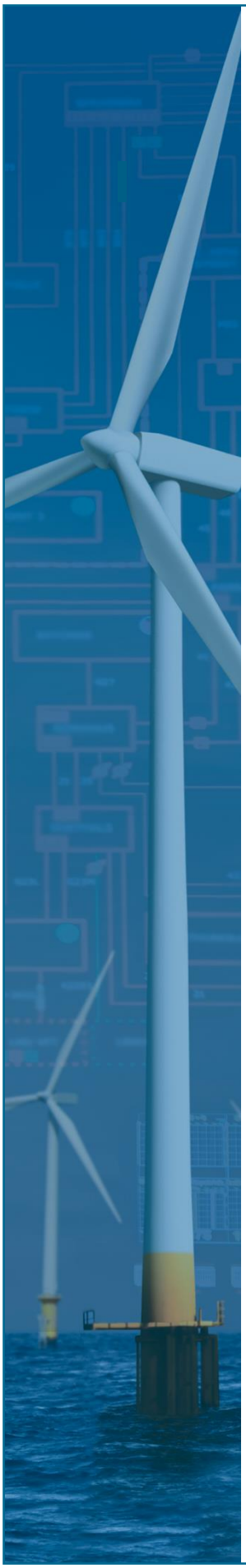


New York ISO
Independent System Operator

Appendix [ ]: Production Cost & Performance

Long Island Offshore Wind Export Public Policy Transmission Need Evaluation

A Report from the New York Independent System Operator

DRAFT for April 25, 2023 ESPWG

Appendix [ ]: Production Cost Benefits

NYISO Production Cost Model

In analyzing the production cost metric, the NYISO utilizes production cost models developed in MAPS (Multi-Area Production Simulation) to analyze system congestion under various future scenarios and system conditions. The software performs a security-constrained economic commitment and dispatch and optimizes for the minimum hourly production cost of supply resources to meet the load plus losses.

The NYISO's production cost model optimizes 4-pool (NYISO, PJM, ISO-NE and IESO) generation to match the load in each hour with the aim of minimizing the overall system production cost.

Production cost models require input data to develop cost curves for the resources that the model will commit and dispatch to serve the load, subject to the constraints included in the model. Generator inputs to the model include generator heat rates, fuel price forecasts, emission price forecasts, and hourly generation profiles for renewable resources. Transmission inputs include an explicit nodal model and individual constraints, contingencies, and interface limitations. Peak and annual demand forecasts for each area/zone in each pool, as well as hourly load patterns, are the key inputs to formulate the load representation in the production cost model.

The NYISO's production cost simulations provide estimates of future system behavior based on the detailed inputs to the model. Results are available up to an hourly resolution and include metrics such as generation, load, LBMP, generator production cost, imports/exports, renewable generation curtailment, etc. System production cost is an industry recognized metric that can be used to measure the societal economic cost of meeting electricity demand with generation.

Project Evaluation Using Production Cost Models

Production cost simulations can be utilized to gauge the effectiveness of a proposed transmission project in reducing NYCA wide production cost. A pre-project case is first simulated without a project in place to establish a baseline for comparison with all of the assumptions included for the model. A post-project case with the transmission project added to the underlying transmission model is then simulated and metrics are compared to the pre-project case. Production cost savings for a project is calculated as the difference between the pre-project and post-project results over the duration of a project's study period, starting at the estimated in-service date and extending 20 years.

NYCA production cost is the total generation cost of producing power to serve NYCA load. The

total cost includes the following components:

1. Fuel cost (fuel consumption mmBtu multiplied by fuel cost $/mmBtu);
2. Variable operations and maintenance (O&M) cost (VOM adder $/MWh);
3. Emission cost (emission allowance price multiplied by total allowance);
4. Start-up cost (number of starts multiplied by start-up cost); and
5. NYCA Imports and Exports evaluated at the solution case proxy bus LBMP values.

   NYCA wide Production Cost = $\sum_{n=1}^{8760}\{NYCA\ Generator\ Costs_n + Import\ Costs_n - Export\ Costs_n\}$

Generation resources with no variable cost (*e.g.*, solar, wind, and hydro) do not contribute to production cost given that they produce energy for $0/MWh. Any Renewable Energy Credit (REC) subsidies for each of these resource types are modeled as a negative "bid adder" and are solely used to create a dispatch order and do not contribute to production cost.

Assumptions for Production Cost Analysis

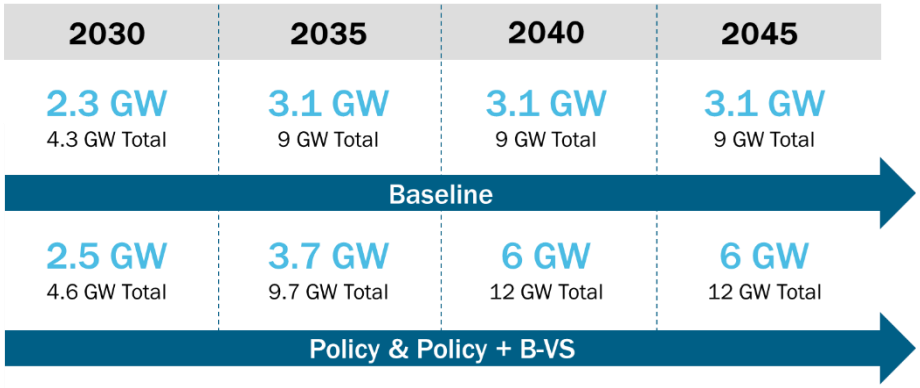
The production cost model used for the Long Island Offshore Wind Export Public Policy Transmission Need (Long Island PPTN) evaluation utilizes the 2021-2040 System and Resource Outlook (Outlook) Contract Case as the starting point for the "Baseline" Scenario. The "Policy" Scenario for the Long Island PPTN evaluation is largely derived from the Outlook Policy S2 Case. The "Policy + Barrett-Valley Stream (B-VS)" Scenario is the Policy Scenario with the inclusion of the Barrett-Valley Stream constraint. The Outlook study period is from 2021 to 2040, whereas the Long Island PPTN study period is from 2030-2050. The NYISO simulated discrete years at 5-year intervals to provide a reasonable representation of the twenty-year study period without simulating each year of production cost data.

