

Public Policy Transmission Need: Western NY Sufficiency Criteria & Baseline Results

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ESPWG / TPAS

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Schedule

- ◆ 7/20/2015: PSC identified a Public Policy Transmission Need (PPTN) for Western NY
- ◆ 8/27: NYISO presents baseline results to assist solution development
- ◆ 10/1: NYISO solicits Public Policy Transmission Projects and Other Public Policy Projects
 - *Solicitation window: 60 days*
 - *Developer qualification information: submit no later than 30 days after the solicitation for solutions*

Schedule (continued)

- ◆ 10/31: Deadline for submission of Developer qualification information for the Public Policy process
 - *Only for Developers intending to propose a Public Policy Transmission Project*
- ◆ 11/30: Developers submit required project information
 - *See Section 3.3 of Public Policy Transmission Planning Process Manual for details*
 - *Includes demonstration of submittal of a valid Interconnection Request or a Study Request, as applicable*
- ◆ 11/30: Developers proposing a Public Policy Transmission Project also provide:
 - *Executed study agreement (PPTPP Manual, Attachment E)*
 - *Non-refundable application fee of \$10,000*
 - *Study deposit of \$100,000*

Western NY PPTN

- ◆ NYISO should consider projects that increase Western NY transmission capability sufficient to:
 - *Obtain the full output from Niagara (2,700 MW including Lewiston Pumped Storage);*
 - *Maintain certain levels of simultaneous imports from Ontario across the Niagara tie lines (i.e., maximize Ontario imports under normal operating conditions and at least 1,000 MW under emergency operating conditions);*
 - *Maximize transfers out of Zone A to the rest of the state;*
 - *Prevent transmission security violations (thermal, voltage or stability) that would result under normal and emergency operating conditions; and*
 - *Maintain reliability of the transmission system with fossil-fueled generation in Western NY out-of-service, as well as in-service.*

Sufficiency Base Case

- ◆ 2014 Comprehensive Reliability Plan base case representation for 2024
- ◆ Niagara & Lewiston output of 2,700 MW
 1. *Niagara 230 kV units at full output*
 2. *Niagara 115 kV units at full output*
- ◆ 1,000 MW Ontario Import to Zone A
 - *Allowed to reduce in cases other than N-1 emergency transfers*
- ◆ Combination of major fossil-fueled generators in Zone A resulting in worst reliability violations
 - *Dunkirk out-of-service*
 - *Huntley out-of-service*
 - *Lockport in-service*
 - *Somerset in-service*

Sufficiency Criteria

- ◆ Ontario Import and Dysinger East transfer limits (N-1)
 - *Project must achieve 2,700 MW output from Niagara plus:*
 - at least 1,000 MW Ontario Import under NYSRC Emergency Transfer Criteria
 - Ontario Import limit greater than zero under NYSRC Normal Transfer Criteria
- ◆ Transmission Security (N-1-1)
 - *Project must maintain transmission security with 2,700 MW output from Niagara*

