – Shore Rd. (Y50) 345 kV	@LTE	916 MW ₃	L/O (SB RNS2 @ Sprain Brook 345 kV) Sprain Brook – East Garden City (Y49) 345 kV Sprain Brook – Academy (M29) 345 kV
(8)	Dunwoodie – Shore Rd. (Y50) 345 kV	@NORM	656 MW ₃	Pre-Contingency Loading

Note

- 1: See Section 5.2.B for discussion on Athens SPS
- 2: The rating used for cable circuits during SCUC reliability analysis is the average of the LTE and STE rating (MTE Rating).
- 3: LIPA rating for Y50 circuit is based on 70 % loss factor and rapid oil circulation.
- 4: Dysinger East limit used the NYSRC Rules Exception No. 13 – Post Contingency Flows on Niagara Project Facilities

TABLE 1.b – NYISO CROSS-STATE INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018
ALL LINES I/S

	MSC-7040 FLOW 800 MW	MSC-7040 FLOW 1310 MW	MSC-7040 FLOW 1600 MW
CENTRAL EAST			
NORMAL	2825 (1)	2825 (1)	2825 (1)
EMERGENCY	3050 (2)	3050 (2)	3050 (2)
TOTAL EAST			
NORMAL	4125 (3)	4125 (3)	4125 (3)
EMERGENCY	4400 (4)	4375 (4)	4400 (4)
MOSES SOUTH_{1,2}			
NORMAL	2250 (5)	2575 (5)	2600 (8)
EMERGENCY	2250 (6)	2700 (6)	2675 (7)

LIMITING ELEMENT		RATING		LIMITING CONTINGENCY	
(1)	Leeds – New Scotland (93) 345 kV	@LTE	1538 MW	L/O	Leeds – New Scotland (94) 345 kV
(2)	Fraser – Coopers Corners (33) 345 kV	@STE	1793 MW	L/O	Marcy – Fraser Annex (UCC2-41) 345 kV (Series Capacitor)
(3)	Rock Tavern – Dolson Ave (DART44) 345 kV	@LTE	1852 MW	L/O	Rock Tavern – Roseton (311) 345 kV Rock Tavern–Middletown TAP (CCRT34) 345 kV Coopers Corners–Middletown TAP (CCRT34) 345 kV Middletown 345/138 kV Transformer
(4)	Coopers Corners – Middletown TAP (CCRT34) 345 kV	@STE	1793 MW	L/O	Rock Tavern – Dolson Ave (DART44) 345 kV
(5)	Moses – Adirondack (MA2) 230 kV	@LTE	386 MW	L/O	Chateauguay–Massena (MSC-7040) 765 kV Massena – Marcy (MSU1) 765 kV and TransÉnergie delivery
(6)	Browns Falls – Taylorville (4) 115 kV	@STE	134 MW	L/O	Chateauguay–Massena (MSC-7040) 765 kV Massena – Marcy (MSU1) 765 kV and TransÉnergie delivery
(7)	Marcy 765/345 kV T2 Transformer	@STE	1971 MW	L/O	Marcy 765/345 kV T1 Transformer
(8)	Marcy – Edic (UE1-7) 345 kV	@LTE	1650 MW	L/O	Marcy – Fraser Annex (UCC2-41) 345 kV (Series Capacitor) Chases Lake – Porter (11) 230 kV

Note

- 1: Moses South limit used the NYSRC Rules Exception No. 10 – Post Contingency Flows on Marcy AT-1 Transformer
- 2: Moses South limit used the NYSRC Rules Exception No. 12 – Post Contingency Flows on Marcy Transformer T2

**TABLE 2.a – NYISO to ISO-NE INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018 ALL
LINES I/S**

New York to New England	DIRECT TIE	NYISO FACILITY	ISO-NE FACILITY
Northport –Norwalk 100 MW			
NORMAL	1725 (1)	3075 (3)	3025 (4)
EMERGENCY	2250 (2)	3075 (3)	3125 (5)
Northport –Norwalk 0 MW			
NORMAL	1675 (1)	3125 (3)	3050 (4)
EMERGENCY	2225 (2)	3125 (3)	3150 (5)

