

Western NY Public Policy Transmission Report

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ESPWG/TPAS

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Process Overview

- June 30, 2017: Draft Western NY Report Posted
- July 20, 2017: ESPWG and TPAS Meeting
- July 27, 2017: ESPWG, present draft ranking and selection recommendation, additional written comments due by July 31, 2017
- **August 8, 2017: ESPWG, present completed report with ranking and selection recommendation**
- August 10, 2017: Operating Committee (for information, not required by Tariff)
- **August 18, 2017: Business Issue Committee (advisory vote)**
- August 30, 2017: Management Committee (advisory vote)
- September 2017: Western NY Report delivered to NYISO Board

Agenda

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

Responses to Questions and Comments

Review of Questions and Comments

- The NYISO received a high volume of questions and comments. Today we will respond to common questions and those most relevant to the selection. The NYISO will continue examining the questions and incorporating feedback in the next draft of the report.

Lines 61 & 64 Tower Separation

- Tower contingency for loss of Niagara – Packard 230 kV line #61 and Niagara – Robinson Road 230 kV line #64 is limiting in the pre-project transfer analysis
- With the Western NY Public Policy Transmission Projects in place, this tower contingency is no longer the most limiting element in the transfer analysis
- While the tower separation provides benefit to system operation, it is not a significant distinguishing factor between projects in the evaluation

Comparison between 2014 and 2016 Reliability Planning Process Base Cases

- **Different base cases**
 - Different horizon years (2024 vs. 2026)
 - Load forecasts based on different Gold Books (GB14 2024 load:36, 580 MW, and GB16 2026 load: 34,056 MW)
 - Different generation resource and dispatch
 - Different external representation
- **The two base cases are available subject to compliance with CEI requirements and execution of an NDA**

Detailed Independent Cost Estimates

- **SECO developed detailed overnight capital cost estimates for all the viable and sufficient projects based on a consistent methodology, and stakeholders requested these estimates to be made available**
- **The NYISO will expand the level of details for the cost estimates**
- **The NYISO applied sales tax consistently across all projects**

Wood vs. Steel Structure

- SECO considered all the characteristics of both structure types relative to cost estimates, ROW, and risk factors
- Subject to the PSC's Article VII siting process review for environmental considerations

Project Status in Interconnection Queue

| Project ID | Queue |
|------------|-------|
| T006 | Q547 |
| T007 | Q550 |
| T008 | Q548 |
| T009 | Q549 |
| T011 | Q528 |
| T012 | Q529 |
| T013 | Q525 |
| T014 | Q545A |
| T015 | Q530 |
| T017 | Q588 |

Miscellaneous Questions

- Discount rate used: 6.843%
- Clarification on interaction with LTP

Evaluation Updates

Independent Cost Estimates

- The NYISO and its independent consultant reviewed the draft report, and made a minor correction on cost estimates for T014 and T015

| Project ID | Independent Cost Estimate: 2017 \$M |
|------------|-------------------------------------|
| T006 | 158 |
| T007 | 276 |
| T008 | 348 |
| T009 | 479 |
| T011 | 182 |
| T012 | 432 |
| T013 | 232 |
| T014 | 175 |
| T014_Alt | 217 |
| T015 | 155 |
| T015_Alt | 197 |
| T017 | 286 |

MAPS Scenario: IESO-MISO and SR Combined

- **IESO-MISO historical flow modeled**
- **Series reactors on Packard-Huntley 230 kV lines in service for all projects**

| Project ID | SR In-service and Historical IESO-MISO |
|------------|--|
| T006 | (289) |
| T013 | (308) |
| T014 | (338) |
| T015 | (304) |

Ranking and Selection Recommendation

Tired 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

Tier 1 Projects: T006

- Dysinger–Stolle Road 345 kV line proposed on existing ROW, and a new 345/115 kV transformer added at Stolle Road substation
- The estimated cost by SECO is among the lowest, only slightly higher than that of T015
- The estimated minimum construction duration by SECO is the shortest at 40 months
- The cost per MW ratio and production cost saving over cost ratio are relatively good
- Good operability and expandability

Tier 1 Projects: T013

- Dysinger–Stolle Road 345 kV line proposed on existing ROW, two 345/230 kV transformers added at Stolle Road, and reconductoring of Stolle Road–Gardenville 230 kV line
- The estimated cost by SECO is the highest among Tier 1 projects
- The estimated minimum construction duration by SECO is 44 months
- The cost per MW ratio and production cost saving over cost ratio are relatively good
- Good operability and expandability