The following key changes were applied to the Long Island PPTN pre-project cases compared to the Outlook' Contract and Policy S2 cases:

- Extended load forecast, fuel price forecast, and emission price forecast to 2045 to be modeled in production cost simulations. 2045 is considered as the proxy year to represent system conditions from 2045-2050.
- Increased offshore wind capacity and points of interconnection in both the Baseline and Policy Scenarios for the Long Island PPTN compared to the Outlook Contract and Policy S2 cases. The following figure shows the increased capacity and timeline

of offshore wind resource installation.

Figure 1: Timeline of Offshore Wind Installation in Production Cost Analyses



- Lower kV constraints (less than 115 kV) are relaxed in Long Island for the Baseline Scenario.
- Constraints lower than 69 kV are relaxed in New York City and Long Island for the Policy Scenario. For all other zones in the Policy Scenario, all constraints lower than 230 kV are relaxed beyond 2040.
- Barrett – Valley Stream, Valley Stream – East Garden City (secure for the reverse direction from East Garden City – Valley Stream), Barrett – Freeport, and Freeport – Newbridge 138 kV lines are relaxed for the Policy Scenario (However, the Policy + B-VS Scenario removes this assumption).

Pre-Project Case Results

The pre-project cases were run for the Long Island PPTN Baseline Scenario case, the Long Island PPTN Policy Scenario case, and the Long Island PPTN Policy + B-VS Scenario case. The pre-project case results provide a reference set of data points which can be compared against the results produced after the project is put in-service. The pre-project cases show that there is significant curtailment, especially in the Policy and Policy + B-VS Scenarios, of offshore wind resources in Long Island. Curtailment of low-cost resources, such as offshore wind, can be caused by constraints either local or on the bulk level. This curtailment can cause other higher cost resources to be dispatched to serve load either on Long Island or in the neighboring regions.

Figure 2: Pre-Project Production Cost Results

Area	Values	Baseline				Policy				Policy + B-VS			
		2030	2035	2040	2045	2030	2035	2040	2045	2030	2035	2040	2045
Long Island	OSW Capacity (MW)	2,279	3,079	3,079	3,079	2,539	3,689	5,989	5,989	2,539	3,689	5,989	5,989
	Potential Energy Production (GWh)	8,927	12,153	12,190	12,145	9,974	14,622	24,048	23,965	9,974	14,622	24,048	23,965
	Curtailment (GWh)	49	520	345	147	173	538	3,131	2,473	2,440	2,358	3,823	3,273
	Curtailment Rate (%)	1%	4%	3%	1%	2%	4%	13%	10%	24%	16%	16%	14%
NYC	OSW Capacity (MW)	2,046	5,976	5,976	5,976	2,046	5,976	5,976	5,976	2,046	5,976	5,976	5,976
	Potential Energy Production (GWh)	8,368	22,929	23,020	22,928	8,368	22,931	23,022	22,929	8,368	22,931	23,022	22,929
	Curtailment (GWh)	4	83	3	0	1	2	2	16	2	2	2	19
	Curtailment Rate (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Long Island has five tie interfaces, including connections to Dunwoodie (Y49 and Y50), PJM (Neptune), NY City (Jamaica-Corona), Cross Sound Cable, and Northport Norwalk (ISONE). Two of the interfaces (Neptune and Cross Sound Cable) are only scheduled to import energy into Long Island. The limited export capability from Long Island in the pre-project cases limits the amount of low-cost energy produced by offshore wind resources to serve load outside of Long Island in periods when the output from these resources is high. The Dunwoodie-Long Island interface is consistently one of the most congested interfaces in the NYCA. The two tie-lines (Y49 and Y50) transfer power from the lower Hudson Valley to Long Island. The flow is higher in the Baseline Scenario compared to the Policy Scenarios due to the difference in the assumed offshore wind injections in Long Island. The Policy Scenarios have higher offshore wind injections in Long Island that push back on the imports from this interface.

The Long Island PPTN post-project cases all improve the export capability of Long Island by adding tie-lines between Long Island and the lower Hudson Valley. This added transfer capacity/headroom and upgrades to the internal Long Island system reduces the amount of curtailment from offshore wind resources that can be used to offset more expensive generation in New York or Imports from neighboring regions.

Post-Project Results

Production cost savings for each project is calculated by taking the difference between the pre- and post-project NYCA-wide production costs. Production cost savings are achieved when transmission projects unbottle cheaper resources in the system that replace more expensive generation, resulting in the reduction of the overall cost of serving load. Transmission projects provide additional electrical pathways that may be used by generators to serve load and, therefore, can decrease transmission congestion.

