Western NY Public Policy Transmission Report

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ESPWG/TPAS

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Review Process

- June 30, 2017: Posted Draft Western NY Report
- July 20, 2017: ESPWG/TPAS, presented draft evaluation results
- July 27, 2017: ESPWG/TPAS, presented draft ranking and selection recommendation
- August 8, 2017: ESPWG/TPAS, presented the updated schedule
- August 18, 2017: ESPWG/TPAS
- August 28, 2017: ESPWG/TPAS
- September 5, 2017: Posting deadline for Business Issue Committee
- September 12, 2017: Business Issue Committee (advisory vote)
- September 15, 2017: Operating Committee (for information, not required by Tariff)
- September 20, 2017: Posting deadline for Management Committee
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- October 2017: Western NY Report delivered to NYISO Board

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Agenda

- Responses to Questions and Comments
- Evaluation Updates
- Ranking and Selection Recommendation
- Next Steps

Responses to Questions and Comments

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Review of Questions and Comments

- **The NYISO received a high volume of questions and comments.**
  - Responded to common questions and those most relevant to the selection
  - Comments related to process improvement will be reviewed in the Lessons Learned process
  - Working on additional FAQ document to address comments and questions in writing

Evaluation Updates

Independent Cost Estimates

- **Based on feedback from stakeholders, the NYISO and SECO reviewed the cost for each project one more time**
  - Mobilization/Demobilization, site accommodation, and Project management
  - Lidar, Geotech, survey and staking
  - Engineering, testing, and commissioning
  - Clearing, real estate, and environmental mitigation

Independent Cost Estimates

- Updated the independent cost estimates for each project
- Detailed independent cost estimates were released as Appendix to the public version of the SECO report

Independent Cost Estimates

Project ID	Old Cost Estimates: 2017 $M	Updated Cost Estimates: 2017 $M	Change: 2017 $M
T006	158	157	(1)
T007	276	278	2
T008	348	356	8
T009	479	487	9
T011	182	177	(5)
T012	432	433	1
T013	232	232	(1)
T014	175	181	6
T014_Alt	217	219	2
T015	155	159	4
T015_Alt	197	197	0
T017	286	299	14

Benefits under Maintenance Conditions

- Based on 2016 Reliability Planning Process base cases, calculated the N-1 transfer capability of Tier 1 projects under different system maintenance conditions by using optimal N-1-1 Transfer limits
- The N-1-1 Transfer limits optimally shift generation from Ontario to New York while securing New York elements both pre- and post-contingency. When an overload cannot be mitigated, the optimal transfer limit is determined

N-1-1 Transfer Limits

Maintenance Condition	Base		T006		T013		T014		T015	
	OH-NY N-1 Normal Transfer Limit*									
Base case with project (no prior outage)	772	(1)	1890	(1)	1767	(1)	1861	(9)	1848	(1)
Packard - Huntley 230 kV 77	-1416	(2)	857	(6)	1090	(8)	1379	(10)	1074	(8)
Niagara - Packard 230 kV 61	-138	(3)	950	(7)	914	(7)	1335	(7)	979	(7)
Niagara - Robinson 230 kV 64	24	(4)	1141	(1)	1135	(1)	1476	(1)	1128	(1)
Stolle – Dysinger 345 kV new line	N/A	N/A	792	(1)	821	(1)	880	(1)	884	(1)
Stolle – 5 Mile 345 kV Line 29	768	(1)	1631	(1)	1594	(1)	1793	(1)	1512	(1)
Stolle – Gardenville 230 kV Line 66	-545	(5)	1139	(1)	1143	(1)	1321	(11)	1121	(1)
Stolle 345/115 XFMR(s)	768	(1)	1393	(1)	1712	(1)	1796	(1)	1369	(1)