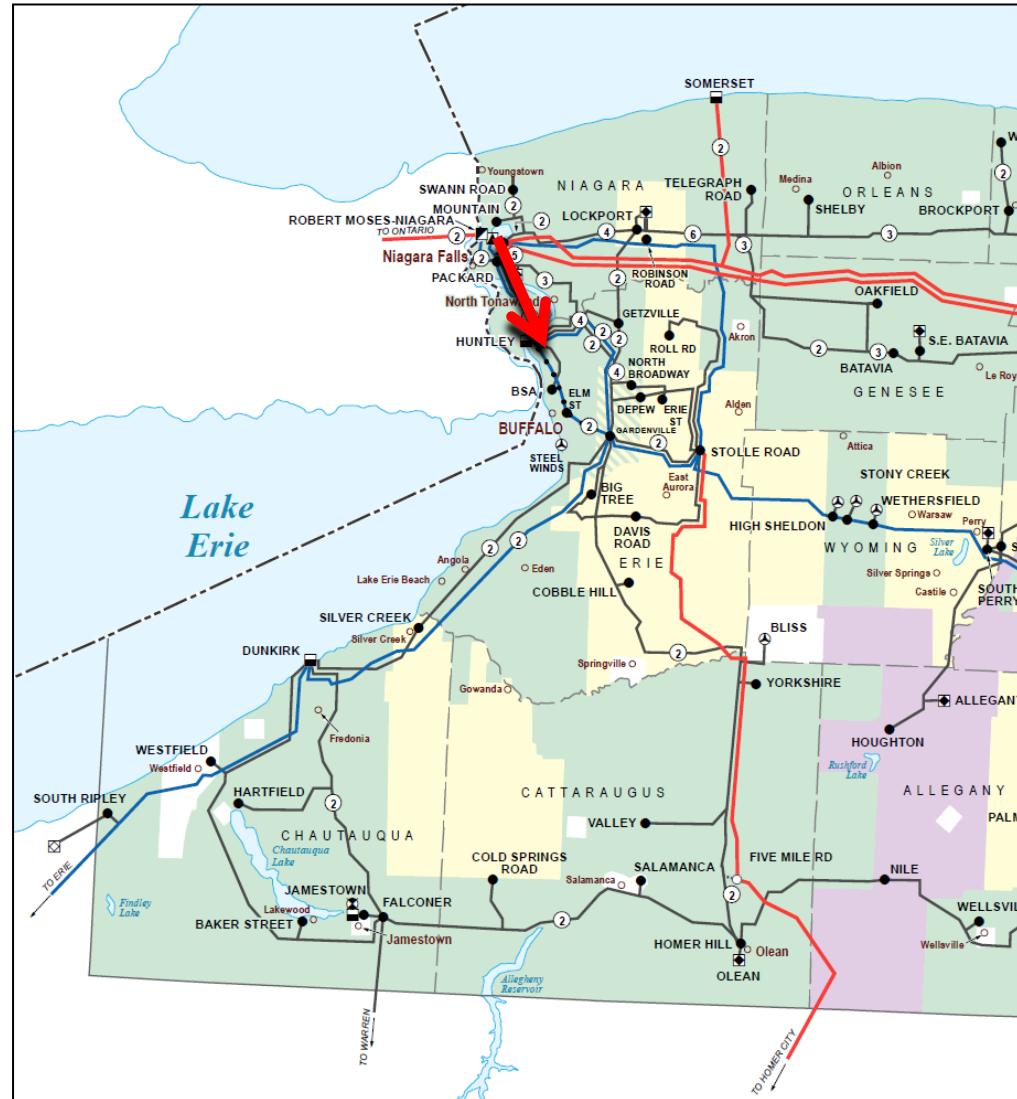
Baseline Transfer Limits

Emergency N-1

- ◆ Packard-Huntley 230 kV for loss of parallel circuit
- ◆ Ontario Import limited to 175 MW
- ◆ Ontario Import tie-line limit is 2,300 MW

Normal N-1

- ◆ Packard-Huntley 230 kV for loss of parallel circuit
- ◆ Ontario Import limited to **-225 MW**
- ◆ Ontario Import tie-line limit is 1,925 MW