Production cost savings are also achieved by offsetting higher cost energy imports from neighboring regions with lower cost internal generation previously inaccessible due to transmission congestion. In general, all of the proposed projects to address the Long Island PPTN produce savings by unbottling offshore wind resources in Long Island and reducing the amount of

imports from neighboring regions. The figures below show the estimated production cost savings for each project over a 20-year period in 2022 real million dollars. [placeholder for NPV calculation description]

Figure 3: Estimated 20-year Production Cost Savings (2022 $M)

Estimated Total 20-Year Savings (2022 $M)			
Project	Baseline	Policy	Policy + B-VS
T035 - LS Power	104	340	906
T036 - NextEra Core 1	108	303	291
T037 - NextEra Core 2	108	364	378
T038 - NextEra Core 3	109	380	402
T039 - NextEra Core 4	39	305	307
T040 - NextEra Core 5	107	339	332
T041 - NextEra Core 6	110	291	308
T042 - NextEra Core 7	110	291	308
T043 - NextEra Enh 1	87	458	745
T044 - NextEra Enh 2	81	441	582
T047 - Propel Base 1	109	337	568
T048 - Propel Base 2	99	313	513
T049 - Propel Base 3	102	344	902
T051 - Propel Alt 5	104	341	609
T052 - Propel Alt 6	96	352	618
T053 - Propel Alt 7	108	360	622

Figure 4: Production Cost Savings Over 20 Years (2022 $M)

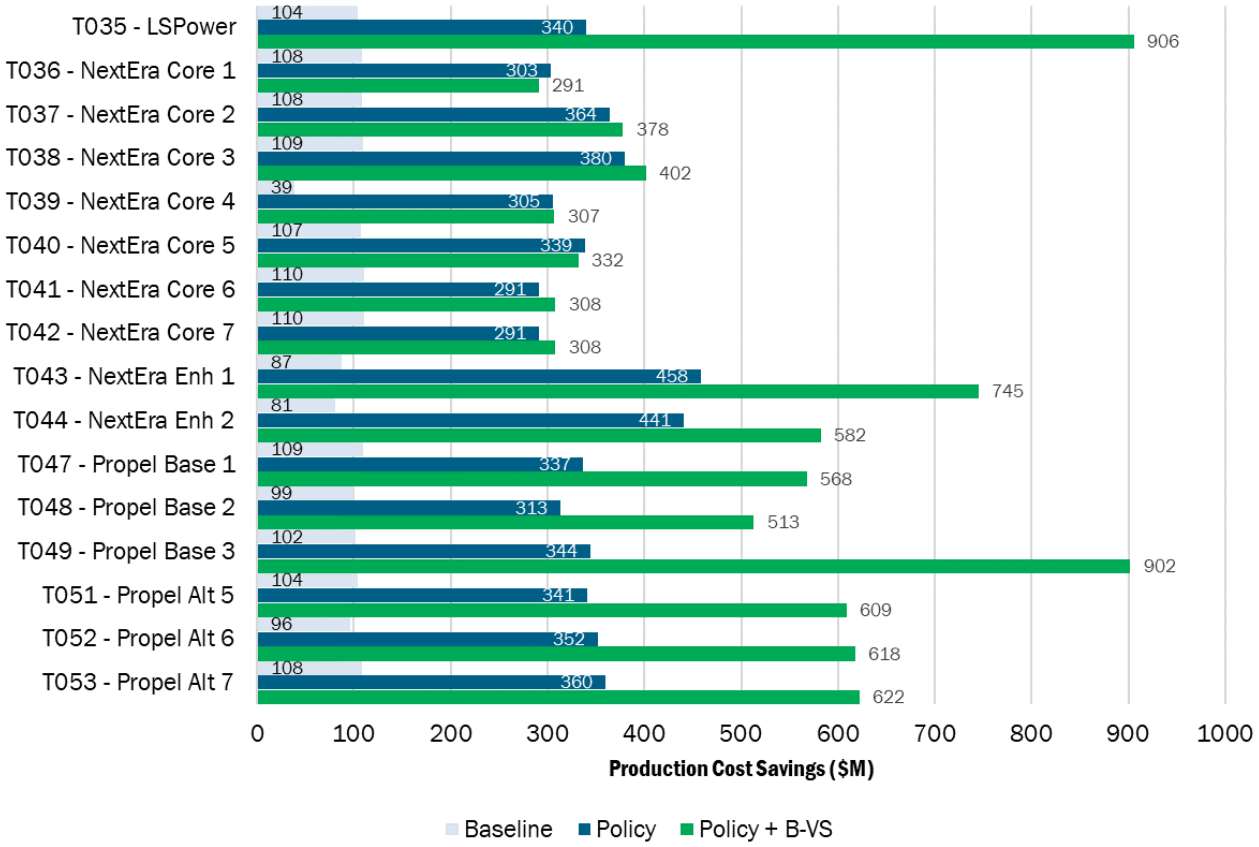
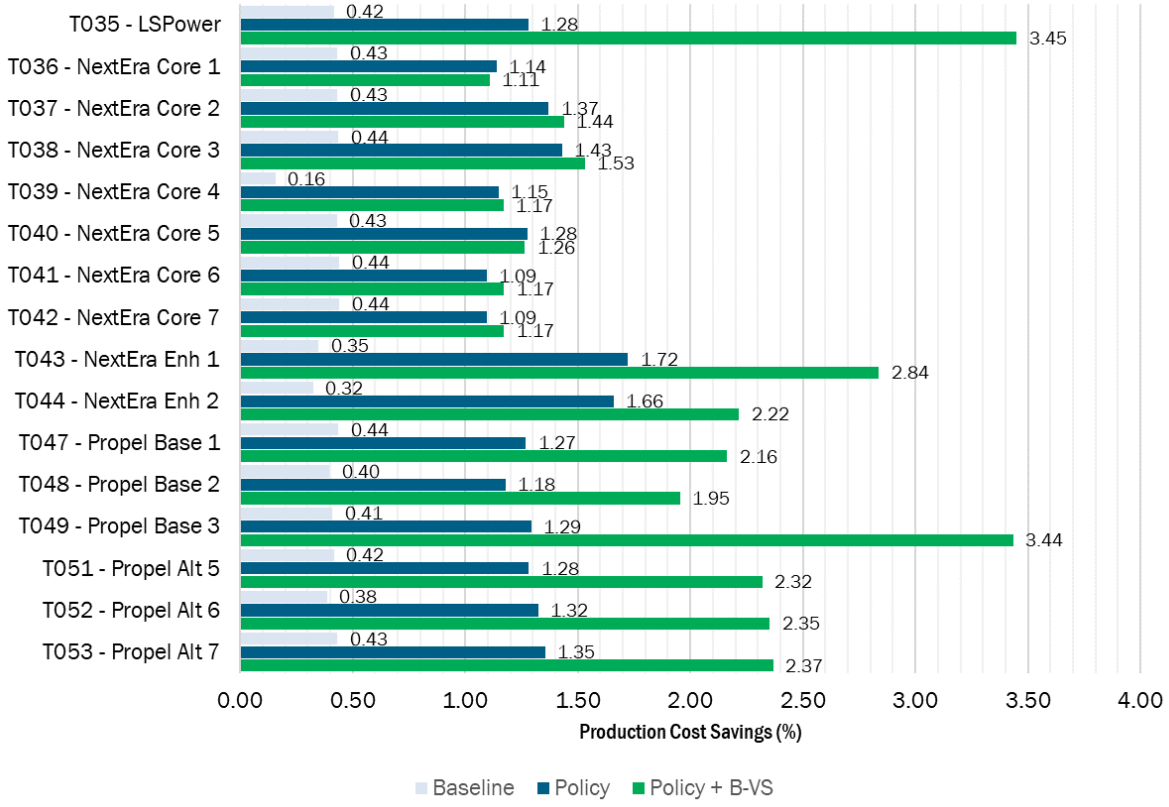