LIMITING ELEMENT		RATING			LIMITING CONTINGENCY
(1)	Pleasant Valley – Long Mountain (398) 345 kV	@LTE	1313 MW	L/O	Millstone G3 24.0 kV
(2)	Pleasant Valley – Long Mountain (398) 345 kV	@STE	1596 MW	L/O	Millstone G3 24.0 kV
(3)	Reynolds Rd – Wyantskill (13-988) 115 kV	@STE	237 MW	L/O	Berkshire – Alps (393) 345 kV
(4)	Berkshire – Northfield (312) 345 kV	@LTE	1697 MW	L/O	Pleasant Valley – Long Mountain (398) 345 kV
(5)	Berkshire – Northfield (312) 345 kV	@STE	1793 MW	L/O	Pleasant Valley – Long Mountain (398) 345 kV

NOTE

- 1: The Northport – Norwalk Harbor (NNC) flow is positive in the direction of transfer
- 2: The Northport – Norwalk Harbor (NNC) line is no longer part of the New York – New England Interface Definition

TABLE 2.b – ISO-NE to NYISO INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018 ALL LINES I/S

New England to New York	DIRECT TIE	NYISO FACILITY	ISO-NE FACILITY
Norwalk –Northport @ 0 MW			
NORMAL	1825 (1)		1550 (6)
EMERGENCY	2050 (2)		1550 (6)
Norwalk –Northport @ 100 MW			
NORMAL	1850 (5)		1600 (6)
EMERGENCY	1900 (3)		1600 (6)
Norwalk–Northport @ 200 MW			
NORMAL	1425 (4)		1650 (6)
EMERGENCY	1425 (3)		1650 (6)

LIMITING ELEMENT		RATING			LIMITING CONTINGENCY
(1)	Pleasant Valley – Long Mountain (398) 345 kV	@LTE	1313 MW	L/O	Alps – Berkshire (393) 345 kV Berkshire – Northfield Mount (312) 345 kV Northfield Mount – Vernon (381) 345 kV Berkshire 345/115 kV Transformer
(2)	Pleasant Valley – Long Mountain (398) 345 kV	@NORM	1135 MW		Pre-Contingency Loading
(3)	Northport – Norwalk Harbor (NNC) 138 kV	@STE	532 MW	L/O	Pleasant Valley – Long Mountain (398) 345 kV
(4)	Northport – Norwalk Harbor (NNC) 138 kV	@LTE	518 MW	L/O	Pleasant Valley – Long Mountain (398) 345 kV Pleasant Valley – East Fishkill (F37) 345 kV
(5)	Pleasant Valley – Long Mountain (398) 345 kV	@LTE	1313 MW	L/O	Alps – New Scotland (2) 345 kV Alps – Reynolds Rd (1) 345 kV Alps – Berkshire (393) 345 kV Empire Gen #1
(6)	Norwalk Junction – Archers Lane (3403D) 345 kV	@LTE	850 MW	L/O	Long Mountain – Frost Bridge (352) 345 kV

NOTE

- 1: The Northport – Norwalk Harbor (NNC) flow is positive in the direction of transfer
- 2: The Northport – Norwalk Harbor (NNC) line is no longer part of the New England – New York Interface Definition

TABLE 3.a – NYISO to PJM INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018 ALL

LINES I/S

	DIRECT TIE		NYISO FACILITY	PJM FACILITY
			Normal	
NORMAL	1775(1)	1075(2) ₃	1400(3) ₄	2175(8)
3-115-O/S	2450(6)	1025(2) ₃	1325(3) ₄	1625(10)
EMERGENCY	1775(1)	2125(7) ₃	1600(5) ₄	2175(9)
3-115-O/S	2500 (4)	2050(7) ₃	1525(5) ₄	1625(10)
Dunkirk-South Ripley (68) 230 kV Out-of-service				
NORMAL	1650(1)	1225(2) ₃	1425(3) ₄	2025(8)
3-115-O/S	2150(6)	1200(2) ₃	1375(3) ₄	1475 (10)
EMERGENCY	1650(1)	2550(7) ₃	1600(5) ₄	2050(9)
3-115-O/S	2450(12)	2450(11) ₃	1550(5) ₄	1475(10)