Notes:
(1) Niagara - Packard 230 (61) at 847 MW STE rating for T:62&BP67
(2) Stolle - Gardenville 230 (66) at 574 MW LTE rating for SB:PA230_R0306
(3) Niagara - Packard 230 (62) at 847 MW Normal rating for pre 2nd contingent
(4) Niagara 230/115 Transformer 1 at 288 MW STE rating for T:77&78
(5) Packard - Sawyer 230 kV (77) at 644 MW LTE rating for SB:PA230_R0306
(6) Packard - Sawyer 230 kV (78) at 644 MW LTE rating for SB:DYS345:CB2
(7) Niagara 230/115 Transformer 1 at 288 MW STE rating for SB:PA230_R506
(8) Packard - Sawyer 230 kV (78) at 644 MW LTE rating for T:66&705
(9) Niagara - Beck 345 kV (H302) at 1132 MW LTE rating for SB:NIAG345_3008
(10) Packard - Sawyer 230 kV (78) at 644 MW LTE rating for STOLLERD 115-4
(11) Meyer 230/24.5 XFMR at 294 LTE rating for L/O:Canandaigua - Stoney Ridge 230 (68)

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Summary of Evaluation

- High-level summary of the relative performance of each project for each metric using certain scenarios

Project ID	Independent Capital Cost Estimate: 2017 $M	Independent Duration Estimate: months	Ontario-NY Transfer Limit: MW (1)	Cost per MW: $M/MW (1)	Production Cost Savings: 2017 $M (2)	Production Cost Savings / Cost (2)	System CO_2 Emission Reduction: 1000 tons (2)	Performance: Niagara Gen + Niagara Ties in 2025: GWh (2)	Operability	Expandability	Property Rights
T006	157	40	1,440	0.11	209	1.3	11,390	24,165	Good	Good	Existing ROW
T007	278	59	1,704	0.16	231	0.8	11,582	24,191	Good	Good	Existing and new ROW
T008	356	65	1,796	0.20	230	0.6	11,023	24,208	Good	Good	Existing and new ROW
T009	487	71	1,753	0.28	269	0.6	11,061	24,368	Good	Good	Existing and new ROW
T011	177	57	216	0.82	(1)	0.0	378	23,089	Fair	Fair	Existing ROW
T012	433	60	1,431	0.30	75	0.2	2,017	23,654	Good	Fair	Existing ROW
T013	232	44	1,482	0.16	229	1.0	11,305	24,198	Good	Good	Existing ROW
T014	181	40	1,604	0.11	274	1.5	7,362	24,309	Excellent	Good	Existing ROW
T014_Alt	219	49	1,604	0.14	274	1.3	7,362	24,309	Excellent	Good	New ROW as alternative
T015	159	40	1,403	0.11	225	1.4	10,681	24,251	Good	Good	Existing ROW
T015_Alt	197	49	1,403	0.14	225	1.1	10,681	24,251	Good	Good	New ROW as alternative
T017	299	66	1,536	0.19	207	0.7	11,104	24,224	Fair	Fair	Existing and new ROW

Notes:

(1) Transfer scenario with series reactors on Packard-Huntley lines in-service for all projects

(2) MAPS scenario 2 with series reactors on Packard-Huntley lines in-service for all projects

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Ranking and Selection Recommendation

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Tiered Ranking

Tier 1 projects:

- T006: North America Transmission Proposal 1
- T013: NYPA/NYSEG Western NY Energy Link
- T014: NextEra Energy Transmission New York Empire State Line Proposal 1
- T015: NextEra Energy Transmission New York Empire State Line Proposal 2

Tier 2 projects:

- T007: North America Transmission Proposal 2
- T008: North America Transmission Proposal 3
- T009: North America Transmission Proposal 4
- T011: National Grid Moderate Power Transfer Solution
- T012: National Grid High Power Transfer Solution
- T017: Exelon Transmission Company Niagara Area Transmission Expansion

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Tier 1 Projects: Overall Comparison