Figure 5: Savings As Percentage of Total NYCA-Wide Production Cost



Performance Evaluation

The performance evaluation leverages the same models and simulations from the production cost analysis but evaluates several metrics related to the performance of the system. The transmission utilization, energy deliverability, and CO_2 emissions assessments help to quantify the impacts that projects may have on the NYCA.

Transmission Utilization

The performance of a project is evaluated based on its ability to efficiently utilize the transmission network to increase energy transfers between Long Island and the rest of New York. The transmission utilization metric is the total annual energy transferred (MWh) over an interface. The results help determine the effectiveness of a transmission project to export offshore wind energy off Long Island and to import energy when needed.

For the purposes of this analysis, transmission utilization is measured as the total annual energy transacted across existing and proposed project inter-zonal transmission paths that interconnect to the Long Island (Zone K). This also includes transmission paths that connect to

other areas within the NYCA and external to the NYCA.

Flows across the tie-lines from Long Island to the rest of New York and neighboring regions are divided into import and export energy, which are netted on an hourly basis and summed over each year. The 20-year flow estimates are calculated assuming equal flows over the 5-year period in between the simulation years.

Figure 6: 20-Year Transmission Utilization

Project	LI Import (GWh)			LI Export (GWh)		
	Baseline	Policy	Policy + B-VS	Baseline	Policy	Policy + B-VS
Pre-Project	128,203	137,924	150,138	36,543	45,638	29,773
T035 - LSPower	134,901	145,977	145,684	42,958	74,206	74,441
T036 - NextEra Core 1	135,401	146,953	157,176	43,372	76,282	47,112
T037 - NextEra Core 2	135,356	146,562	155,695	43,332	75,632	46,960
T038 - NextEra Core 3	135,257	146,038	154,698	43,332	77,270	49,252
T039 - NextEra Core 4	137,528	147,944	157,249	43,277	77,443	48,935
T040 - NextEra Core 5	135,255	146,126	155,461	43,330	77,349	48,845
T041 - NextEra Core 6	135,221	145,736	154,695	43,398	77,666	49,683
T042 - NextEra Core 7	135,221	145,736	154,695	43,398	77,666	49,683
T043 - NextEra Enh 1	136,582	148,041	151,887	43,504	78,588	62,645
T044 - NextEra Enh 2	135,766	147,394	153,636	43,633	78,598	59,281
T047 - Propel Base 1	134,827	146,389	150,252	43,290	75,872	56,366
T048 - Propel Base 2	134,912	146,323	149,796	43,349	72,302	55,344
T049 - Propel Base 3	134,971	146,754	146,604	43,260	76,075	73,178
T051 - Propel Alt 5	135,539	148,786	149,989	43,216	60,499	59,505
T052 - Propel Alt 6	135,243	146,662	150,333	43,271	77,269	59,574
T053 - Propel Alt 7	134,975	145,721	149,130	43,409	77,148	59,591

Energy Deliverability

The performance analysis also considers the energy deliverability impact of proposed projects on projected offshore wind resources Energy deliverability represents the ability of renewable generation (*e.g.*, wind, solar, and hydro) to inject energy into the grid to serve end-use consumers without curtailment. It is expressed as the ratio of energy generated to total potential energy for those resources. Generally, energy deliverability is reduced as more renewable capacity is added to the system due to the transmission constraints in the system. The greater the renewable generation curtailment in a specific location, the greater the opportunity for transmission investment.

$$Energy\ Deliverability\ (\%) = \frac{Annual\ Energy\ Production\ (GWh)}{Potential\ Annual\ Energy\ Production\ (GWh)}$$

$$Energy\ Deliverability\ (\%) = 100\% - \ Curtailment\ (\%)$$

Constraints in the existing system and new constraints that may be binding in a scenario with high penetration of offshore wind limit the amount of renewable energy that can be utilized to serve load. To enable effective use of these resources, proposed projects need to address congestion

at the local and bulk transmission levels to increase energy deliverability. Projects that enable high energy deliverability (and thus lower curtailments) displace more costly generation dispatch in the system or imports from neighboring regions. This is reflected in the total production cost savings achieved by the project.

