APPENDICES

2017 Congestion Assessment and Resource Integration Study

Comprehensive System Planning Process

CARIS - Phase 1

Appendices B - J

A Report by the
New York Independent
System Operator

April 2018

2017 Congestion Assessment and Resource Integration Study

Comprehensive System Planning Process

CARIS - Phase 1

Appendices B-J

A Report by the
New York Independent System Operator

April 2018

Caution and Disclaimer

The contents of these materials are for information purposes and are provided "as is" without representation or warranty of any kind, including without limitation, accuracy, completeness or fitness for any particular purposes. The New York Independent System Operator (NYISO) assumes no responsibility to the reader or any other party for the consequences of any errors or omissions. The NYISO may revise these materials at any time in its sole discretion without notice to the reader.

NYISO System Resources and Planning staff can be reached at 518-356-6000 to address any questions regarding this CARIS report or the NYISO's economic planning processes.

Table of Contents

List of Figures

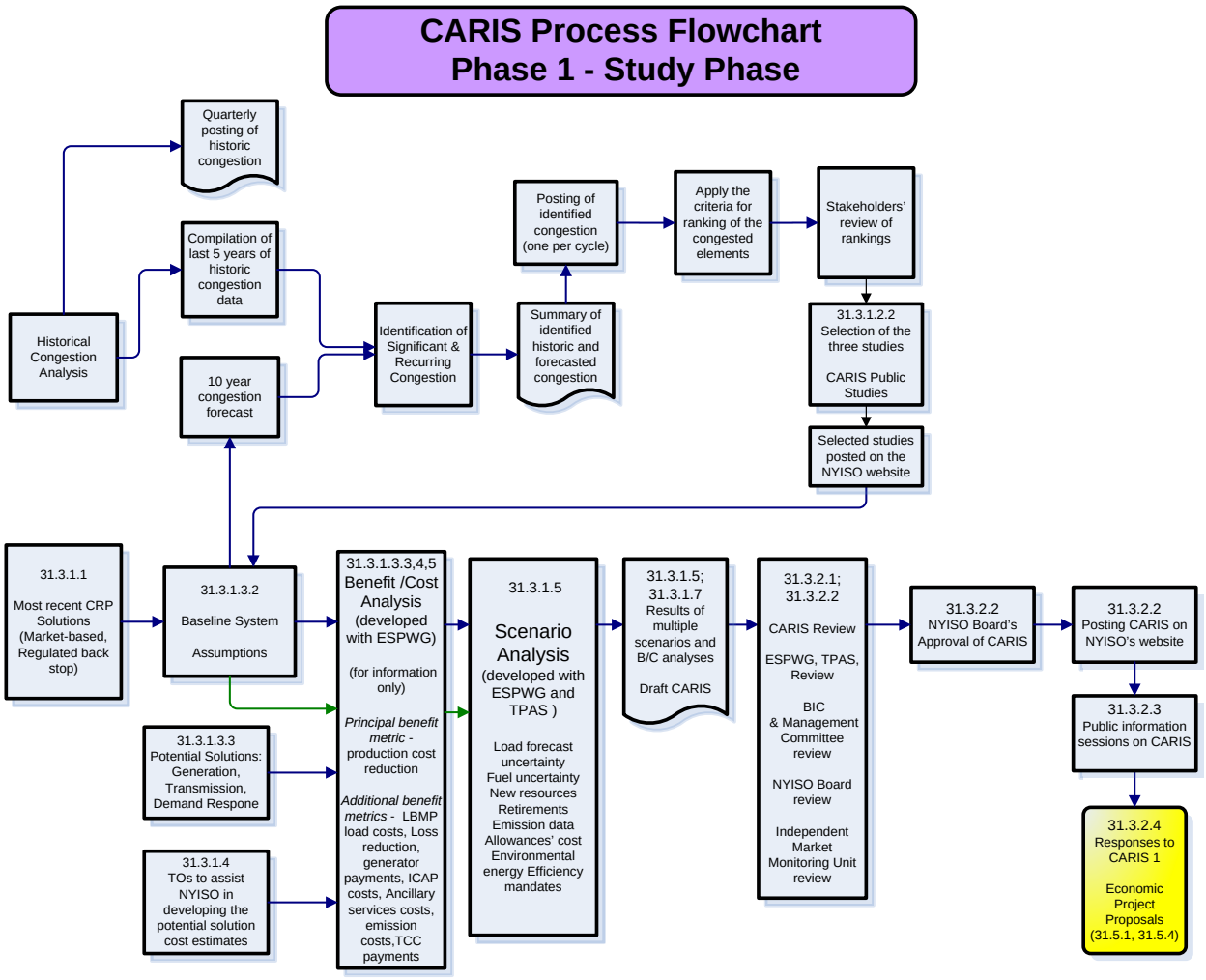
Appendix B - Congestion Assessment and Resource Integration Study Process

CARIS consists of two phases: Phase 1 (the Study Phase) and Phase 2 (the Project Phase). This two-phase process is described below and explained in full detail in the *Economic Planning Process Manual - Congestion Assessment and Resource Integration Studies Manual.*[1]

Phase 1 - Study Process

Phase 1 of the CARIS is depicted in Figure 1.

Figure 1: Phase 1 or Study Phase of the CARIS Process



1 http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Planning/epp_caris_mnl.pdf

Phase 2 - Projects Phase

Phase 2 of the CARIS is depicted in Figure 2 and Figure 3.

Figure 2: Phase 2 or Project Phase of the CARIS Process

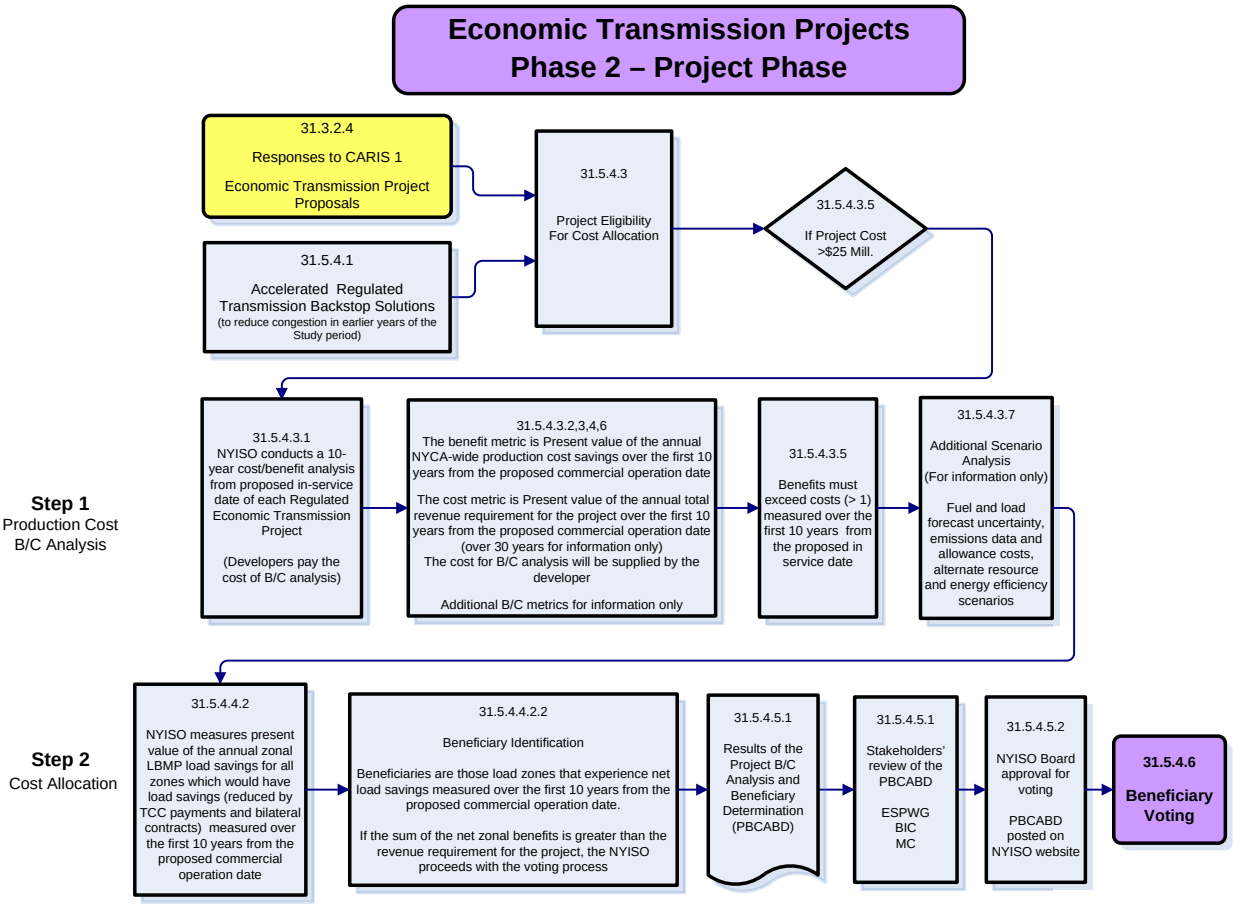
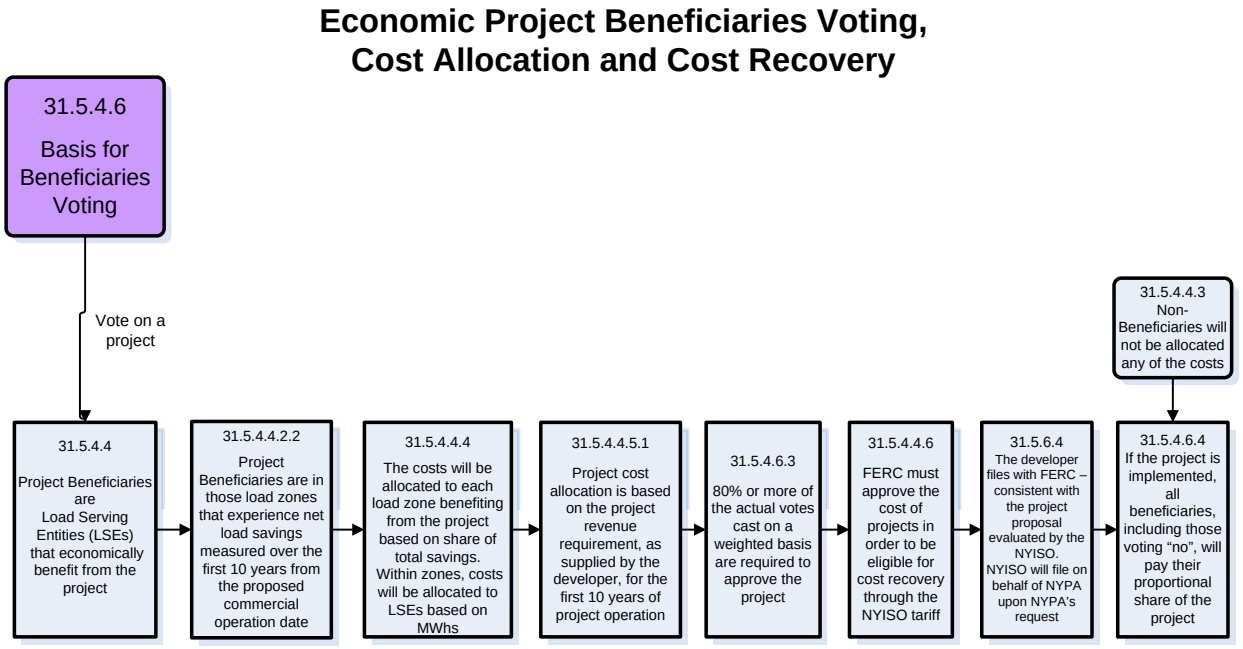


Figure 3: Voting, Cost Allocation, and Cost Recovery of the CARIS Process



Appendix C - Baseline System Assumptions and Methodology

CARIS Model - Base Case Modeling Assumptions for 2017-2026

As described in Section 31.3.1 of Attachment Y, the CARIS will align with the Reliability Planning Process, and the ten-year Study Period covered by the most recently approved CRP shall be the same as the CARIS Phase 1 Study Period. The CARIS will assume a reliable system throughout the Study Period, based first upon the solutions identified in the most recently completed and approved CRP.