	LIMITING ELEMENT	RATING		LIMITING CONTINGENCY
(1)	Goudey – Laurel Lake (952) 115 kV	@STE	108 MW	Pre-Contingency Loading
(2)	Niagara – Packard (62) 230 kV	@STE ₁	846 MW	L/O Niagara – Packard (61) 230 kV Niagara – Robinson Rd (64) 230 kV
(3)	Packard – Niagara Boulevard (181-922) 115 kV	@STE	206 MW	L/O Packard – Sawyer (77) 230 kV Sawyer – Huntley (77) 230 kV Packard – Sawyer (78) 230 kV Sawyer – Huntley (78) 230 kV Sawyer 230/23 kV Transformers
(4)	South Ripley – Dunkirk (68) 230 kV	@STE	475 MW	L/O Warren – Glade (26) 230 kV
(5)	Packard – Niagara Boulevard (181-922) 115 kV	@NORM	160 MW	Pre-Contingency Loading
(6)	Hillside – East Towanda (70) 230 kV	@LTE	531 MW	L/O Liberty Generation
(7)	Niagara – Packard (62) 230 kV	@STE ₁	846 MW	L/O Niagara – Packard (61) 230 kV
(8)	Tiffany – Laurel Lake 115 kV	@STE	151 MW	L/O Rock Tavern – Dolson Ave (DART44) 345 kV Rock Tavern–Middletown TAP (CCRT34) 345 kV Coopers Corners–Middletown TAP (CCRT34) 345 kV Middletown 345/138 kV Transformer
(9)	Tiffany – Laurel Lake 115 kV	@STE	151 MW	L/O Canyon – East Towanda 230 kV
(10)	East Towanda – North Meshoppen 115 kV	@STE	172 MW	L/O Canyon – East Towanda 230 kV
(11)	Hillside – Watercure (69) 230 kV	@STE	657 MW	L/O Watercure – Mainesburg (30) 345kV
(12)	Hillside – East Towanda (70) 230 kV	@STE	630 MW	L/O Watercure – Mainesburg (30) 345kV

NOTE

- 1: Emergency Transfer Capability Limits may have required line outages as described in Section 5.3.B.
- 2: PAR schedules have been adjusted in the direction of transfer.
- 3: Internal Secured Limit: Limit to secure internal transmission elements that are secured with pricing in the NYISO markets (typically 230 kV and above)
- 4: Internal Non-Secured Limit: Limit to secure internal transmission elements that are not secured with pricing in the NYISO markets (typically 115 kV)

TABLE 3.b – PJM to NYISO INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018 ALL

LINES I/S

	DIRECT TIE		NYISO FACILITY	PJM FACILITY
Normal				
NORMAL	1600(1)	2825(2) ₃	2375(3) ₄	2075(4)
3-115-O/S	2100(9)	2750(13) ₃	2700(3) ₄	3050(10)
EMERGENCY	1800(5)	2900(7) ₃	2725(6) ₄	2325(8)
3-115-O/S	2375(11)	2750(12) ₃	3100(6) ₄	3050(15)
Dunkirk-South Ripley (68) 230 kV Out-of-service				
NORMAL	1500(5)	2850(2) ₃	2325 (3) ₄	1975(4)
3-115-O/S	1975(9)	2825(14) ₃	2600(3) ₄	2875(16)
EMERGENCY	1500(5)	2925(7) ₃	2625 (6) ₄	2200(8)
3-115-O/S	2225(11)	2950(7) ₃	2900(17) ₄	2875(16)