Figure 7: Baseline Scenario LI OSW Curtailment and Energy Deliverability

Project	Sum of Scheduled Energy (GWh)				Sum of Curtailed Energy (GWh)				20-year Energy Deliverability
	2030	2035	2040	2045	2030	2035	2040	2045	
Baseline Case (Pre-Project)	8,927	12,153	12,190	12,145	49	520	345	147	98%
T035 - LS Power	8,927	12,153	12,190	12,145	0	0	0	0	100%
T036 - NextEra Core 1	8,927	12,153	12,190	12,145	4	0	1	1	100%
T037 - NextEra Core 2	8,927	12,153	12,190	12,145	3	0	0	0	100%
T038 - NextEra Core 3	8,927	12,153	12,190	12,145	3	0	0	0	100%
T039 - NextEra Core 4	8,927	12,153	12,190	12,145	4	0	1	2	100%
T040 - NextEra Core 5	8,927	12,153	12,190	12,145	4	0	0	1	100%
T041 - NextEra Core 6	8,927	12,153	12,190	12,145	3	0	0	1	100%
T042 - NextEra Core 7	8,927	12,153	12,190	12,145	3	0	0	1	100%
T043 - NextEra Enh 1	8,927	12,153	12,190	12,145	0	1	0	0	100%
T044 - NextEra Enh 2	8,927	12,153	12,190	12,145	0	0	0	0	100%
T047 - Propel Base 1	8,927	12,153	12,190	12,145	3	1	0	1	100%
T048 - Propel Base 2	8,927	12,153	12,190	12,145	3	0	0	1	100%
T049 - Propel Base 3	8,927	12,153	12,190	12,145	3	0	0	1	100%
T051 - Propel Alt 5	8,927	12,153	12,190	12,145	2	0	0	0	100%
T052 - Propel Alt 6	8,927	12,153	12,190	12,145	2	0	0	1	100%
T053 - Propel Alt 7	8,927	12,153	12,190	12,145	3	0	0	0	100%

Figure 8: Policy Scenario LI OSW Curtailment and Energy Deliverability

Project	Sum of Scheduled Energy (GWh)				Sum of Curtailed Energy (GWh)				20-year Energy Deliverability
	2030	2035	2040	2045	2030	2035	2040	2045	
Policy Case (Pre-Project)	9,974	14,622	24,048	23,965	173	538	3,131	2,473	91%
T035 - LS Power	9,974	14,622	24,048	23,965	48	9	383	388	99%
T036 - NextEra Core 1	9,974	14,622	24,048	23,965	103	20	206	178	99%
T037 - NextEra Core 2	9,974	14,622	24,048	23,965	99	19	215	224	99%
T038 - NextEra Core 3	9,974	14,622	24,048	23,965	97	18	44	59	100%
T039 - NextEra Core 4	9,974	14,622	24,048	23,965	101	22	87	41	100%
T040 - NextEra Core 5	9,974	14,622	24,048	23,965	103	22	85	90	100%
T041 - NextEra Core 6	9,974	14,622	24,048	23,965	94	16	58	54	100%
T042 - NextEra Core 7	9,974	14,622	24,048	23,965	94	16	58	54	100%
T043 - NextEra Enh 1	9,974	14,622	24,048	23,965	0	0	3	7	100%
T044 - NextEra Enh 2	9,974	14,622	24,048	23,965	0	1	5	4	100%
T047 - Propel Base 1	9,974	14,622	24,048	23,965	94	17	212	148	99%
T048 - Propel Base 2	9,974	14,622	24,048	23,965	95	18	651	469	98%
T049 - Propel Base 3	9,974	14,622	24,048	23,965	95	16	209	106	99%
T051 - Propel Alt 5	9,974	14,622	24,048	23,965	76	14	52	46	100%
T052 - Propel Alt 6	9,974	14,622	24,048	23,965	84	14	53	29	100%
T053 - Propel Alt 7	9,974	14,622	24,048	23,965	93	19	67	77	100%