- T014 and T015 are identical projects except that T014 includes a PAR at Dysinger 345 kV substation. The analysis concludes that the benefits provided by the PAR exceeds the cost. These benefits include increased production cost saving, increased transfer capability, and improved operability for the system. As a result, T014 was ranked higher than T015.
- T015 and T006 are comparable in project design and in many metrics. However, T015 cuts out the 345 kV loop to Somerset and results in greater production cost saving relative to cost especially in MAPS scenario 2 (series reactors on Packard – Huntley 230 kV lines in service). Therefore, T015 was ranked higher than T006.
- T006 was compared against T013. With the NYISO-controlled series reactors on Packard-Huntley 230 kV lines in-service, T006 performs better in cost per MW and production cost saving relative to the cost. Therefore, T006 was ranked higher than T013.
- T013 was compared against T014. T014 has better operability with the 345 kV PAR and cuts out the 345 kV loop to Somerset; in addition, the production cost saving over cost ratios among different scenarios are higher than T013. Therefore, T014 was ranked higher than T013.

Tier 2 Projects: Overall Comparison

- T007, T008, and T009 were also proposed by North American Transmission with increasing network components, project costs, and project schedule. The increasing components do provide additional benefits, but the incremental benefits are not sufficient to offset the additional project cost and the risk associated with acquiring extra ROW.
- T017 was compared against T008 and T009. T017 performs better than T008 and T009 in cost per MW metric, and it also performs better in production cost saving relative to the cost. However, T008 and T009 demonstrate better operability and expandability, and thus T017 was ranked between T008 and T009.
- T012 demonstrates certain benefits in some metrics, but its performance is not great relative to its high cost. Therefore, T012 was ranked lower.
- While T011 strengthens the 115 kV network in Western New York, it is not very efficient or cost effective in improving the bulk system performance.

Ranking

Tier	Ranking	Project ID	Developer	Project Name
1	1	T014	NextEra Energy Transmission New York	Empire State Line Proposal 1
	2	T015	NextEra Energy Transmission New York	Empire State Line Proposal 2
	3	T006	North America Transmission	Proposal 1
	4	T013	NYPA/NYSEG	Western NY Energy Link
2	5	T007	North America Transmission	Proposal 2
	6	T008	North America Transmission	Proposal 3
	7	T017	Exelon Transmission Company	Niagara Area Transmission Expansion
	8	T009	North America Transmission	Proposal 4
	9	T012	National Grid	High Power Transfer Solution
	10	T011	National Grid	Moderate Power Transfer Solution

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Recommended Selection

- **The NYISO recommends T014 as the more efficient or cost effective project based on its overall performance**
- **T014 efficiently utilizes both the existing and proposed transmission facilities:**
  - The proposed Dysinger substation would become the new 345 kV hub in Western NY where seven 345 kV lines are connected, and electrically reduce the distance between Niagara and Rochester.
  - The proposed PAR at the Dysinger substation provides additional operational flexibility by providing a new level of controllability to power flows on the 345 kV system. Even when the PAR is bypassed, the project still demonstrates significant benefits.
- **T014 is efficient and cost effective:**
  - The independent cost estimate is among the lowest
  - The cost per MW ratio is among the lowest, and the production cost saving over the cost ratio is the highest across all scenarios
- **No critical risks regarding siting, equipment procurement, real estate acquisition, construction and schedule were identified in the evaluation process.**

In-Service Date for Recommended Selection

- The tariff requires the Public Policy Transmission Planning Report to specify the in-service date for the selected project
- Based on SECO's independent project schedule estimates, the in-service date for T014 is June 2022

Next Steps

Next Steps

- Please provide additional comments to PublicPolicyPlanningMailbox@nyiso.com
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- September 5, 2017: Posting deadline for Business Issue Committee
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- Maintaining and enhancing regional reliability
- Operating open, fair and competitive wholesale electricity markets
- Planning the power system for the future
- Providing factual information to policy makers, stakeholders and investors in the power system

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