	LIMITING ELEMENT	RATING		LIMITING CONTINGENCY
(1)	North Waverly – East Sayre (956) 115 kV	@STE	143 MW	L/O Hillside – East Towanda (70) 230 kV Hillside – Watercure (69) 230 kV Hillside 230/115 kV Transformer
(2)	Buchanan – Millwood (W98) 345 kV	@STE ₁	1876 MW	L/O Buchanan – Millwood (W97) 345 kV Buchanan – Millwood (F96952) 138 kV
(3)	North Waverly – Lounsberry 115 kV	@STE	143 MW	L/O Watercure – Oakdale (31) 345 kV Oakdale – Clarks Corner (36) 345 kV
(4)	Towanda – East Sayre 115 kV	@STE	246 MW	L/O Hillside – East Towanda (70) 230 kV Hillside – Watercure (69) 230 kV Hillside 230/115 kV Transformer
(5)	Falconer – Warren (171) 115 kV	@STE	140 MW	L/O Pierce Brook – Five Mile Rd. (37) 345 kV
(6)	North Waverly – Lounsberry 115 kV	@STE	143 MW	L/O Watercure – Oakdale (31) 345 kV
(7)	Buchanan – Millwood (W97) 345 kV	@STE ₁	1876 MW	L/O Buchanan – Millwood (W98) 345 kV
(8)	Towanda – East Sayre 115 kV	@STE	246 MW	L/O Hillside – East Towanda (70) 230 kV
(9)	Hillside – East Towanda (70) 230 kV	@LTE	531 MW	L/O Lackawana – Hopatcong (5063) 500 kV
(10)	Erie East – Fourmile 230 kV	@LTE	584 MW	L/O Pierce Brook – Five Mile Rd. (37) 345 kV
(11)	Hillside – East Towanda (70) 230 kV	@NORM	483 MW	Pre-Contingency Loading
(12)	South Ripley – Dunkirk (68) 230 kV	@STE	475 MW	L/O Pierce Brook – Five Mile Rd. (37) 345 kV
(13)	South Ripley – Dunkirk (68) 230 kV	@LTE	475 MW	L/O Pierce Brook – Five Mile Rd. (37) 345 kV
(14)	Watercure – Oakdale (71) 230 kV	@LTE	400 MW	L/O Watercure – Oakdale (31) 345 kV Oakdale – Clarks Corner (36) 345 kV
(15)	Erie East – Fourmile 230 kV	@STE	584 MW	L/O Pierce Brook – Five Mile Rd. (37) 345 kV

(16)	Everett Dr – Mainesburg 115 kV	@STE	245 MW	L/O	Hillside – East Towanda (70) 230 kV
(17)	Stolle Road – Girdle Road (706) 115 kV	@STE	239 MW	L/O	Pierce Brook – Five Mile Rd. (37) 345 kV

NOTE

- 1: Emergency Transfer Capability Limits may have required line outages as described in Section 5.3.B.
- 2: PAR schedules have been adjusted in the direction of transfer.
- 3: Internal Secured Limit: Limit to secure internal transmission elements that are secured with pricing in the NYISO markets (typically 230 kV and above)
- 4: Internal Non-Secured Limit: Limit to secure internal transmission elements that are not secured with pricing in the NYISO markets (typically 115 kV)

TABLE 4 – IESO to NYISO INTERFACE THERMAL TRANSFER LIMITS - SUMMER 2018 ALL LINES

I/S

	DIRECT TIE	NYISO FACILITY	IESO FACILITY		DIRECT TIE	NYISO FACILITY	IESO FACILITY	
	100% Zone A Load (2,801 MW)				80% Zone A Load (2,241 MW)*			
NORMAL	1875 (13)	0 (2) ₃	625 (3) ₄	2075 (4)	2000 (1)	1300 (2) ₃	1925 (10) ₄	2075 (4)
EMERGENCY	2225 (5)	1325 (6) ₃	1200 (7) ₄	3425 (8)	2400 (9)	2675 (6) ₃	2150 (11) ₄	3425 (8)

Dunkirk-South Ripley (68) 230 kV & Warren-Falconer (171) 115 kV Out-of-service

NORMAL	1900 (1)	175 (2) ₃	625 (3) ₄	2075 (4)	2000 (1)	1575 (2) ₃	1950 (10) ₄	2075 (4)
EMERGENCY	2250 (5)	1650 (6) ₃	1275 (7) ₄	3450 (8)	2425 (9)	3100(12) ₃	2200 (11) ₄	3425 (8)