Tier 1 Projects: T014

- Dysinger-Stolle Road 345 kV line proposed on existing ROW or new ROW as an alternative
- The estimated cost by SECO is one of the lowest; only higher than that of T015 and T006
- The estimated minimum construction duration by SECO is the shortest at 40 months
- The cost per MW ratio and production cost saving over the cost ratio are generally the best when considering the various scenarios evaluated
- 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 to enable greater utilization of the existing 345 kV corridor
- The PAR proposed at the Dysinger substation provides additional operational flexibility at the 345 kV level. Even when-the PAR is bypassed, the project still demonstrates superior benefits

Tier 1 Projects: T015

- Dysinger-Stolle Road 345 kV line proposed on existing ROW or new ROW as alternative
- The estimated cost by SECO is the lowest
- The estimated minimum duration by SECO is the shortest at 40 months
- The cost per MW ratio and production cost saving over the cost ratio are relatively good
- 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 to enable greater utilization of the existing 345 kV corridor

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 | 158 | 40 | 1,440 | 0.11 | 209 | 1.3 | 11,390 | 24,165 | Good | Good | Existing ROW |
| T007 | 276 | 59 | 1,704 | 0.16 | 231 | 0.8 | 11,582 | 24,191 | Good | Good | Existing and new ROW |
| T008 | 348 | 65 | 1,796 | 0.19 | 230 | 0.7 | 11,023 | 24,208 | Good | Good | Existing and new ROW |
| T009 | 479 | 71 | 1,753 | 0.27 | 269 | 0.6 | 11,061 | 24,368 | Good | Good | Existing and new ROW |
| T011 | 182 | 57 | 216 | 0.84 | (1) | 0.0 | 378 | 23,089 | Fair | Fair | Existing ROW |
| T012 | 432 | 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 | 175 | 40 | 1,604 | 0.11 | 274 | 1.6 | 7,362 | 24,309 | Excellent | Good | Existing ROW |
| T014_Alt | 217 | 49 | 1,604 | 0.14 | 274 | 1.3 | 7,362 | 24,309 | Excellent | Good | New ROW as alternative |
| T015 | 155 | 40 | 1,403 | 0.11 | 225 | 1.5 | 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 | 286 | 66 | 1,536 | 0.19 | 207 | 0.7 | 11,104 | 24,224 | Fair | Fair | Existing and new ROW |

Notes:

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

Tier 1 Projects: Overall Comparison

- T014 and T015 are identical projects except that T014 includes a PAR at Dysinger 345 kV substation. The benefits provided by the PAR exceed 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 (SR 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. The production cost saving and cost per MW for T014 is consistently better than T013 with the NYISO-controlled series reactors in service.

Tier 2 Projects: Overall Comparison

- Based on consideration of all the evaluation metrics for efficiency or cost effectiveness and consideration of input from stakeholders, Tier 2 projects were also compared and ranked
- Tier 2 projects may be less expensive with fewer benefits, or more expensive without sufficient corresponding benefits

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 |

Recommended Selection

- **The NYISO recommends T014 as the more efficient or cost effective project based on its overall satisfaction and performance among the evaluation metrics**
 - The estimated project cost for T014 by SECO is among the lowest—only slightly higher than that of T015 and T006 proposals
 - The cost per MW ratio for T014 is among the lowest, and the production cost saving over the cost ratio is the highest across all scenarios
 - 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 to enable greater utilization of the existing 345 kV corridor
 - The proposed PAR at the Dysinger substation provides additional operational flexibility at the 345 kV level. Even when the PAR is bypassed, the project still demonstrates significant benefits.
 - SECO identified no critical risks regarding siting, equipment procurement, real estate acquisition, and construction

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**
- **The in-service date for T014 will be established based on SECO's independent project schedule estimates**

Next Steps

Next Steps

- Please provide additional comments to PublicPolicyPlanningMailbox@nyiso.com as soon as possible, but no later than COB July 31, 2017
- August 8, 2017: ESPWG, present updated report with ranking and selection recommendation
- August 10, 2017: Operating Committee (for information, not required by Tariff)
- August 11, 2017: posting deadline for Special Business Issue Committee
- August 18, 2017: Special Business Issue Committee (advisory vote)
- August 30, 2017: Management Committee (advisory vote)
- September 2017: Western NY Report delivered to NYISO Board

Questions?

We are here to help. Let us know if we can add anything.

The Mission of the New York Independent System Operator, in collaboration with its stakeholders, is to serve the public interest and provide benefits to consumers by:

- 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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