The data utilized in the base case simulations for 2017 CARIS Phase 1 is largely derived from the 2016 CRP, 2017 Gold Book and CARIS Assumptions Matrix, Figure 4, shown below. Major components of the data include base load flow data, unit heat rates, unit capacities, fuel prices, transmission constraint modeling, load forecasts, load shape, both simulated and actual and scheduled interchange values, O&M cost, and emission costs. The assumptions matrix was developed in conjunction with NYISO stakeholders at ESPWG.

Detailed descriptions of key data used in the 2017 CARIS are listed below. The data was developed based on the NYISO's Tariff requirements and procedures and in collaboration with stakeholders at ESPWG. Key changes from 2015 are noted in red.

Figure 4: 2015 and 2017 CARIS Base Case Assumptions Matrix Comparison

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
Peak Load	Based on 2015 Load & Capacity Data Report ("Gold Book") Baseline Forecast of Non-Coincident Peak Demand, including impacts of statewide Energy Efficiency programs (Table 1-2b)	Based on 2017 Load & Capacity Data Report ("Gold Book") Baseline Forecast of Non-Coincident Peak Demand, including impacts of statewide Energy Efficiency programs (Table 1-2b)
Load Shape Model Energy Forecast	2002 Load Shape. Energy Forecast Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs (Table 1-2a)	2002 Load Shape. Energy Forecast Baseline Forecast of Annual Energy, including impacts of statewide Energy Efficiency programs (Table 1-2a)
Load Uncertainty Model	Only Base Level Forecast utilized; the impact of energy or peak	Only Base Level Forecast utilized; the impact of energy or peak

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
	forecasts may be utilized in scenarios	forecasts may be utilized in scenarios
Generating Unit Capacities	Updated to reflect 2015 Gold Book winter and summer DMNC values	Updated to reflect 2017 Gold Book winter and summer DMNC values
New Units	Updated as per 2015 Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.1.1 and procedures)	Updated as per 2017 Gold Book (Application of inclusion rules identified in Reliability Planning Process Manual, Section 3.1.1 and procedures)
Wind Resource Modeling	Units and capacities updated as per 2015 Gold Book. Wind resources are modeled based on unit capacities and synthesized wind shapes developed as part of 2010 Wind Study.	Units and capacities updated as per 2017 Gold Book. Existing wind resources are modeled based on unit capacities and actual 2015 shapes. New units modeled based on proximate existing units.
Non-NYPA Hydro Capacity Modeling	Updated as per 2015 Gold Book; unit output is modeled consistent with historic levels.	Updated as per 2017 Gold Book; unit output is modeled consistent with historic levels.
Special Case Resources	Not utilized in MAPS production cost modeling; incorporated in ICAP Metric calculation	Not utilized in MAPS production cost modeling; incorporated in ICAP Metric calculation
EDRP Resources	N/A for production cost modeling	N/A for production cost modeling
External Capacity – Purchases and Wheel-Throughs	Flows across schedulable and non-schedulable transmission lines are based on economics.	Flows across schedulable and non-schedulable transmission lines are based on economics.
Retirements	Updated as per 2015 Gold Book (Application of inclusion rules; specific assumptions concerning mothball announcement post-CRP; units with completed studies indicating that the unit is required for reliability are retained in the Base Case; units whose studies are pending are retained in the Base Case; others are excluded from the Base Case)	Updated as per 2017 Gold Book (Application of inclusion rules; specific assumptions concerning mothball announcement post-CRP; units with completed studies indicating that the unit is required for reliability are retained in the Base Case; units whose studies are pending are retained in the Base Case; others are excluded from the Base Case)
Generator Outages	Scheduled to levelize reserves; as per the maintenance schedules in long term adequacy studies.	Scheduled to levelize reserves; as per the maintenance schedules in long term adequacy studies.

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
Gas Turbines Ambient Derate	Modeling utilizes summer and winter DMNC ratings for all units.	Modeling utilizes summer and winter DMNC ratings for all units.
Environmental Modeling	Allowance costs based on projected RGGI costs.	Allowance costs based on projected RGGI costs.
Externalities	SO_2 and NO_X Allowance Prices reflect new CSAPR markets.	CO_2 prices increase from ($3.5 / Ton to $8.8 / Ton) through the study period.
Allowances	SO_2 based on CSAPR price ($100 / Ton) decreased 10% until 2017, at which point Phase II will increase price by 25% and decrease thereafter at 20% per annum.	SO_2 and NO_X Allowance Prices reflect CSAPR markets. Annual SO_2 prices stay flat at ($1.75 / Ton) throughout the study period.
	Annual ($100 / Ton) and Ozone Season NO_x ($125 / Ton) follow same trend as SO_2 Allowance Prices.	Annual NO_X prices stay flat at ($4 / Ton) throughout the study period and Ozone Season NO_X decline from ($665 / Ton to $195 / Ton) through the study period.
	Detailed allowance costs are provided in the 5/4/15 ESPWG meeting materials.	Detailed allowance costs are provided in the 10/26/17 ESPWG meeting materials.
Commitment and Dispatch Options	Each Balancing Authority commits to serve its own load, firm transactions, and potential transfers	Each Balancing Authority commits to serve its own load, firm transactions, and potential transfers
	Hurdle rates – flat. As presented on 5/4/15 to ESPWG.	Hurdle rates – flat. As presented on 10/26/17 to ESPWG.
Operating Reserves	Operating Reserves as per NYCA requirements.	Operating Reserves as per NYCA requirements.
Fuel Price Forecast	Annual bases updated to more heavily weight recent trends (2012-0.100, 2013-0.325, 2014-0.575).	Annual bases updated to more heavily weight recent trends (2014-0.100, 2015-0.325, 2016-0.575).
	Seasonality and spikes based on	Seasonality and spikes based on five-year history (2012-2016).

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
	five-year history (2010-2014). Fuel oil and coal price forecasts are developed utilizing the EIA's annual forecast of national delivered prices. Regional bases are derived using EIA Form 923 data. The seasonality for fuel oils is based on an analysis of New York Harbor Ultra-Low Sulfur Diesel (ULSD) prices. Coal has no seasonality. Illustrative fuel costs are presented in the 5/4/15 ESPWG meeting materials.	Fuel oil and coal price forecasts are developed utilizing the EIA's annual forecast of national delivered prices. Regional bases are derived using EIA Form 923 data. The seasonality for fuel oils is based on an analysis of New York Harbor Ultra-Low Sulfur Diesel (ULSD) prices. Coal has no seasonality. Illustrative fuel costs are presented in the 10/26/17 ESPWG meeting materials.
Cost Curve Development (including heat rates and emission rates)	Unit heat rates (and emission rates) developed from vendor supplied data, USEPA CAMD fuel input and emissions data matched with NYISO production data for NYCA and USEIA production data for non NYCA units.	Unit heat rates (and emission rates) developed from vendor supplied data, USEPA CAMD fuel input and emissions data matched with NYISO production data for NYCA and USEIA production data for non NYCA units.
Local Reliability Rules	List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits	List and develop appropriate nomograms. Fuel burn restrictions, operating restrictions and exceptions, commitment/dispatch limits
Energy Storage Gilboa PSH Lewiston PSH	Scheduling checked to conform to historical operations.	Scheduling checked to conform to historical operations.
Transmission System Model		
Power Flow Cases	As per CRP.	As per CRP.
Interface Limits; Monitored/contingency pairs; Nomograms; Joint, Grouping; Unit	Data from the results of internal and external planning studies; vendor-supplied data; operational voltage studies; operational limits; transfer limit analysis for critical	Data from the results of internal and external planning studies; vendor-supplied data; operational voltage studies; operational limits; transfer limit analysis for critical

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
Sensitive Voltage	interfaces.	interfaces.
New Transmission Capability	Updated as per 2015 Gold Book (Application of base case inclusion rules)	Updated as per 2017 Gold Book (Application of base case inclusion rules)
Internal Controllable Lines (PARs, DC, VFT)	Optimized in simulation.	Optimized in simulation.
Neighboring Systems		
Outside World Area Models Fuel Forecast	Power flow data from CRP, "production" data developed by NYISO with vendor and neighbor input. Fuel forecasts developed utilizing same methodology as NYCA fuel forecasts.	Power flow data from CRP, "production" data developed by NYISO with vendor and neighbor input. Fuel forecasts developed utilizing same methodology as NYCA fuel forecasts.
External Capacity And Load Forecast	Neighboring systems modeled consistent with reserve margins in the RNA/CRP analysis. Neighboring systems data reviewed and held at required reserve margin.	Neighboring systems modeled consistent with reserve margins in the RNA/CRP analysis. Neighboring systems data reviewed and held at required reserve margin.
System representation in Simulation	HQ modeled as fixed hourly schedule, synchronized with all other external injections. Full Representation/Participation: NYISO ISONE IESO PJM Classic & AP,AEP,CE,DLCO, DAY, VP Proxy Bus Injection: HQ-NYISO, HQ-NE-ISO, NB-NEISO, HQ – IESO	HQ modeled as fixed hourly schedule, synchronized with all other external injections. Full Representation/Participation: NYISO ISONE IESO PJM Classic & AP,AEP,CE,DLCO, DAY, VP, EKPC Proxy Bus Injection: HQ-NYISO, HQ-NE-ISO, NB-NEISO, HQ – IESO

Parameter	Modeling for 2015 CARIS Base Cases	Modeling for 2017 CARIS Base Cases
	Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC	Transmission Only/Zeroed Out: MECS,FE,SPP, MAR, NIPS,OVEC,TVA, FRCC,SERC,ERCOT,WECC
External Controllable Lines (PARs, DC, VFT, Radial lines)	A,B,C and J,K "wheel" Both sets set at 1000 (+/-100) imbalance monitored Ramapo "wheel" reflects current updated protocols, tariff and market operations, including NYISO Technical Bulletins and inter-control area operating agreements. 61% of Interchange Schedules across NY-PJM AC ties flow across Ramapo PARS. In addition, 80% of RECO load is served across Ramapo PARS. Norwalk (-200MW, +200MW) L33,34 (-300MW, +300MW) PV20 (0MW, +150MW) Neptune (0MW, +660MW) CSC (0MW, +330MW) CSC and Neptune optimized subject to "cost of use" HTP (0, 660) Linden VFT (-315,315)	PJM/NYISO AC Interface modeling modified to reflect current PJM/NYISO JOA, as reflected in 6/22/2017 ESPWG meeting materials. Norwalk (-200MW, +200MW) L33,34 (-300MW, +300MW) PV20 (0MW, +150MW) Neptune (0MW, +660MW) CSC (0MW, +330MW) CSC and Neptune optimized subject to "cost of use" HTP (0, 660) Linden VFT (-315,315)

Base Case Load Forecast

CARIS Base Case load forecasts, from the 2017 Gold Book baseline forecast, are presented in Figure 5 and Figure 6. Figure 5 presents the Annual Zonal Energy in Gigawatt-hours and Figure 6 presents summer non-coincident peak demand in MW.