Figure 9: Policy + B-VS Scenario LI OSW Curtailment and Energy Deliverability

Project	Sum of Scheduled Energy (GWh)				Sum of Curtailed Energy (GWh)				20-year Energy Deliverability
	2030	2035	2040	2045	2030	2035	2040	2045	
Policy Case + B-VS (Pre-Project)	9,974	14,622	24,048	23,965	2,440	2,358	3,823	3,273	84%
T035 - LS Power	9,974	14,622	24,048	23,965	47	10	387	376	99%
T036 - NextEra Core 1	9,974	14,622	24,048	23,965	2,057	1,910	2,001	1,891	89%
T037 - NextEra Core 2	9,974	14,622	24,048	23,965	2,005	1,852	1,918	1,848	90%
T038 - NextEra Core 3	9,974	14,622	24,048	23,965	1,947	1,782	1,745	1,700	90%
T039 - NextEra Core 4	9,974	14,622	24,048	23,965	2,030	1,856	1,838	1,747	90%
T040 - NextEra Core 5	9,974	14,622	24,048	23,965	2,031	1,857	1,854	1,794	90%
T041 - NextEra Core 6	9,974	14,622	24,048	23,965	2,000	1,853	1,728	1,664	90%
T042 - NextEra Core 7	9,974	14,622	24,048	23,965	2,000	1,853	1,728	1,664	90%
T043 - NextEra Enh 1	9,974	14,622	24,048	23,965	1,038	955	842	780	95%
T044 - NextEra Enh 2	9,974	14,622	24,048	23,965	1,816	1,707	1,563	4	93%
T047 - Propel Base 1	9,974	14,622	24,048	23,965	1,239	1,114	1,385	1,212	93%
T048 - Propel Base 2	9,974	14,622	24,048	23,965	1,389	1,252	1,530	1,457	92%
T049 - Propel Base 3	9,974	14,622	24,048	23,965	104	26	551	348	99%
T051 - Propel Alt 5	9,974	14,622	24,048	23,965	1,134	1,002	1,079	1,009	94%
T052 - Propel Alt 6	9,974	14,622	24,048	23,965	1,245	1,092	1,001	892	94%
T053 - Propel Alt 7	9,974	14,622	24,048	23,965	1,213	1,076	1,046	1,015	94%

CO_2 Emissions

Figure 10: Annual NYCA CO_2 Emissions in Policy Scenarios

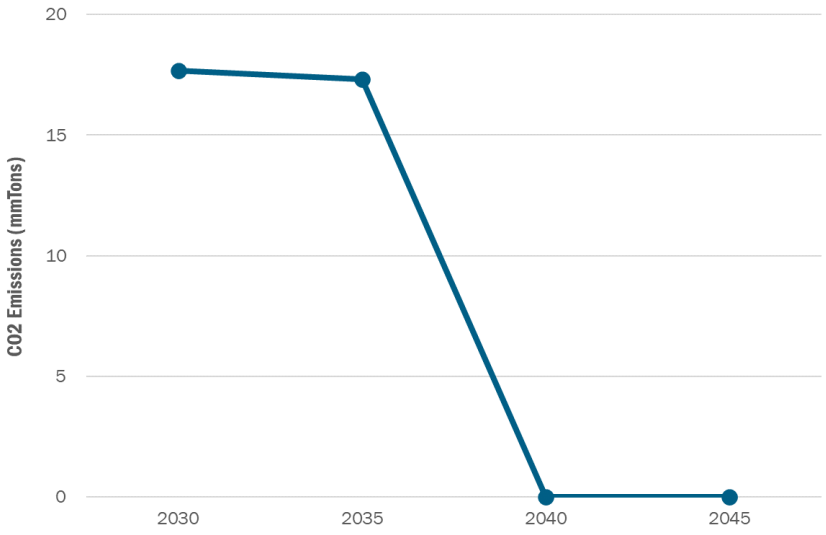


Figure 11: Baseline Scenario CO_2 Emissions

20-Year Estimated CO_2 Emissions (Million Tons)				
Project	**LI**	**NYC**	**NYCA**	**Regional**
Baseline Case (Pre-Project)	53	194	450	8,248
T035 - LS Power	49	197	451	8,246
T036 - NextEra Core 1	49	197	451	8,246
T037 - NextEra Core 2	49	196	451	8,245
T038 - NextEra Core 3	49	196	451	8,246
T039 - NextEra Core 4	48	201	452	8,246
T040 - NextEra Core 5	49	197	451	8,246
T041 - NextEra Core 6	49	197	451	8,246
T042 - NextEra Core 7	49	197	451	8,246
T043 - NextEra Enh 1	48	198	451	8,247
T044 - NextEra Enh 2	49	199	453	8,245
T047 - Propel Base 1	49	197	451	8,244
T048 - Propel Base 2	49	197	451	8,245
T049 - Propel Base 3	49	197	453	8,244
T051 - Propel Alt 5	49	197	451	8,245
T052 - Propel Alt 6	49	197	451	8,245
T053 - Propel Alt 7	49	197	451	8,245

Figure 12: Policy Scenario CO_2 Emissions

20-Year Estimated CO2 Emissions (Million Tons)				
Project	**LI**	**NYC**	**NYCA**	**Regional**
Policy Case (Pre-Project)	24	70	175	8,060
T035 - LS Power	22	72	176	8,056
T036 - NextEra Core 1	22	71	175	8,057
T037 - NextEra Core 2	22	72	176	8,056
T038 - NextEra Core 3	22	72	176	8,057
T039 - NextEra Core 4	22	72	177	8,054
T040 - NextEra Core 5	22	72	176	8,057
T041 - NextEra Core 6	22	71	175	8,058
T042 - NextEra Core 7	22	71	175	8,058
T043 - NextEra Enh 1	22	71	177	8,053
T044 - NextEra Enh 2	22	72	177	8,052
T047 - Propel Base 1	22	72	176	8,051
T048 - Propel Base 2	22	72	176	8,056
T049 - Propel Base 3	22	72	176	8,052
T051 - Propel Alt 5	22	72	176	8,056
T052 - Propel Alt 6	22	72	176	8,056
T053 - Propel Alt 7	22	72	176	8,056

Figure 13: Policy + Barrett–Valley Stream Scenario CO_2 Emissions

20-Year Estimated CO2 Emissions (Million Tons)				
Project	LI	NYC	NYCA	Regional
Policy Case + B-VS (Pre-Project)	24	72	179	8,072
T035 - LS Power	22	72	176	8,056
T036 - NextEra Core 1	21	72	179	8,071
T037 - NextEra Core 2	21	73	180	8,069
T038 - NextEra Core 3	21	73	179	8,069
T039 - NextEra Core 4	21	73	179	8,066
T040 - NextEra Core 5	21	73	179	8,070
T041 - NextEra Core 6	21	72	178	8,070
T042 - NextEra Core 7	21	72	178	8,070
T043 - NextEra Enh 1	22	72	178	8,061
T044 - NextEra Enh 2	22	73	181	8,062
T047 - Propel Base 1	22	72	178	8,058
T048 - Propel Base 2	22	72	178	8,063
T049 - Propel Base 3	22	72	176	8,052
T051 - Propel Alt 5	22	72	178	8,063
T052 - Propel Alt 6	22	72	178	8,063
T053 - Propel Alt 7	22	72	178	8,063