	LIMITING ELEMENT	RATING		LIMITING CONTINGENCY
(1)	Beck – Niagara (PA27) 230 kV	@LTE 460 MW	L/O	Beck – Niagara (PA 301) 345 kV
(2)	Niagara – Packard (61) 230 kV	@STE ₁ 846 MW	L/O	Niagara – Packard (62) 230 kV Beck – Packard (PB76) 230 kV
(3)	Packard – Niagara Boulevard (181-922) 115 kV	@STE 206 MW	L/O	Packard – Sawyer (77) 230 kV Sawyer – Huntley (77) 230 kV Packard – Sawyer (78) 230 kV Sawyer – Huntley (78) 230 kV Sawyer 230/23 kV Transformers
(4)	Cherrywood DK2 – Pickering (BP27-30) 220 kV	@LTE 950 MW	L/O	Cherrywood DK1 – Pickering (BP27-30) 220 kV
(5)	Beck – Niagara (PA27) 230 kV	@NORM 400 MW		Pre-Contingency Loading
(6)	Packard – Sawyer (77) 230 kV	@STE 746 MW	L/O	Packard – Sawyer (78) 230 kV
(7)	Young – Huntley (133) 115 kV	@STE 206 MW	L/O	Buffalo – Huntley (130) 115 kV
(8)	Agincrt_JC5R – Leslie_TSjc5 220 kV	@NORM 320 MW		Pre-Contingency Loading
(9)	Beck – Niagara (PA27) 230 kV	@STE 558 MW	L/O	Beck – Niagara (PA 301) 345 kV
(10)	Niagara 230/115 kV Transformer	@STE ₁ 288 MW	L/O	Packard – Sawyer (77) 230 kV Sawyer – Huntley (77) 230 kV Packard – Sawyer (78) 230 kV Sawyer – Huntley (78) 230 kV Sawyer 230/23 kV Transformers
(11)	Niagara 230/115 kV Transformer	@NORM 192 MW		Pre-Contingency Loading
(12)	Niagara – Robinson Rd (64) 230 kV	@NORM 496 MW		Pre-Contingency Loading
(13)	Beck – Niagara (PA27) 230 kV	@LTE 460 MW	L/O	Beck – Packard (PB76) 230 kV

Note

- 1: Ontario - NYISO limit used the NYSRC Rules Exception No. 13 – Post Contingency Flows on Niagara Project Facilities
- 2: * Zone A Load is approximately 8% of the total NYCA Load. 2,241 MW of Zone A Load would equate to a NYCA Load of 26,325 MW
- 3: Internal Secured Limit: Limit to secure internal transmission elements that are secured with pricing in the NYISO markets (typically 230 kV and above)
- 4: Internal Non-Secured Limit: Limit to secure internal transmission elements that are not secured with pricing in the NYISO markets (typically 115 kV)

TABLE 5 – NYISO to IESO INTERFACE THERMAL TRANSFER LIMITS – SUMMER 2018 ALL LINES

I/S

	DIRECT TIE	NYISO FACILITY	IESO FACILITY ₁
Dunkirk-South Ripley (68) 230 kV & Warren-Falconer (171) 115 kV Out-of-Service			
NORMAL	1750(1)		1350(2)
EMERGENCY	2250(3)		1725(4)
Dunkirk-South Ripley (68) 230 kV & Warren-Falconer (171) 115 kV In-Service			
NORMAL	1750(1)		1375(2)
EMERGENCY	2250(3)		1750(4)

	LIMITING ELEMENT	RATING		LIMITING CONTINGENCY
(1)	Beck – Niagara (PA27) 230 kV	@LTE 460 MW	L/O	Beck – Niagara (PA 301) 345 kV Beck – Allanburg (Q28A) 230 kV Thorold GS
(2)	Beck – Hannon (Q24HM) 230 kV	@LTE 480 MW	L/O	Middleport – Beach - Carluke (Q25BM) 230 kV Beck – Middleport – Beach (Q29HM) 230 kV
(3)	Beck – Niagara (PA27) 230 kV	@STE 558 MW	L/O	Beck – Niagara (PA 302) 345 kV
(4)	Beck – Hannon (Q29HM) 230 kV	@NORM 415 MW		Pre-Contingency Loading

Note

1: This limit can be increased by reducing generation or increasing demand in the Niagara zone of Ontario. See Section 5.3.C.d. for discussion.