Emergency Transfer Criteria N-1

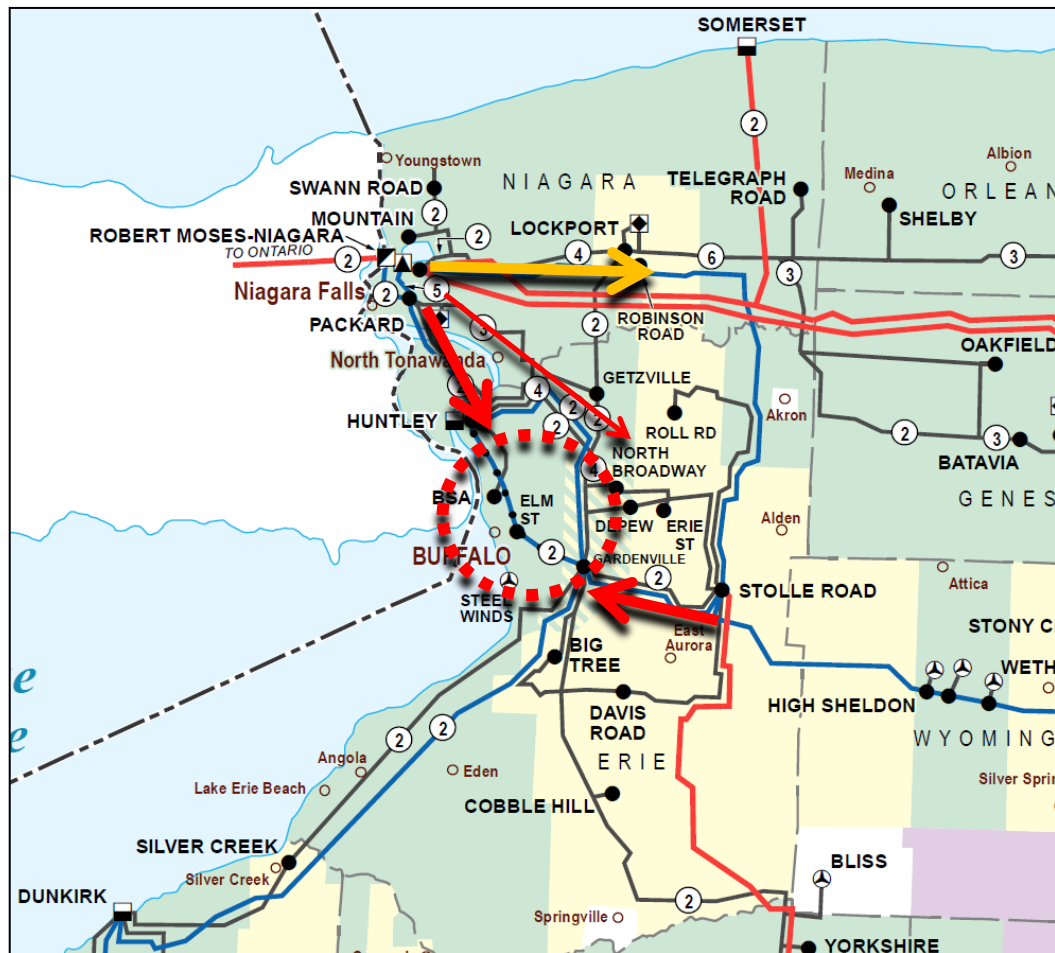
◆ Ontario Import of 1,000 MW

Monitored Facility	Applicable	Dispatch 1 - Niagara 230 kV Max		Dispatch 2 - Niagara 115 kV Max	
	Rating [MVA]	Contingency	AC % Loading	Contingency	AC % Loading
135303 SAWYER77 230 135415 PACKARD2 230 1	704	B:PACKT3	117.27	S:PA_HNTL78	111.11
135304 SAWYER78 230 135415 PACKARD2 230 2	746	S:PA_HNTL77	110.19	S:PA_HNTL77	105.06
135303 SAWYER77 230 135414 HUNTLEY2 230 1	755	B:PACKT3	101.13	-	-
135304 SAWYER78 230 135414 HUNTLEY2 230 2	755	OE:PACK_77	100.29	-	-

Table lists the worst contingency for each overloaded element. Full results are included in the results spreadsheets.

Transmission Security N-1-1

- ◆ 230 kV and 115 kV overloads between Niagara and Gardenville
 - *Primarily for loss of one, two, or three 230 kV lines*
- ◆ Additional and aggravated overloads for increased Ontario Imports
- ◆ Voltage collapse or low voltage in the Buffalo area
 - *Primarily for loss of two or three 230 kV lines between Niagara and Gardenville*



Normal Transfer Criteria N-1

- ◆ Ontario Import of 0 MW (minimum criteria)

Monitored Facility	Applicable	Dispatch 1 - Niagara 230 kV Max		Dispatch 2 - Niagara 115 kV Max	
	Rating [MVA]	Contingency	AC % Loading	Contingency	AC % Loading
130762 GARDV230 230 130767 STOLE230 230 1	478	T:77&78	112.32	T:77&78	108.09
135303 SAWYER77 230 135415 PACKARD2 230 1	644	S:PA_HNTL78	108.12	S:PA_HNTL78	102.00
135304 SAWYER78 230 135415 PACKARD2 230 2	644	S:PA_HNTL77	108.34	S:PA_HNTL77	102.21
135460 PACK(N)E 115 147850 NIAG115E 115 2	328	-	-	T:61&191	106.51
135415 PACKARD2 230 147842 NIAGAR2W 230 2 (See footnote)	841	T:61&64	103.34	T:61&64	87.17
135415 PACKARD2 230 147842 NIAGAR2W 230 1 (See footnote)	841	T:62&BP76	98.92	-	-

Table lists the worst contingency for each overloaded element. Full results are included in the results spreadsheets.