Additional Production Cost Results

NYCA Import/Export

The NYCA-wide production cost savings are also impacted by changes in the Import and Export flows on the NYCA ties with neighboring regions. Therefore, an overall reduction in net Imports (Imports – Exports) amounts due to the addition of a project results to higher production cost savings. Reduction in net Imports also represents higher utilization of in-state resources (*e.g.*, offshore wind) that displaces Imports from neighboring regions to serve load. The following tables show the Import, Export and net Import flows to all four neighboring regions for New York. Projects with larger reductions in net-Imports correspond to higher production cost savings.

Figure 14: Baseline Scenario NYCA Import/Export Delta Flows

Project	20-Year Export Energy (GWh)				20-Year Import Energy (GWh)				20-Year Net-Import Energy (GWh)			
	HQ	IESO	PJM	ISONE	HQ	IESO	PJM	ISONE	HQ	IESO	PJM	ISONE
Baseline Case (Pre-Project)	226	82,519	18,104	164,557	230,067	11,027	230,607	22,170	229,841	(71,492)	212,502	(142,387)
T035 - LS Power	0	168	874	(5,283)	(432)	(375)	(2,496)	(8,520)	(432)	(543)	(3,370)	(3,237)
T036 - NextEra Core 1	0	251	1,043	(6,105)	(600)	(388)	(2,731)	(8,650)	(600)	(639)	(3,774)	(2,545)
T037 - NextEra Core 2	0	258	990	(5,823)	(691)	(426)	(2,404)	(8,604)	(691)	(685)	(3,395)	(2,781)
T038 - NextEra Core 3	(0)	170	1,094	(6,041)	(695)	(374)	(2,678)	(8,594)	(695)	(543)	(3,773)	(2,552)
T039 - NextEra Core 4	(0)	307	844	(5,238)	(653)	(419)	(1,805)	(9,930)	(653)	(726)	(2,650)	(4,691)
T040 - NextEra Core 5	0	173	1,022	(5,865)	(603)	(360)	(2,866)	(8,548)	(603)	(533)	(3,888)	(2,684)
T041 - NextEra Core 6	0	220	1,096	(6,086)	(606)	(384)	(2,913)	(8,556)	(606)	(604)	(4,009)	(2,471)
T042 - NextEra Core 7	0	220	1,096	(6,086)	(606)	(384)	(2,913)	(8,556)	(606)	(604)	(4,009)	(2,471)
T043 - NextEra Enh 1	0	88	802	(6,654)	(664)	(426)	(3,814)	(9,606)	(664)	(514)	(4,616)	(2,952)
T044 - NextEra Enh 2	0	126	873	(7,544)	(657)	(825)	(8,914)	(8,981)	(657)	(950)	(9,787)	(1,437)
T047 - Propel Base 1	0	182	1,022	(5,801)	(432)	(386)	(3,300)	(8,685)	(432)	(568)	(4,322)	(2,884)
T048 - Propel Base 2	0	153	992	(6,156)	(440)	(430)	(3,404)	(8,704)	(440)	(583)	(4,396)	(2,548)
T049 - Propel Base 3	(0)	981	1,382	(7,419)	(447)	(619)	(8,053)	(8,656)	(447)	(1,600)	(9,435)	(1,237)
T051 - Propel Alt 5	0	187	1,029	(5,854)	(439)	(465)	(3,185)	(8,694)	(439)	(653)	(4,214)	(2,840)
T052 - Propel Alt 6	0	188	1,004	(6,136)	(462)	(475)	(3,471)	(8,697)	(462)	(663)	(4,474)	(2,561)
T053 - Propel Alt 7	0	233	1,004	(6,302)	(470)	(471)	(3,457)	(8,620)	(470)	(704)	(4,461)	(2,318)

Change In Import/Export (GWh)