Figure 5: Annual Zonal Energy (GWh)

Year	A	B	C	D	E	F	G	H	I	J	K
2017	15,608	9,807	16,116	4,439	7,867	12,281	9,767	2,811	6,027	52,481	21,428
2018	15,558	9,779	16,083	4,478	7,859	12,321	9,708	2,803	6,008	52,452	20,947
2019	15,509	9,746	16,052	4,494	7,851	12,359	9,648	2,793	5,987	52,314	20,652
2020	15,461	9,712	16,023	4,498	7,843	12,395	9,611	2,783	5,966	52,029	20,431
2021	15,432	9,687	16,006	4,497	7,833	12,427	9,575	2,768	5,933	51,344	20,353
2022	15,425	9,664	15,990	4,493	7,824	12,454	9,554	2,761	5,918	51,079	20,282
2023	15,419	9,643	15,979	4,488	7,824	12,478	9,537	2,755	5,906	50,903	20,366
2024	15,411	9,626	15,968	4,482	7,824	12,499	9,530	2,751	5,897	50,772	20,375
2025	15,406	9,614	15,961	4,474	7,824	12,515	9,521	2,748	5,890	50,690	20,366
2026	15,406	9,606	15,954	4,471	7,824	12,527	9,518	2,746	5,886	50,651	20,331

Note: Forecast above includes Retail Solar PV. In the MAPS model, Retail Solar PV is modeled explicitly as a distributed resource at the zonal level.[2]

Figure 6: Summer Non-Coincident Peak Demand by Zone (MW)

Year	A	B	C	D	E	F	G	H	I	J	K
2017	2,796	2,070	2,923	548	1,479	2,461	2,263	664	1,510	11,670	5,427
2018	2,798	2,073	2,926	549	1,480	2,463	2,242	661	1,504	11,707	5,305
2019	2,800	2,076	2,930	549	1,481	2,465	2,221	657	1,499	11,758	5,229
2020	2,803	2,079	2,934	549	1,481	2,466	2,204	656	1,491	11,788	5,174
2021	2,805	2,083	2,937	549	1,482	2,467	2,193	651	1,483	11,820	5,172
2022	2,807	2,088	2,940	549	1,483	2,468	2,181	651	1,486	11,838	5,177
2023	2,809	2,092	2,942	550	1,484	2,469	2,175	653	1,489	11,869	5,198
2024	2,810	2,097	2,946	550	1,486	2,470	2,169	654	1,494	11,904	5,206
2025	2,811	2,099	2,947	550	1,486	2,470	2,164	656	1,500	11,959	5,226
2026	2,812	2,100	2,949	550	1,487	2,470	2,159	657	1,509	12,027	5,238

Note: Forecast above includes Retail Solar PV. In the MAPS model, Retail Solar PV is modeled explicitly as a distributed resource at the zonal level.

Power Flow Data

The CARIS uses the network topology, transmission line impedance and ratings as set forth in the assumption matrix.

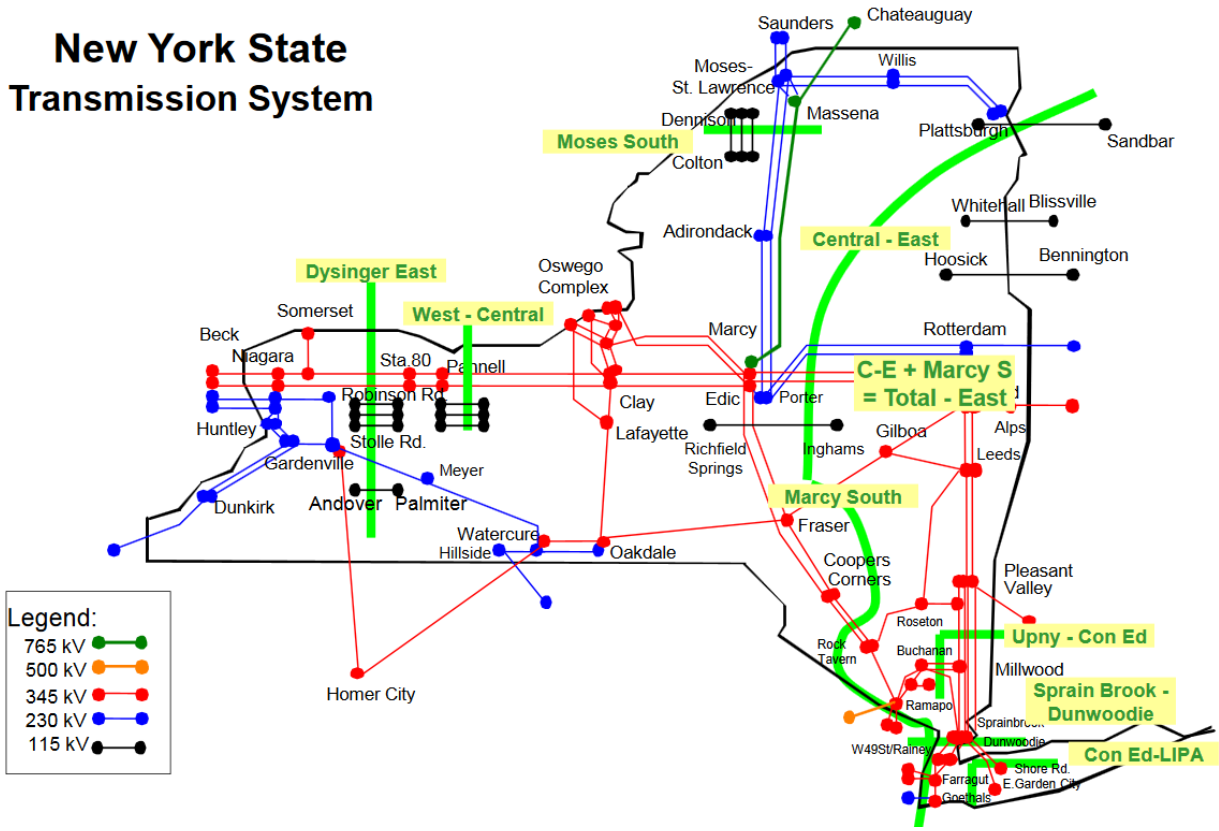
Transmission Model

New York Control Area Model

Figure 7 below displays the bulk power system for NYCA, which generally consists of facilities 230 kV and above, but also includes certain 138 kV facilities and a small number of 115 kV facilities. The balance of the facilities at 138 kV and below are considered non-bulk or sub-transmission facilities for purposes of this study. The figure also displays key transmission interfaces for New York.

2 The Retail Solar PV model shapes were based on the publically available data from U.S. Department of Energy/National Renewable Energy Lab/Alliance for Sustainable Energy, LLC.

Figure 7: NYISO 115 kV and Above Transmission Map



New York Control Area Changes, Upgrades and Resource Additions

System changes modeled for 2017 and beyond are as follows:

a) Conforming the modeling of the PJM/NYISO interface to the current NY-PJM Joint Operating Agreement

b) Seasonal (winter) by-pass of the Marcy South Series Compensation (MSSC)

External Area Model

ISO-NE, IESO, and PJM are actively modeled in the production cost simulation. HQ is not since it is asynchronously tied to the bulk system. Proxy buses representing the direct ties from HQ to NYISO, HQ to IESO and HQ to ISO-NE are modeled. The HQ to NYISO capacity modeled is 1,310 MW. Figure 8 through Figure 10 lists the additions, retirements and rerates for the external control areas by fuel source by year as reported by the external control areas in their planning documents. Figure 11 and Figure 12 present the aggregate capacities by unit type and peak and energy forecasts for each external control area modeled.

Figure 8: PJM Unit Additions, Retirements and Rerates (MW)

Year	Source	Additions	Retirements	Rerates
2017	Coal		1,784	36
	Fossil Fuel	3,982	34	775
	Hydro			
	Landfill Gas/Bio			
	Nuclear			156
	Solar	20		281
	Wind	503		
2018	Coal		3,001	
	Fossil Fuel	9,113	628	33
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar	20		129
	Wind	1,832		
2019	Coal		345	
	Fossil Fuel	1,614	198	
	Hydro			
	Landfill Gas/Bio			
	Nuclear		614	
	Solar	230		38
	Wind			
2020	Coal		1,617	
	Fossil Fuel	197		
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			
	Wind			
2024	Coal			
	Fossil Fuel			
	Hydro			
	Landfill Gas/Bio			
	Nuclear	1,570		
	Solar			
	Wind			

Figure 9: IESO Unit Additions, Retirements and Rerates (MW)

Year	Source	Additions	Retirements	Rerates
2017	Coal			
	Fossil Fuel		108	
	Hydro			(135)
	Landfill Gas/Bio			
	Nuclear			
	Solar	50		
	Wind	75		(11)
2018	Coal			
	Fossil Fuel	864		
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			291
	Wind			
2019	Coal			
	Fossil Fuel			
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			200
	Wind	300		
2021	Coal			
	Fossil Fuel			
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			250
	Wind			
2022	Coal			
	Fossil Fuel		38	
	Hydro			
	Landfill Gas/Bio			
	Nuclear		1,030	
	Solar			
	Wind	600		
2023	Coal			
	Fossil Fuel			
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			305
	Wind			
2024	Coal			
	Fossil Fuel			
	Hydro			
	Landfill Gas/Bio			
	Nuclear		2,064	
	Solar			
	Wind			
2025	Coal			
	Fossil Fuel			
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			300
	Wind			

Figure 10: ISO-NE Unit Additions, Retirements and Rerates (MW)

Year	Source	Additions	Retirements	Rerates
2017	Coal		1,099	
	Fossil Fuel	674	794	
	Hydro			15
	Landfill Gas/Bio			
	Nuclear			
	Solar			
	Wind			1
2018	Coal		144	
	Fossil Fuel	1,103		
	Hydro			
	Landfill Gas/Bio		31	
	Nuclear			
	Solar			
	Wind			
2019	Coal			
	Fossil Fuel	2,409		
	Hydro			
	Landfill Gas/Bio			
	Nuclear		701	
	Solar			
	Wind			
2020	Coal			
	Fossil Fuel		17	
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			
	Wind			
2021	Coal			
	Fossil Fuel	524		
	Hydro			
	Landfill Gas/Bio			
	Nuclear			
	Solar			
	Wind			