Footnote : Niagara-Packard 230 kV lines use NYSRC Reliability Rule Exception #13. Developer must ensure that sufficient generation can be reduced at Niagara to return the flows to less than their STE ratings within 5 minutes and to less than their LTE ratings within 10 minutes from the initial overload.

Normal Transfer Criteria N-1

◆ Ontario Import of 1,000 MW (information only)

Monitored Facility	Applicable	Dispatch 1 - Niagara 230 kV Max		Dispatch 2 - Niagara 115 kV Max	
	Rating [MVA]	Contingency	AC % Loading	Contingency	AC % Loading
135303 SAWYER77 230 135415 PACKARD2 230 1	644	SB:PA230_R3230	128.37	SB:PA230_R3230	121.60
135304 SAWYER78 230 135415 PACKARD2 230 2	644	S:PA_HNTL77	127.64	S:PA_HNTL77	121.70
147850 NIAG115E 115 147842 NIAGAR2W 230 1	239	T:77&78	121.89	-	-
135415 PACKARD2 230 147842 NIAGAR2W 230 1 (See footnote)	841	T:62&BP76	119.06	T:62&BP76	103.21
135303 SAWYER77 230 135414 HUNTLEY2 230 1	654	B:PACKT3	116.75	B:PACKT3	110.03
135304 SAWYER78 230 135414 HUNTLEY2 230 2	654	OE:PACK_77	115.78	OE:PACK_77	109.94
130762 GARDV230 230 130767 STOLE230 230 1	478	T:77&78	115.12	T:77&78	111.61
135415 PACKARD2 230 147842 NIAGAR2W 230 2 (See footnote)	841	T:61&64	111.47	T:61&64	95.49
130766 ROBIN230 230 147841 NIAGAR2E 230 1	550	T:77&78	109.42	T:77&78	101.77
135458 NI.B-181 115 135460 PACK(N)E 115 1	206	T:77&78	102.28	T:77&78	106.60
135460 PACK(N)E 115 147850 NIAG115E 115 2	328	-	-	T:61&191	102.97

Table lists the worst contingency for each overloaded element. Full results are included in the results spreadsheets.

Footnote : Niagara-Packard 230 kV lines use NYSRC Reliability Rule Exception #13. Developer must ensure that sufficient generation can be reduced at Niagara to return the flows to less than their STE ratings within 5 minutes and to less than their LTE ratings within 10 minutes from the initial overload.

Transmission Security N-1-1

- ◆ Ontario Import allowed to back down and generation allowed to redispatch (minimum criteria)

Monitored Facility	Applicable Rating [MVA]	Dispatch 1 - Niagara 230 kV Max			Dispatch 2 - Niagara 115 kV Max		
		First Contingency	Second Contingency	AC % Loading	First Contingency	Second Contingency	AC % Loading
130762 GARDV230 230 130767 STOLE230 230 1	478	R:HC-SR_37&W-F_171	T:77&78	122.33	R:HC-SR_37&W-F_171	T:77&78	122.56
135460 PACK(N)E 115 147850 NIAG115E 115 2	328	NIAGARA - PACKARD 62 230	T:61&191	108.60	NIAGARA - PACKARD 62 230	T:61&191	116.41
135304 SAWYER78 230 135415 PACKARD2 230 2	644	HUNTLEY - PACKARD 77 230	STOLLRD - GARDENVILL 66 230	115.53	NIAGARA - ROBINSON 64 345	HUNTLEY - PACKARD 77 230	107.57
135303 SAWYER77 230 135415 PACKARD2 230 1	644	HUNTLEY - PACKARD 78 230	STOLLRD - GARDENVILL 66 230	114.33	HUNTLEY - PACKARD 78 230	STOLLRD - GARDENVILL 66 230	107.34
135458 NI.B-181 115 135460 PACK(N)E 115 1	206	STOLLRD - GARDENVILL 66 230	T:77&78	106.87	STOLLRD - GARDENVILL 66 230	T:77&78	113.82
135304 SAWYER78 230 135415 PACKARD2 230 2	556	HUNTLEY - PACKARD 77 230	Base Case	109.74	HUNTLEY - PACKARD 77 230	Base Case	101.66
135303 SAWYER77 230 135415 PACKARD2 230 1	556	HUNTLEY - PACKARD 78 230	Base Case	108.56	HUNTLEY - PACKARD 78 230	Base Case	101.37
135415 PACKARD2 230 147842 NIAGAR2W 230 1	620	NIAGARA - PACKARD 62 230	Base Case	107.79	-	-	-
135415 PACKARD2 230 147842 NIAGAR2W 230 2	620	NIAGARA - PACKARD 61 230	Base Case	107.68	-	-	-
135450 GRDNVL1 115 135453 LONG-180 115 1	206	-	-	-	STOLLRD - GARDENVILL 66 230	T:77&78	107.33
135304 SAWYER78 230 135414 HUNTLEY2 230 2	654	HUNTLEY - PACKARD 77 230	STOLLRD - GARDENVILL 66 230	104.23	-	-	-
135303 SAWYER77 230 135414 HUNTLEY2 230 1	654	HUNTLEY - PACKARD 78 230	STOLLRD - GARDENVILL 66 230	103.28	-	-	-
135449 GR.I-182 115 135459 NI.B-182 115 1	226	STOLLRD - GARDENVILL 66 230	T:77&78	100.73	-	-	-
135451 HUNTLEY1 115 135472 S129-38 115 1	185	-	-	-	STOLLRD - GARDENVILL 66 230	T:77&78	100.17
135415 PACKARD2 230 147842 NIAGAR2W 230 2 (See footnote)	841	NIAG - NEWROCH 1 345	T:61&64	100.41	-	-	-
147850 NIAG115E 115 147842 NIAGAR2W 230 1 (See footnote)	288	NIAGARA - PACKARD 61 230	SB:PA230_R506	100.38	-	-	-
135415 PACKARD2 230 147842 NIAGAR2W 230 1 (See footnote)	841	NIAGARA - ROBINSON 64 345	T:62&BP76	100.21	HUNTLEY - PACKARD 78 230	STOLLRD - GARDENVILL 66 230	91.51