Figure 15: Policy Scenario NYCA Import/Export Delta Flows

Project	20-Year Export Energy (GWh)				20-Year Import Energy (GWh)				20-Year Net-Import Energy (GWh)			
	HQ	IESO	PJM	ISONE	HQ	IESO	PJM	ISONE	HQ	IESO	PJM	ISONE
Policy Case (Pre-Project)	226	120,144	63,495	120,492	387,404	18,766	259,665	100,514	387,178	(101,378)	196,170	(19,978)
T035 - LS Power	(0)	654	2,230	1,052	(3,936)	(644)	(1,016)	(6,964)	(3,936)	(1,298)	(3,246)	(8,015)
T036 - NextEra Core 1	(0)	812	2,130	1,190	(4,607)	(517)	363	(7,321)	(4,607)	(1,330)	(1,767)	(8,511)
T037 - NextEra Core 2	(0)	462	2,499	291	(3,888)	(457)	(4,178)	(7,228)	(3,888)	(919)	(6,677)	(7,520)
T038 - NextEra Core 3	(0)	581	2,480	313	(4,061)	(430)	(4,169)	(7,964)	(4,061)	(1,011)	(6,648)	(8,277)
T039 - NextEra Core 4	(0)	533	3,078	1,643	(4,004)	(455)	(5,020)	(9,792)	(4,004)	(988)	(8,098)	(11,436)
T040 - NextEra Core 5	(0)	597	2,321	1,034	(4,445)	(509)	(2,440)	(8,160)	(4,445)	(1,106)	(4,761)	(9,193)
T041 - NextEra Core 6	(0)	864	2,277	(498)	(4,695)	(593)	(152)	(7,411)	(4,695)	(1,457)	(2,429)	(6,913)
T042 - NextEra Core 7	(0)	864	2,277	(498)	(4,695)	(593)	(152)	(7,411)	(4,695)	(1,457)	(2,429)	(6,913)
T043 - NextEra Enh 1	(0)	614	3,635	1,077	(3,702)	(556)	(6,614)	(7,910)	(3,702)	(1,170)	(10,249)	(8,987)
T044 - NextEra Enh 2	(0)	853	4,482	1,411	(3,061)	(406)	(9,796)	(8,500)	(3,061)	(1,259)	(14,278)	(9,910)
T047 - Propel Base 1	(0)	1,002	2,370	137	(4,252)	(656)	(3,277)	(7,630)	(4,252)	(1,658)	(5,647)	(7,767)
T048 - Propel Base 2	(0)	657	1,842	1,249	(3,500)	(499)	(1,287)	(7,582)	(3,500)	(1,156)	(3,129)	(8,832)
T049 - Propel Base 3	(0)	1,014	2,327	756	(4,361)	(659)	(3,144)	(7,722)	(4,361)	(1,672)	(5,472)	(8,478)
T051 - Propel Alt 5	(0)	392	1,018	(2,304)	(3,891)	(302)	2,592	(5,124)	(3,891)	(695)	1,574	(2,820)
T052 - Propel Alt 6	(0)	772	2,254	1,104	(4,340)	(565)	(2,008)	(7,794)	(4,340)	(1,336)	(4,262)	(8,898)
T053 - Propel Alt 7	(0)	749	2,295	907	(4,336)	(591)	(2,076)	(7,674)	(4,336)	(1,340)	(4,372)	(8,582)

Change In Import/Export (GWh)

Figure 16: Policy + B-VS Scenario NYCA Import/Export Delta Flows

Project	20-Year Export Energy (GWh)				20-Year Import Energy (GWh)				20-Year Net-Import Energy (GWh)			
	HQ	IESO	PJM	ISONE	HQ	IESO	PJM	ISONE	HQ	IESO	PJM	ISONE
Policy Case + B-VS (Pre-Project)	226	119,872	61,465	117,646	388,171	18,906	267,788	102,041	387,945	(100,966)	206,323	(15,605)
T035 - LS Power	(0)	999	4,338	3,994	(4,813)	(819)	(9,084)	(8,675)	(4,813)	(1,818)	(13,422)	(12,669)
T036 - NextEra Core 1	(0)	525	1,044	538	(2,590)	(390)	980	(6,724)	(2,590)	(915)	(64)	(7,261)
T037 - NextEra Core 2	(0)	142	1,399	(175)	(1,849)	(272)	(3,723)	(6,767)	(1,849)	(414)	(5,122)	(6,592)
T038 - NextEra Core 3	(0)	424	1,501	(420)	(2,058)	(419)	(3,318)	(7,522)	(2,058)	(843)	(4,819)	(7,102)
T039 - NextEra Core 4	(0)	553	2,072	677	(1,978)	(312)	(2,092)	(9,354)	(1,978)	(865)	(4,163)	(10,031)
T040 - NextEra Core 5	(0)	627	1,343	(130)	(2,331)	(469)	375	(7,697)	(2,331)	(1,096)	(968)	(7,567)
T041 - NextEra Core 6	(0)	696	1,534	(1,913)	(2,735)	(481)	1,825	(6,995)	(2,735)	(1,177)	291	(5,082)
T042 - NextEra Core 7	(0)	696	1,534	(1,913)	(2,735)	(481)	1,825	(6,995)	(2,735)	(1,177)	291	(5,082)
T043 - NextEra Enh 1	(0)	625	3,842	2,167	(3,073)	(524)	(9,922)	(8,276)	(3,073)	(1,149)	(13,764)	(10,443)
T044 - NextEra Enh 2	0	749	4,334	1,737	(1,740)	(428)	(12,303)	(9,267)	(1,740)	(1,177)	(16,636)	(11,004)
T047 - Propel Base 1	(0)	819	2,325	626	(2,956)	(586)	(7,496)	(8,006)	(2,956)	(1,405)	(9,821)	(8,632)
T048 - Propel Base 2	(0)	849	2,291	1,788	(2,714)	(593)	(3,690)	(8,214)	(2,714)	(1,442)	(5,981)	(10,003)
T049 - Propel Base 3	(0)	1,132	4,100	3,382	(4,511)	(785)	(11,641)	(9,391)	(4,511)	(1,917)	(15,741)	(12,773)
T051 - Propel Alt 5	(0)	735	2,537	1,439	(3,170)	(511)	(5,226)	(8,374)	(3,170)	(1,246)	(7,763)	(9,813)
T052 - Propel Alt 6	(0)	736	2,542	1,937	(3,371)	(578)	(5,191)	(8,258)	(3,371)	(1,314)	(7,732)	(10,195)
T053 - Propel Alt 7	0	913	2,697	1,592	(3,316)	(712)	(4,535)	(8,265)	(3,316)	(1,625)	(7,231)	(9,857)

Change In Import/Export (GWh)

Delta Zonal Curtailment [placeholder]

Other Emissions [placeholder]

Transmission Constraint Summary [placeholder]