Figure 11: Control Area Capacity Values

SUMMER CAP (MW)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
IESO	**34,441**	**35,197**	**35,497**	**35,497**	**35,497**	**36,097**	**35,028**	**35,028**	**32,964**	**32,964**
Combined Cycle	6,221	6,977	6,977	6,977	6,977	6,977	6,938	6,938	6,938	6,938
Combustion Turbine	458	458	458	458	458	458	458	458	458	458
Conventional Hydro	7,377	7,377	7,377	7,377	7,377	7,377	7,377	7,377	7,377	7,377
Other Steam Turbines	332	332	332	332	332	332	332	332	332	332
Pumped Storage Hydro	175	175	175	175	175	175	175	175	175	175
Solar	430	721	921	921	1,171	1,171	1,476	1,476	1,776	1,776
Steam Turbine (Nuclear)	12,959	12,959	12,959	12,959	12,959	12,959	11,929	11,929	9,865	9,865
Steam Turbine (Oil and Gas)	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018	2,018
Wind	4,471	4,471	4,771	4,771	4,771	5,371	5,371	5,371	5,371	5,371
NYISO	**38,987**	**39,932**	**41,078**	**41,078**	**41,078**	**41,078**	**41,078**	**41,078**	**41,078**	**41,078**
Combined Cycle	9,251	9,928	10,948	10,948	10,948	10,948	10,948	10,948	10,948	10,948
Combustion Turbine	4,736	4,804	4,804	4,804	4,804	4,804	4,804	4,804	4,804	4,804
Conventional Hydro	4,310	4,310	4,310	4,310	4,310	4,310	4,310	4,310	4,310	4,310
Internal Combustion Engine	11	11	11	11	11	11	11	11	11	11
Landfill Gas	102	102	102	102	102	102	102	102	102	102
Other Steam Turbines	256	275	275	275	275	275	275	275	275	275
Pumped Storage Hydro	1,406	1,406	1,406	1,406	1,406	1,406	1,406	1,406	1,406	1,406
Solar	1,601	2,259	2,724	3,138	3,468	3,747	3,976	4,170	4,336	4,477
Steam Turbine (Coal)	913	913	913	913	913	913	913	913	913	913
Steam Turbine (Nuclear)	5,375	5,375	5,375	5,375	5,375	5,375	5,375	5,375	5,375	5,375
Steam Turbine (Oil and Gas)	10,715	10,715	10,715	10,715	10,715	10,715	10,715	10,715	10,715	10,715
Wind	1,912	2,093	2,219	2,219	2,219	2,219	2,219	2,219	2,219	2,219
PJM	**198,817**	**207,998**	**206,213**	**205,252**	**203,636**	**203,636**	**203,636**	**205,206**	**205,206**	**205,206**
Combined Cycle	38,728	47,531	48,987	49,184	49,184	49,184	49,184	49,184	49,184	49,184
Combustion Turbine	30,040	30,383	30,365	30,315	30,315	30,315	30,315	30,315	30,315	30,315
Conventional Hydro	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915	2,915
Internal Combustion Engine	681	681	672	672	672	672	672	672	672	672
Landfill Gas	406	406	406	406	406	406	406	406	406	406
Other Steam Turbines	3,775	3,775	3,775	3,775	3,775	3,775	3,775	3,775	3,775	3,775
Pumped Storage Hydro	5,182	5,182	5,182	5,182	5,182	5,182	5,182	5,182	5,182	5,182
Solar	2,463	2,483	2,713	2,713	2,713	2,713	2,713	2,713	2,713	2,713
Steam Turbine (Coal)	61,300	59,517	56,516	56,170	54,554	54,554	54,554	54,554	54,554	54,554
Steam Turbine (Nuclear)	34,837	34,837	34,837	34,223	34,223	34,223	34,223	35,793	35,793	35,793
Steam Turbine (Oil and Gas)	8,992	8,958	8,515	8,367	8,367	8,367	8,367	8,367	8,367	8,367
Wind	9,498	11,330	11,330	11,330	11,330	11,330	11,330	11,330	11,330	11,330
ISO-NE	**33,549**	**32,757**	**34,993**	**34,292**	**34,799**	**34,799**	**34,799**	**34,799**	**34,799**	**34,799**
Combined Cycle	12,753	13,449	15,596	15,596	16,120	16,120	16,120	16,120	16,120	16,120
Combustion Turbine	2,812	3,189	3,452	3,452	3,435	3,435	3,435	3,435	3,435	3,435
Conventional Hydro	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965	1,965
Internal Combustion Engine	185	185	185	185	185	185	185	185	185	185
Landfill Gas	62	62	62	62	62	62	62	62	62	62
Other Steam Turbines	1,083	1,083	1,052	1,052	1,052	1,052	1,052	1,052	1,052	1,052
Pumped Storage Hydro	1,780	1,780	1,780	1,780	1,780	1,780	1,780	1,780	1,780	1,780
Solar	10	10	10	10	10	10	10	10	10	10
Steam Turbine (Coal)	2,165	1,065	922	922	922	922	922	922	922	922
Steam Turbine (Nuclear)	4,081	4,081	4,081	3,380	3,380	3,380	3,380	3,380	3,380	3,380
Steam Turbine (Oil and Gas)	5,516	4,751	4,751	4,751	4,751	4,751	4,751	4,751	4,751	4,751
Wind	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,137	1,137
Grand Total	**305,794**	**315,884**	**317,781**	**316,119**	**315,010**	**315,610**	**314,541**	**316,111**	**314,047**	**314,047**

Figure 12: External Area Forecasted Load Values

Year	IESO		ISONE		PJM	
	Peak (MW)	Energy (GWh)	Peak (MW)	Energy (GWh)	Peak (MW)	Energy (GWh)
2017	22,955	137,215,376	26,383	126,785,484	154,932	814,838,000
2018	22,874	136,386,402	26,373	126,425,209	156,226	821,638,000
2019	22,715	135,068,829	26,325	125,736,344	156,644	823,890,000
2020	22,563	133,751,257	26,216	124,440,429	155,889	822,831,000
2021	22,521	132,963,896	26,119	122,975,179	155,685	820,415,000
2022	22,463	132,782,823	26,073	121,857,354	155,744	821,341,000
2023	22,528	132,748,971	26,048	120,993,582	155,877	822,626,000
2024	22,505	133,023,097	26,084	120,348,406	156,516	827,522,000
2025	22,598	132,985,125	26,151	119,911,312	156,973	827,944,000
2026	22,667	132,921,066	26,239	119,678,748	157,667	831,502,000

Hurdle Rates and Interchange Models

Hurdle rates set the conditions in which economic interchange can be transacted between neighboring markets/control areas. They represent a minimum savings level that needs to be achieved before energy will flow across the interface. Hurdle rates help ensure that the production-cost simulation is reasonably consistent with the historical pattern of internal NYCA generation and imports. Hurdle rates are used to allow the simulation model to reflect inter-regional energy market transaction costs.

Two independent hurdle rates are used in the CARIS, one for the commitment of generation and a separate one for the dispatch of generation. Both commitment and dispatch hurdle rates are held constant throughout the 2017-2026 study period, as discussed with NYISO stakeholders at ESPWG. The hurdle rate values produce results consistent with NYCA historic total import levels.

The flow on the CSC line was modeled to allow up to 330 MW from ISO-NE to Long Island. The flow on the Linden VFT was modeled to allow up to 315 MW in both directions. The Neptune and HTP flows were modeled to allow up to 660 MW of flow from PJM into Long Island and New York City respectively.

The hourly interchange flow for each interface connecting the NYISO with neighboring control areas was priced at the LBMP of its corresponding proxy bus. The summation of all 8,760 hours determined the annual cost of the energy for each interface. Figure 13 lists the proxy bus location for each interface.

Figure 13: Interchange LBMP Proxy Bus Area

Interface	Proxy Bus
PJM	Keystone
Ontario	Bruce
Quebec	Chateauguay and Cedars
Neptune	Raritan River
New England	Sandy Pd
Cross Sound Cable	New Haven Harbor
HTP	Bergen
VFT	Linden 138 kV
Northport Norwalk Cable	Norwalk Harbor

Production Cost Model

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 given in the model.

This section discusses how the "production cost input data" is developed. The incremental cost of generation is the product of the incremental heat rate multiplied by the sum of fuel cost, emissions cost, and variable operation and maintenance expenses.

Heat Rates

Fuel costs represent the largest variable expense for fossil fueled generating units. Cost curves are the product of fuel prices and incremental heat rates. Individual unit heat rates are commercially sensitive confidential information and thus are not widely available from generator owners. Unit heat rate input data is based on the U.S. Environmental Protection Agency's (EPA) Clean Air Market Data and, where available, unit production data from the U.S. Energy Information Administration (EIA).

CARIS simulation models employ power points which represent minimum, intermediary, and maximum power levels where generating units can be simulated to operate on a sustained basis. Each power point is tied to a point on the heat rate curve allowing incremental heat rates to be determined for each unit. The power points and incremental heat rates are developed on a Summer/Winter basis.

External Area Fuel Forecasts

Figure 14 shows the regional bases expressed as a multiple of the U.S. national average annual price for each fuel. Figure 15 through Figure 18 illustrate forecasted fuel price prices for external areas from which weekly fuel price forecasts were developed.

Figure 14: External Areas Fuel Forecast Regional Multiplier

	PJM-East	PJM-West	ISONE-North	ISONE-South	IESO
Fuel Oil #2	1.025	1.100	0.940	0.940	N/A
Fuel Oil #6	1.025	N/A	0.940	0.940	N/A
Natural Gas	0.755	0.823	1.022	0.998	0.933
Coal	1.330	1.060	1.600	1.600	N/A

Figure 15: Forecasted Fuel Prices for PJM East (nominal $)

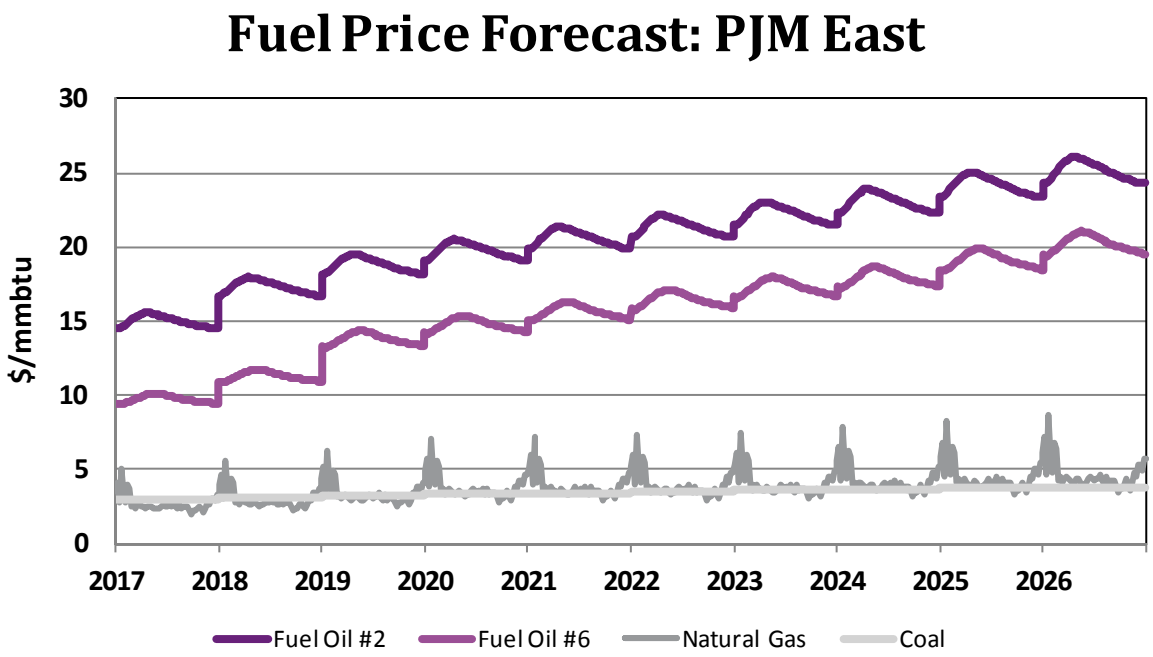


Figure 16: Forecasted Fuel Prices for PJM West (nominal $)