Table lists the worst contingency for each overloaded element. Full results are included in the results spreadsheets.

Footnote : Niagara-Packard 230 kV lines use NYSRC Reliability Rule Exception #13. Developer must ensure that sufficient generation can be reduced at Niagara to return the flows to less than their STE ratings within 5 minutes and to less than their LTE ratings within 10 minutes from the initial overload.

Transmission Security N-1-1

- ◆ For additional information, results are also available for Ontario Imports held at 1,000 MW and no generation redispatch allowed.
- ◆ Increased Ontario Imports result in additional and aggravated overloads on 230 kV and 115 kV facilities between Niagara and Gardenville.
- ◆ The worst overloads are for the N-1-1 loss of one 230 kV circuit followed by the loss of two 230 kV circuits (common tower or stuck breaker)

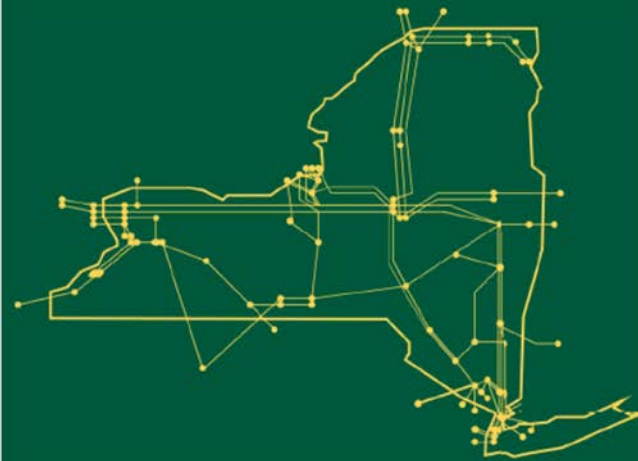
Base Cases Available

- ◆ Powerflow base cases and auxiliary files are available for Developers, subject to a CEII request
- ◆ Complete and submit the [NYISO CEII Request Form and NDA](#)
 - *Question 2: Checkbox “Power flow, dynamics, and/or short circuit databases other than Interconnection Study Databases”*
 - *Question 11: “Western NY Public Policy Transmission Need baseline cases and auxiliary files”*
- ◆ Files will be provided via the NYISO ePlanning system

Questions

- ◆ Questions regarding the Public Policy Transmission Planning Process or the Western NY baseline results may be sent to: PublicPolicyPlanningMailbox@nyiso.com

The New York Independent System Operator (NYISO) is a not-for-profit corporation responsible for operating the state's bulk electricity grid, administering New York's competitive wholesale electricity markets, conducting comprehensive long-term planning for the state's electric power system, and advancing the technological infrastructure of the electric system serving the Empire State.



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