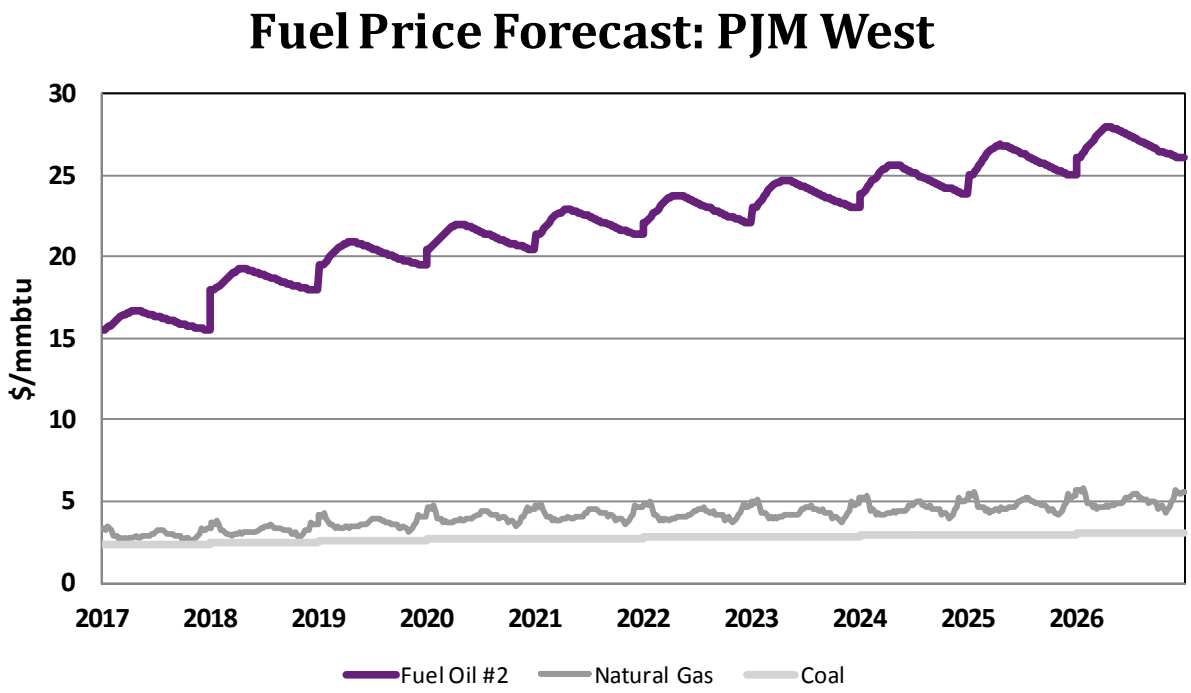


Figure 17: Forecasted Fuel Prices for ISO-NE (nominal $)

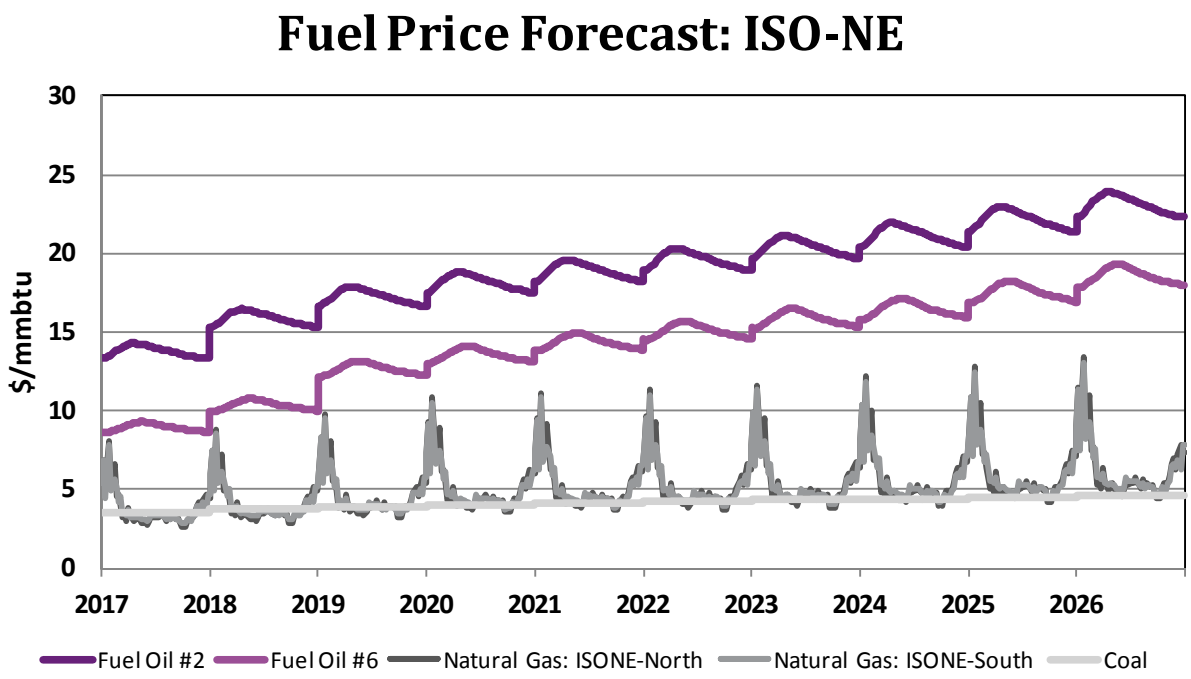
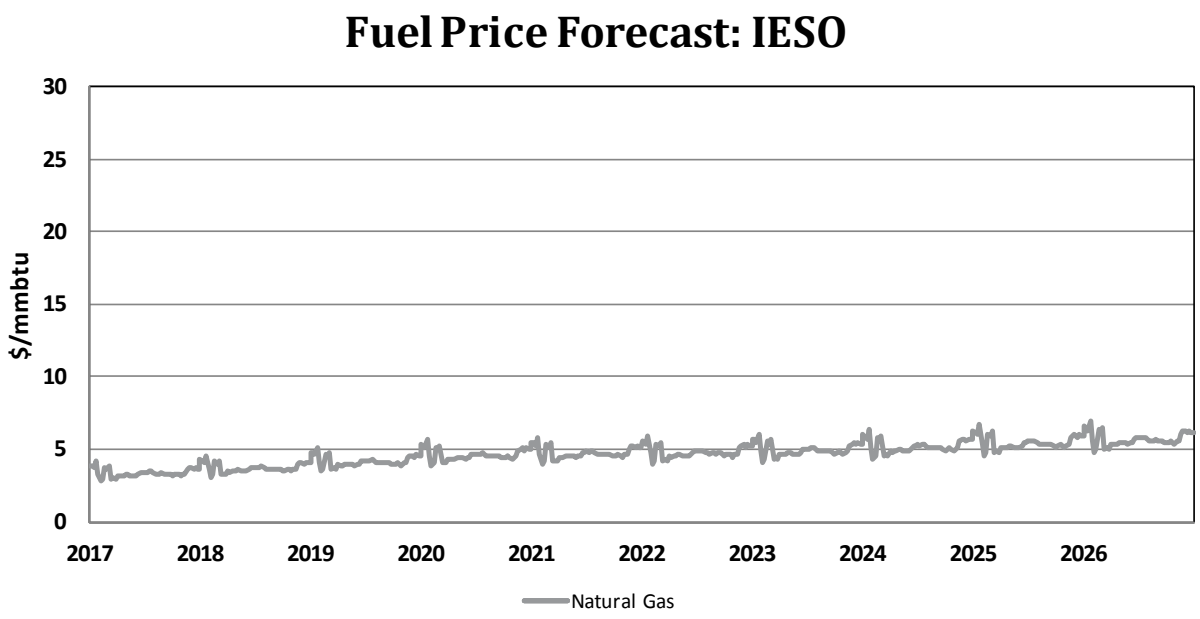


Figure 18: Forecasted Fuel Prices for IESO (nominal $)



Fuel Switching

Fuel switching capability is widespread within the NYCA. According to date from the 2017 Gold Book, 46% of the 2017 generating capacity in the NYCA – 17,684 MW of generation – has the ability to burn either oil or gas. For such units, the production-cost simulation model selects the economic fuel based on weekly production costs for units with dual-fuel capability.

The New York State Reliability Council (NYSRC) establishes rules for the reliable operation of the New York Bulk Power System. Two of those rules guard against the loss of electric load because of the loss of gas supply. Rule I-R3 states "The New York State bulk power system shall be operated so that the loss of a single gas facility does not result in the loss of electric load within the New York City zone." Rule I-R5 similarly states "The New York State bulk power system shall be operated so that the loss of a single gas facility will not result in the uncontrolled loss of electricity within the Long Island zone."

To satisfy the I-R3 and I-R5 criteria, annual studies are performed by the TOs that update the configurations of the electricity and gas systems and simulate the loss of critical gas supply facilities. The loss of a gas facility may lead to the loss of some generating units. This loss becomes critical because it may result in voltage collapse when load levels are high enough. Therefore, criteria are established whereby certain units that are capable of doing so are required to switch to minimum oil burn levels so that in the event of the worst single gas system contingency these units

stay on-line at minimum generation levels and support system voltage.

Some new combined cycle gas turbine units in the New York City and Long Island zones have the ability to "auto-swap" from gas-burn to oil-burn with a limited loss of output that can be quickly recovered. As the generator fleet in these zones has experienced a shift to increased use of combined cycle units with auto-swap capability, the amount of oil used in steam units to satisfy minimum oil burn criteria has decreased.

Minimum oil burn rules have not been explicitly modeled in the production simulations for the 2017 CARIS. Minimum oil burn units are committed and dispatched in the NYISO markets using the cost of the most economic fuel. Any cost incurred from firing oil when it is not economic to do so is recovered outside the market. Consequently, the minimum oil burn program does not affect LBMPs or any derivative metric (Demand Congestion, Load, Payment, etc.) and is more appropriately accounted for outside the GE-MAPS simulation.

Generation Maintenance

NYCA generation maintenance modeling was updated for this CARIS cycle utilizing the latest planned and random outage rates from the 2016 CRP process. External control areas (IESO, ISO-NE, and PJM) generation planned and forced outage were developed using the latest NERC class average outage data.

Appendix D - Overview of CARIS Model

Model Overview (CROS and MAPS)

The NYISO primarily employs two software tools to construct the fifteen-year time-series of congestion and production costs. The NYISO utilizes Congestion Reporting for Off-Line SCUC ("CROS") to develop the five-year historic values and General Electric's Market Analysis and Portfolio Simulation ("MAPS") to construct the ten-year projected values. In each case the software performs a security constrained economic commitment and dispatch and calculates the minimum hourly production cost of supply resources to meet the load.

CROS

CROS software, developed by the NYISO, is an off-line version of the NYISO's day-ahead unit-commitment software ("SCUC"), and was adopted in 2012 as the tool utilized to conduct the NYISO's historic congestion analysis. The results of the historic congestion analysis, expressed as a change in production cost, along with additional metrics such as generator payments, load payments and congestion payments, have been reported on a quarterly basis on the NYISO's website since 2003.

CROS first uses actual submitted generator parameters, hourly bids and network statuses, including transmission outages, to perform a security constrained economic commitment. The software then conducts an unconstrained simulation by removing all transmission constraints (other constraints such as generator ramp rates and minimum run times are still enforced). Unit commitment and dispatch are then recalculated for this unconstrained scenario. The constrained and unconstrained results are compared to derive the change in bid production costs, demand congestion, load payments and generation payments due to system constraints. All calculations represent all market segments such as the energy, start-up, and ancillary services bids for generators, import/export bids, virtual supply/demand bids, and fixed and price-capped demand bids.

MAPS

In conducting the 2017 CARIS analysis and developing projected congestion and production costs (as well as other metrics), the NYISO utilized GE MAPS Version 13.9 as the production cost simulation software. MAPS software mimics the operation of the NYISO Day-Ahead electricity market by simulating SCUC and economic dispatch of the generation and by monitoring

transmission system flows under both normal and contingency conditions, including thunder storm alerts. This enables calculation of hourly production costs accounting for the constraints imposed by the transmission system on the economic dispatch of generation.

MAPS features the following:

- **Detailed representation of the large scale transmission network.** The transmission system is modeled in terms of individual transmission lines, interfaces (group of lines), phase-angle regulators (PARs), and HVDC lines. MAPS software models voltage and stability considerations through operating nomograms that define how voltage and stability limits can change hourly as a function of loads, generation, and flows elsewhere on the system.
- **Detailed generation modeling for thermal, hydro, pumped storage, wind, solar, and other renewables.** Generation system data capabilities include multi-step cost curves based on heat rates, emission costs, fuel costs, and unit cycling capabilities. The generation units, along with chronological hourly load profiles, are assigned to individual buses on the system. Hourly load profiles are adjusted to meet peak and energy forecasts, which are inputs entered into the model on a monthly or annual basis. Information on hourly loads at each bus in the system is required to calculate electrical flows on the transmission system. This parameter is specified by assigning one or a combination of several hourly load profiles to each load bus.

The major difference between the projected MAPS results and historic CROS results is that MAPS does not simulate: (a) virtual bidding; (b) transmission outages; (c) price-capped load; (d) production costs based on mitigated bids; (e) Bid Production Cost Guarantee (BPCG) payments; and (f) co-optimization with ancillary services.

Modeling Validation

Database Verification

To verify the 2017 CARIS database, the NYISO conducted a data and modeling verification process in conjunction with GE. First, the NYISO Planning Staff reviewed all input data and program parameters. After Staff completed its review, modifications and any necessary corrections, the base cases were sent to GE for further verification.

The following topics were examined as part of data verification:

- Spinning reserves and thermal unit commitment options;
- Generation planned and random outages;
- Transmission interface transfer limits, contingencies and nomograms;
- Commitment and dispatch hurdle rates;
- Generator incremental heat rates, variable O&M, startup costs, installed reserve margin, and emissions rates;
- Fuel price forecasts;
- Modeling of pumped storage and hydro units; and,
- Accuracy of generator size, type and location

GE reviewed all the warnings created by the programs to ensure that the results were not affected. Discrepancies noted by GE were corrected by NYISO as necessary. All of these changes were accomplished before the finalization of the 2017 CARIS base case.

Benchmark Summary

The final 2017 CARIS Phase 1 benchmark results are listed in Figure 19 to Figure 28 below for the 2015 benchmark year. The results were presented to NYISO stakeholders for discussion at ESPWG.

Figure 19: Zonal Load Payment Summary (nominal $M)

2015 Zonal Load Payment	Actual	Benchmark
West	538	416
Genesee	286	259
Central	502	439
North	116	106
Mohawk Valley	258	207
Capital	505	474
Hudson Valley	401	359
Millwood	117	109
Dunwoodie	248	219
New York City	2,166	1,963
Long Island	1,078	925
NYCA	6,216	5,476

Figure 20: Zonal Generator Payment Summary (nominal $M)

2015 Zonal Generation Payment	Actual	Benchmark
West	464	428
Genesee	135	134
Central	866	773
North	208	211
Mohawk Valley	79	82
Capital	543	546
Hudson Valley	141	94
Millwood	612	595
Dunwoodie	0	0
New York City	1,086	974
Long Island	575	439
NYCA	4,709	4,275

Figure 21: Zonal Demand Congestion Summary (nominal $M)

2015 Zonal Demand Congestion	SCUC	Benchmark
West	83	29
Genesee	9	7
Central	34	28
North	5	1
Mohawk Valley	10	11
Capital	123	132
Hudson Valley	86	83
Millwood	26	27
Dunwoodie	49	51
New York City	459	460
Long Island	404	303
NYCA	1,287	1,131

Figure 22: Top Six Constraint Congestion Summary (nominal $M)

2015 Top 6 Demand Congestion Constraints	SCUC	Benchmark
CENTRAL EAST	915	799
DUNWOODIE TO LONG ISLAND	138	66
LEEDS PLEASANT VALLEY	111	65
PACKARD HUNTLEY	41	34
NEW SCOTLAND LEEDS	32	3
NIAGARA PACKARD	22	0

Figure 23: Zonal LBMP Summary ($/MWh)

2015 Zonal Average LBMP	Actual	Benchmark
West	32.01	26.69
Genesee	26.80	25.58
Central	28.45	27.22
North	24.55	24.15
Mohawk Valley	28.75	26.99
Capital	37.64	36.55
Hudson Valley	36.63	35.11
Millwood	36.94	35.50
Dunwoodie	36.85	35.45
New York City	38.01	35.85
Long Island	45.23	40.79

Figure 24: Zonal Generation Summary (GWh)

2015 Zonal Generation	Actual	Benchmark
West	17,312	17,075
Genesee	5,184	5,329
Central	33,317	33,819
North	8,664	8,879
Mohawk Valley	3,085	3,319
Capital	15,164	15,438
Hudson Valley	2,218	2,478
Millwood	16,810	16,901
Dunwoodie	0	0
New York City	26,968	26,857
Long Island	11,071	10,289
NYCA	139,791	140,383

Figure 25: Zonal Load Summary (GWh)

2015 Zonal Load	Actual	Benchmark
West	15,620	15,664
Genesee	10,059	10,090
Central	16,203	16,254
North	4,269	4,280
Mohawk Valley	8,068	8,094
Capital	12,690	12,728
Hudson Valley	10,036	10,069
Millwood	2,940	2,951
Dunwoodie	6,035	6,053
New York City	53,419	53,538
Long Island	21,976	22,031
NYCA	161,316	161,751

Figure 26: Import Summary (GWh)

2015 Import Energy	Actual	Benchmark
PJM-NYISO	3,322	3,203
LINDEN VFT	907	889
NEPTUNE	4,232	3,986
HTP	502	604
ISONE-NYISO	247	354
CROSS SOUND CABLE	1,549	1,474
NORTHPORT NORWALK CABLE	616	651
IMO-NYISO	8,458	8,454
HQ-NYISO CHAT	8,758	8,749
HQ-NYISO CEDARS	725	721
TOTAL IMPORT	29,317	29,083

Figure 27: Export Summary (GWh)

2015 Export Energy	Actual	Benchmark
PJM-NYISO	1,189	1,100
LINDEN VFT	337	391
NEPTUNE	2	0
HTP	0	0
ISONE-NYISO	6,044	6,144
CROSS SOUND CABLE	15	0
NORTHPORT NORWALK CABLE	243	322
IMO-NYISO	64	16
HQ-NYISO CHAT	15	16
HQ-NYISO CEDARS	6	5
TOTAL EXPORT	7,914	7,994

Figure 28: Net Import Summary (GWh)

2015 Net Import Energy	Actual	Benchmark
PJM-NYISO	2,134	2,103
LINDEN VFT	570	498
NEPTUNE	4,230	3,986
HTP	502	604
ISONE-NYISO	-5,796	-5,790
CROSS SOUND CABLE	1,534	1,474
NORTHPORT NORWALK CABLE	373	329
IMO-NYISO	8,394	8,438
HQ-NYISO CHAT	8,743	8,733
HQ-NYISO CEDARS	719	715
TOTAL NET IMPORT	21,403	21,089

Appendix E - Detailed Results of 2017 CARIS Phase 1

Congestion Assessment - Historic and Projected

One of the features of a Locational Based Marginal Price (LBMP) market is the ability to identify grid locations that are difficult to serve with economic generation due to transmission bottlenecks (constraints) and quantify the cost of this congestion. The NYISO calculates and publishes LBMP's with three components:

1. Energy component – marginal electricity cost without the adjusted cost of congestion and losses;
2. Congestion component – the cost of out-of merit generation dispatch relative to an assumed unconstrained reference point at Marcy substation; and
3. Losses component – the cost for supplying the losses from the accessible marginal generators to a specific point on the grid.

Historic Congestion Assessment

The NYISO reports historic congestion results on its website. The cost of congestion reported is the sum of the day ahead market LBMP congestion component multiplied by the amount of load being affected (positively or negatively) by congestion (later referred to as "congestion payments").

The NYISO has also developed analytical tools and protocols to measure the cost of transmission congestion in a more abstract fashion. The fundamental idea is to calculate what the day-ahead hourly clearing prices *would be* if there were no transmission constraints, using the same data and calculation approach as the NYISO SCUC. The congestion cost is the difference between the actual SCUC transmission constrained LBMP's, loads, and bids, and the same calculation with all transmission constraints ignored. Annual cost is the sum of daily costs.

The reported numbers are the result of a simulation of the NYCA market using the hourly bids and network status actually used by NYISO to clear the day-ahead market. The simulation performs a security constrained unit commitment for the market "as it was", then removes all transmission constraints. Other constraints such as desired net interchange (DNI), generator ramp rates and minimum run times are still enforced. Unit commitment and dispatch are then recalculated for this unconstrained scenario without any changes to the bids actually submitted. The constrained and unconstrained results are compared to derive the cost of congestion. The calculations represent all

market segments (*e.g.*, fixed load, virtual load and generation, imports and exports), and actual hour-by-hour network status. The unconstrained case fixes the amount of virtual load and generation at their original MW levels.

Historic Congestion Metrics

To explore the impact of congestion, four congestion metrics were developed: Bid Production Cost metric; Congestion Payment metric; Generator Payment metric; and Load Payment metric. All metrics report the difference between a constrained and an unconstrained value.

1. Change in Bid Production Cost (BPC) – This is the primary congestion impact metric set forth by the Operating Committee. The calculation compares the change in total production cost, based on mitigated bids, with and without transmission constraints limiting the unit commitment and dispatch. This metric measures the economic inefficiency introduced by the existence of transmission bottlenecks, and is considered the *societal cost* of transmission congestion. A positive number indicates that transmission congestion increased the total cost to produce the electricity supply in the NYCA.

Production cost always decrease when constraints are removed. The objective of SCUC is to minimize bid production cost; LBMPs are the result of the commitment and dispatch that result from achieving this objective under generation unit and transmission constrained conditions. Since SCUC does not directly attempt to minimize LBMPs, relieving all or some of the constraints may or may not decrease the market based electricity cost to load. In the LBMP markets, the load in a location pays the marginal price of the supply at that location, not the bid price of the generator. The result of relieving constraints in an LBMP market depends on how much load is affected, where the load is, and the response of supply and demand as those constraints are relieved.

2. Change in Congestion Payments – This calculation, which represents the sum of the LBMP congestion component multiplied by the load affected, does not account for the change in the energy component of the LBMP as constraints are removed. With no simulation truly required to arrive at this congestion impact metric, the congestion cost in an unconstrained market is 0. This is considered to be the *accounting cost* of congestion.

Congestion payments can be hedged with TCCs. The difference between the total congestion payment and the congestion payment associated with TCCs is the unhedged congestion payment reported in the NYISO's quarterly historic congestion analysis reports. For the historic analysis, it was assumed that all TCCs are owned by load and are available for hedging the congestion payments. A positive number indicate that congestion increases the cost paid by load.

3. Change in Generation Payments – In addition to the LBMP payments to generation (or other supply sources such as virtual generation, or imports), generators are also paid a BPCG and for Ancillary Services. BPCG compensates generators that are committed for reliability despite the fact their bids are greater than the LBMP at the generator location. This phenomenon can happen if ramp rates, minimum run times or other limits force unit operation, which minimizes overall production cost, even including BPCG payments. A positive number means generation payments went up due to congestion.

4. Change in Load Payments – This metric is the opposite side of the generation payments calculation. The calculation uses simulation to include the local energy cost response when transmission constraints are removed. Whereas the change in production cost measures efficiency, this metric determines how much more New York load actually pays due to congestion and the market design. This is considered the *bill impact*. The load payment congestion impact includes the effect of all market segments that can change when transmission constraints are relieved. These segments are:

- LBMP Components – The LBMP congestion component will equal zero when there are no transmission constraints, and the unconstrained generation will sell more energy at a price that is higher on the generator's incremental cost curve. The unconstrained generator bid price will be lower than the bid price of the out of merit generator dispatched in the transmission limited case. The result is a likely increase in the LBMP energy component as the LBMP congestion component decreases. The LBMP loss component will also change depending on the location and prices of the generation unbottled when constraints are relieved. Ancillary service costs (*e.g.*, reserves) also affect LBMPs, as generators trade-off between selling ancillary services or energy.
- Load payments due to congestion are hedged with TCCs based on the assumption that all TCCs were credited to load. The TCC auction cost is not accounted for since it is part of the Transmission Service Charge (TSC).
- TCC shortfall – In the event of a TCC shortfall (or surplus), the load pays for the imbalance. As transmission constraints are relieved, the imbalance changes. While the shortfall may be compensated for elsewhere in the TSC, from a congestion impact perspective this is considered a load cost. Although the NYISO OATT describes details of the allocation of shortfall by transmission owner, for purposes of this analysis the shortfall is stated for the NYCA only.

- Rate Schedule 1 imbalances – In accordance with the NYISO OATT, imbalances of energy payments and loss payments are a component of the OATT-defined Rate Schedule 1 payments. Relieving or eliminating transmission constraints affects these payments, and is thus considered a congestion impact in this analysis. Like shortfall, this analysis states the Rate Schedule 1 effect for the NYCA only.

A positive number indicates that congestion increased the load payments.

Historic Congestion Results

The historic congestion analysis results for a constrained system (base case) are presented in Figure 29 through Figure 31.

Figure 29: Historic Congestion Demand$ Congestion (2012-2016) by Zone (nominal $M)

Zonal Demand Congestion ($M)	Historic				
	2012	2013	2014	2015	2016
West	$6	$45	$36	$83	$116
Genesee	$3	$11	$9	$9	$7
Central	$8	$38	$38	$34	$29
North	$0	$5	$3	$5	$7
Mohawk Valley	$3	$11	$12	$10	$7
Capital	$34	$143	$149	$123	$95
Hudson Valley	$39	$112	$95	$86	$64
Millwood	$10	$30	$30	$26	$19
Dunwoodie	$24	$62	$55	$49	$41
NY City	$261	$639	$531	$459	$378
Long Island	$377	$597	$409	$404	$339
NYCA Total	$765	$1,693	$1,367	$1,288	$1,102

Notes: Reported values do not deduct TCCs. DAM data include Virtual Bidding & planned Transmission outages.

Figure 30: Historic Generator Payments (2012-2016) by Zone (nominal $M)

Generator Payment ($M)	Historic				
	2012	2013	2014	2015	2016
West	$644	$663	$924	$472	$358
Genesee	$203	$275	$388	$199	$141
Central	$1,076	$1,495	$1,854	$1,133	$752
North	$288	$348	$447	$255	$182
Mohawk Valley	$89	$122	$181	$100	$72
Capital	$702	$793	$873	$647	$529
Hudson Valley	$179	$269	$326	$210	$141
Millwood	$666	$892	$1,033	$642	$475
Dunwoodie	$14	$32	$34	$19	$54
NY City	$1,086	$1,332	$1,679	$1,023	$837
Long Island	$720	$879	$932	$637	$487
NYCA Total	$5,670	$7,101	$8,670	$5,337	$4,028

Note: Reported values are exclusive of BPCG and Ancillary Services.

Figure 31: Historic Load Payments (2012-2016) by Zone (nominal $M)

Load Payment ($M)	Historic				
	2012	2013	2014	2015	2016
West	$593	$675	$873	$595	$501
Genesee	$350	$415	$545	$291	$206
Central	$732	$967	$1,183	$715	$499
North	$200	$223	$243	$117	$80
Mohawk Valley	$238	$300	$395	$231	$152
Capital	$459	$654	$808	$513	$374
Hudson Valley	$515	$619	$656	$424	$309
Millwood	$114	$156	$195	$122	$88
Dunwoodie	$256	$333	$375	$240	$203
NY City	$2,270	$2,973	$3,358	$2,184	$1,721
Long Island	$1,298	$1,667	$1,712	$1,208	$938
NYCA Total	$7,026	$8,983	$10,343	$6,640	$5,071

Metrics Assessment

CARIS Metrics

In conducting the CARIS analysis, seven metrics are used. The primary metric is the production cost metric. Additional metrics that are included in this report are load payments, generator payments, emissions, TCCs, losses, and the ICAP metric. All benefit metrics are determined by measuring the difference (change) between the CARIS base case system value and a system value when the generic solution is added. The discount rate of 6.99% used for the present value analysis is the current weighted average cost of capital for the NYTOs.

1. NYCA Production Cost Metric

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

2. Demand$ Congestion Metric

The congestion value (Demand$ Congestion) is calculated as the congestion component of the LBMP paid by NYCA load (sum of the total zonal loads). It is defined as the shadow price of each constrained element multiplied by the load affected and calculated as follows:

Demand$ Congestion by constraint for all areas and all hours = (Shadow Price x (Zone Generation Shift Factor (GSF) x Zone Load)).

Total Demand$ Congestion = Sum of all constraints' Demand Congestion.

3. Generator Payment Metric

This metric measures the change in NYCA generation payments plus net imports. The NYCA generation payments are calculated by measuring only the LBMP payments (energy, congestion, losses). Thus, total generator payments are estimated for this information metric as the sum of the LBMP payments to NYCA generators plus the payments for net imports.

Generator payment by zone represents zonal LBMP based payment to generators located in a zone. The hourly payment to each generator is determined as the hourly generator MW dispatch multiplied by the generator's LBMP or spot price. The annual generator payment for NYCA generators is then the sum of all 8,760 hourly generator payments.

Annual generator LBMP payment = sum of all hours (generator LBMP x generator MW dispatch).

Zonal generator payment = sum of generator payment located in a zone.

4. LBMP Load Payment Metric

The LBMP Load Payment metric is the hourly load-weighted average LBMP price for each zone multiplied by the zonal load. The annual load payment is then the sum of all 8,760 hourly load payments.

Annual Zonal LBMP payment = sum of all hours (zonal LBMP x zonal load).

Zonal LBMP = zonal average load-weighted LMP.

Note: actual consumer payments will be net of any TCC hedges or bilateral contracts.

5. TCC Payment Metric

The TCC payment metric is calculated differently for Phase 1 than it is calculated for Phase 2 of the CARIS process, as described in the NYISO Tariff. In this CARIS Phase 1, the TCC Payment is calculated as (Demand Congestion Costs + Export Congestion Costs) – (Supply Congestion Costs + Import Congestion Costs). This is not a measure of the Transmission Owners' TCC auction revenues.

6. ICAP Metric

The Installed Capacity (ICAP) savings metric quantifies the potential NYISO ICAP market savings created by a generation, transmission, demand response, or energy efficiency project.

The ICAP savings calculation[3] consists of two steps, which are performed for each NYISO capacity zone[4]. In the first step, the MW impact of a generic solution is determined through Loss of Load Expectation (LOLE) analysis, where LOLE is the resource adequacy criterion. The MW impact is indicative of reduced installed capacity requirement made possible by the congestion mitigation solutions. A transmission solution that enables better utilization of the existing generating resources in the State will allow a lower IRM and lower LCR. Generation solutions, depending on their location in the NYCA, will contribute as an ICAP source and may reduce the IRM and LCR requirements. For DR and EE, the reduced load downstream of congestion will lower both the overall ICAP and the LCR requirements. The ICAP reduction can be larger than the nameplate of the solution. Using year 2026, the ICAP MW impact for each study area resulting from the application of generic solutions is calculated. This represents the potential reduction in ICAP procurement obligations and the associated ICAP costs.

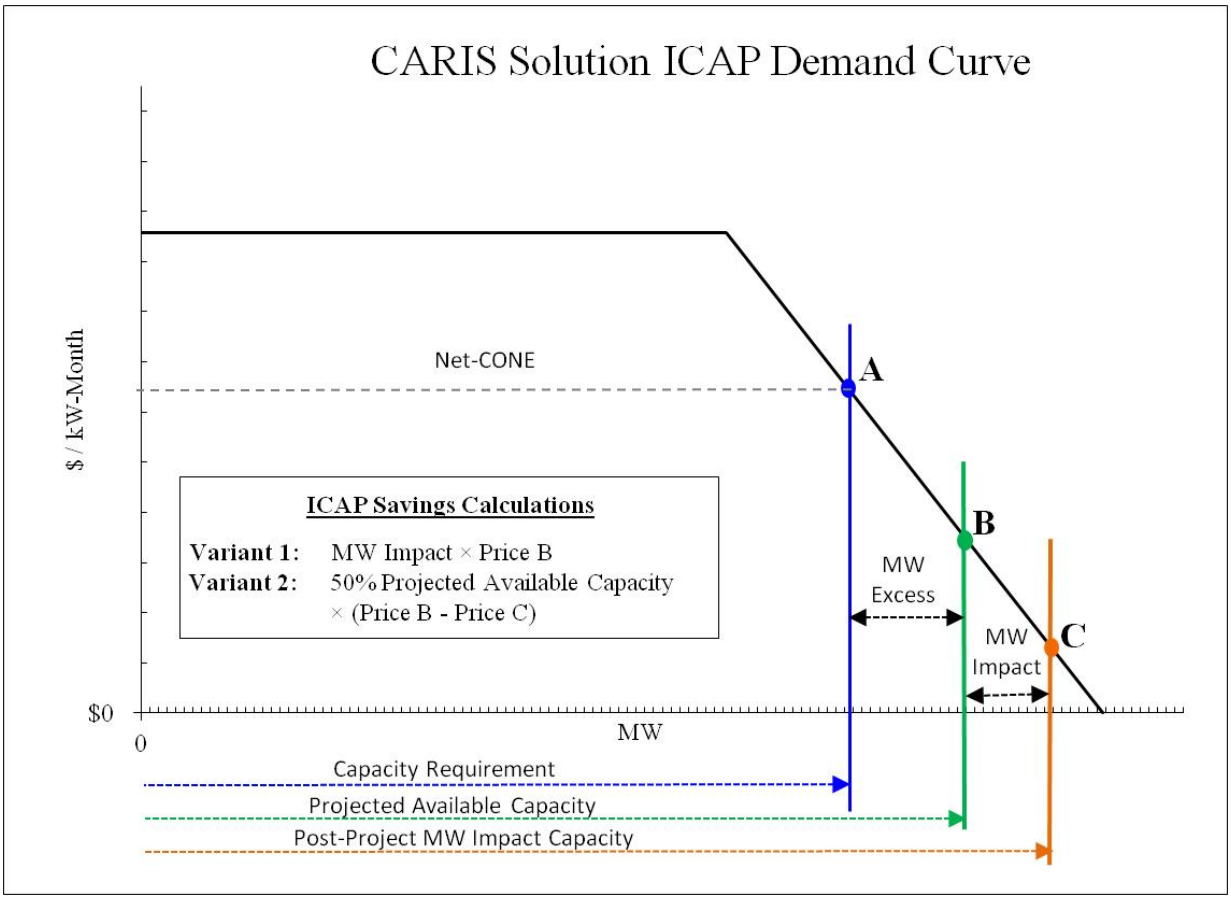
[3] Calculations used to determine ICAP savings are described in NYISO OATT Attachment Y Section 31.3.1.3.5.6. Information regarding the determination of the currently published NYISO ICAP demand curve is beyond the scope of this document and can be found in the NYISO Installed Capacity Manual (http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Operations/icap_mnl.pdf)

4 As of 2013, The NYISO has four separate capacity zones: New York City (NYC), Long Island (LI), Lower Hudson Valley (G-J), and the New York Control Area (NYCA). Capacity demand curves are used to set the clearing price for existing generation capacity in the capacity market auctions. Locational capacity requirements are inherent within each demand curve so as to meet reliability criteria.

Second, the ICAP cost reduction benefit is translated to a dollar amount through two pricing variations for each of the years of the ten year study period. For Variant 1, the ISO measured the cost impact of a solution for each planning year by: (i) forecasting the cost per megawatt-year of Installed Capacity under the assumption that the solution is not in place, based on the latest available Summer and Winter ICAP Demand Curves and the amount of Installed Capacity available in the NYCA, and (ii) multiplying that forecasted cost per megawatt-year by the sum of the megawatt impact. For Variant 2, the ISO measured the cost impact of a solution for each planning year by: (i) forecasting the cost per megawatt-year of Installed Capacity under the assumption that the solution is in place, based on the latest available Summer and Winter ICAP Demand Curves and the amount of Installed Capacity available in the NYCA; (ii) subtracting that forecasted cost per megawatt-year from the forecasted cost per megawatt-year of Installed Capacity calculated in Variant 1 (without the solution in place); and (iii) multiplying that difference by fifty percent (50%) of the assumed amount of NYCA Installed Capacity available. The ICAP cost metrics are indicative measures of the additional potential benefits resulting from the implementation of a CARIS solution. The metrics are not precise determinants of future capacity prices and are calculated for the purpose of providing additional information.

The two variants for savings calculations can be better defined and understood through the ICAP Demand Curve diagram below, Figure 32.

Figure 32: CARIS ICAP Demand Curve



The MW Impact calculation from the first step described above uses the GE-MARS base case for LOLE calculations, which is based upon the 2014 Comprehensive Reliability Plan (CRP). Updates were made to capacity resources contained in the production cost simulation base case to match the CRP assumptions. A series of project cases were created to simulate transmission, generation, demand response, and energy efficiency projects. Each type of project was modeled with different changes to the MARS topology to accurately represent the effect of the project on the system.

To simulate the three transmission project cases, the following changes to interface transfer limits were made, as indicated in Figure 33.

Figure 33: MARS Interface Modifications for Transmission Solution ICAP Calculations (MW)

Incremental Change						
MARS Interface	Study 1: Central East-Edic-Marcy	Study 2: Central East	Study 3: Central East-New Scotland-Pleasant Valley	Study 4: Study 3 with Edic-Marcy relaxed	Study 5: Study 3 under System Resource Shift Case	Study 6: Study 5 with Edic-Marcy relaxed
Central East (E to F)	550	550	650	650	650	650
E to G						
F to G			1,400	1,400	1,400	1,400
UPNY-SENY	75	75	800	800	800	800

To simulate the generation project cases, capacity was added downstream of the congested element, as indicated in Figure 34.

Figure 34: MARS Capacity Additions for Generation Solution ICAP Calculations

Study	Generator Bus Location	# Units	Unit Size (MW)	Total Capacity Addition (MW)
Study 1: Central East-Edic-Marcy	New Scotland	2	340	680
Study 2: Central East	New Scotland	2	340	680
Study 3: Central East-New Scotland-	Pleasant Valley	4	340	1,360
Study 4: Study 3 with Edic-Marcy	Pleasant Valley	4	340	1,360
Study 5: Study 3 under System	Pleasant Valley	4	340	1,360
Study 6: Study 5 with Edic-Marcy	Pleasant Valley	4	340	1,360

Energy efficiency project cases were modeled by reducing the load forecast downstream of the congested element, as indicated in Figure 35.

Figure 35: MARS Load Reductions for Energy Efficiency Solution ICAP Calculations (MW)

Zone & Load Reduction (MW)	Study 1: Central East-Edic-Marcy	Study 2: Central East	Study 3: Central East-New Scotland-Pleasant Valley	Study 4: Study 3 with Edic-Marcy relaxed	Study 5: Study 3 under System Resource Shift Case	Study 6: Study 5 with Edic-Marcy relaxed
F	200	200	200	200	200	200
G	200	200	200	200	200	200
J	200	200	800	800	800	800

The demand response project cases were created by adding SCRs downstream of the congested element, as indicated in Figure 36.

Figure 36: MARS SCR Capacity Additions for Demand Response Solution ICAP Calculations (MW)

Zone & SCR Addition Amount (MW)	Study 1: Central East-Edic-Marcy	Study 2: Central East	Study 3: Central East-New Scotland-Pleasant Valley	Study 4: Study 3 with Edic-Marcy relaxed	Study 5: Study 3 under System Resource Shift Case	Study 6: Study 5 with Edic-Marcy relaxed
F	200	200	200	200	200	200
G	200	200	200	200	200	200
J	200	200	800	800	800	800

After the base case and project cases were simulated and LOLE value determined, capacity was removed from each NYISO zone in the each project case, based on the zonal total capacity ratio,

until the base case LOLE was reached. The resultant amount of capacity removed is equivalent to the MW Impact of that project case. The MW Impact results for each of the project cases, for the 2024 study year are presented in Figure 37.

Figure 37: MARS SCR Capacity Additions for Demand Response Solution ICAP Calculations

Study	Solution	ICAP Impact (MW)			
		J	G-J	K	NYCA
Study 1: Central East-Edic-Marcy	Transmission	14	24	8	61
	Generation	74	126	40	313
	Energy Efficiency	131	222	71	552
	Demand Response	130	221	70	548
Study 2: Central East	Transmission	14	24	8	61
	Generation	74	126	40	313
	Energy Efficiency	131	222	71	552
	Demand Response	130	221	70	548
Study 3: Central East-New Scotland-Pleasant Valley	Transmission	14	24	8	61
	Generation	100	171	54	424
	Energy Efficiency	324	549	175	1,362
	Demand Response	334	567	181	1,408
Study 4: Study 3 with Edic-Marcy relaxed	Transmission	14	24	8	61
	Generation	100	171	54	424
	Energy Efficiency	324	549	175	1,362
	Demand Response	334	567	181	1,408
Study 5: Study 3 under System Resource Shift Case	Transmission	19	30	12	99
	Generation	31	49	19	162
	Energy Efficiency	551	874	341	2,897
	Demand Response	562	891	348	2,954
Study 6: Study 5 with Edic-Marcy relaxed	Transmission	19	30	12	99
	Generation	31	49	19	162
	Energy Efficiency	551	874	341	2,897
	Demand Response	562	891	348	2,954

Variant #1 of the ICAP savings calculation can now be determined by simply multiplying the MW Impact values in the table above with the pre-project capacity price of the demand curve for the corresponding study year. The MW Impact values are also used to calculate the post-project capacity price for Variant #2, which is then subtracted from the pre-project price and multiplied by 50% of the projected available capacity for the four capacity zones in that year. The results of these calculations for all 10 years of the CARIS study are contained in Figure 38 and Figure 39 below.

The two ICAP cost variants are indicative of a range of the potential benefits to load resulting from the implementation of a CARIS solution. The metrics are not precise determinants of future capacity prices and are calculated for the purpose of providing additional information. The results

of the metric calculations are in Figure 38 and Figure 39 below.

Figure 38: ICAP Costs Savings - Variant 1

CARIS 2017 ICAP Variant #1 Savings (2017 M$)													
Study	Solution	Capacity Zone	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	10-Year Total
Study 1: CARIS Base Case, Central East + Edic - Marcy (Marcy - New Scotland)	Transmission	ROS:	1	0	0	0	0	0	0	0	0	0	1
		G-I:	1	0	0	0	0	0	0	0	0	0	1
		J:	1	1	1	1	1	1	1	1	1	1	8
		K:	0	0	0	0	0	0	0	0	0	0	1
		Total:	3	1	1	1	1	1	1	1	1	1	11
	Generation	ROS:	3	0	0	0	0	0	0	0	0	0	4
		G-I:	4	1	1	0	0	0	0	0	0	0	6
		J:	6	4	4	4	4	4	4	4	4	4	43
		K:	2	1	1	0	0	0	0	0	1	1	6
		Total:	15	6	6	5	5	5	5	5	5	5	60
	Energy Efficiency	ROS:	5	1	0	0	0	0	0	0	0	0	6
		G-I:	7	2	2	0	0	0	0	0	0	0	11
		J:	11	7	7	7	7	7	7	7	8	8	77
		K:	3	2	1	1	1	1	1	1	1	1	12
		Total:	26	11	11	8	8	8	8	8	9	9	106
	Demand Response	ROS:	5	1	0	0	0	0	0	0	0	0	6
		G-I:	7	2	2	0	0	0	0	0	0	0	11
		J:	10	7	7	7	7	7	7	7	8	8	76
		K:	3	2	1	1	1	1	1	1	1	1	11
		Total:	25	11	11	8	8	8	8	8	8	9	105
Study 2: CARIS Base Case, Central East (Edic - New Scotland)	Transmission	ROS:	1	0	0	0	0	0	0	0	0	0	1
		G-I:	1	0	0	0	0	0	0	0	0	0	1
		J:	1	1	1	1	1	1	1	1	1	1	8
		K:	0	0	0	0	0	0	0	0	0	0	1
		Total:	3	1	1	1	1	1	1	1	1	1	11
	Generation	ROS:	3	0	0	0	0	0	0	0	0	0	4
		G-I:	4	1	1	0	0	0	0	0	0	0	6
		J:	6	4	4	4	4	4	4	4	4	4	43
		K:	2	1	1	0	0	0	0	0	1	1	6
		Total:	15	6	6	5	5	5	5	5	5	5	60
	Energy Efficiency	ROS:	5	1	0	0	0	0	0	0	0	0	6
		G-I:	7	2	2	0	0	0	0	0	0	0	11
		J:	11	7	7	7	7	7	7	7	8	8	77
		K:	3	2	1	1	1	1	1	1	1	1	12
		Total:	26	11	11	8	8	8	8	8	9	9	106
	Demand Response	ROS:	5	1	0	0	0	0	0	0	0	0	6
		G-I:	7	2	2	0	0	0	0	0	0	0	11
		J:	10	7	7	7	7	7	7	7	8	8	76
		K:	3	2	1	1	1	1	1	1	1	1	11
		Total:	25	11	11	8	8	8	8	8	8	9	105
Study 3: CARIS Base Case, Central East + Leeds - Pleasant Valley (Edic - New Scotland; New Scotland - Pleasant Valley)	Transmission	ROS:	1	0	0	0	0	0	0	0	0	0	1
		G-I:	1	0	0	0	0	0	0	0	0	0	1
		J:	1	1	1	1	1	1	1	1	1	1	8
		K:	0	0	0	0	0	0	0	0	0	0	1
		Total:	3	1	1	1	1	1	1	1	1	1	11
	Generation	ROS:	4	1	0	0	0	0	0	0	0	0	5
		G-I:	6	2	2	0	0	0	0	0	0	0	9
		J:	8	5	5	6	6	6	6	6	6	6	58
		K:	2	1	1	1	1	1	1	1	1	1	9
		Total:	20	9	8	6	6	6	6	6	6	7	81
	Energy Efficiency	ROS:	13	2	1	0	0	0	0	0	0	0	16
		G-I:	17	5	5	0	0	0	0	0	0	0	28
		J:	26	17	18	18	18	18	18	18	19	20	189
		K:	7	4	3	2	2	2	2	2	2	2	28
		Total:	63	28	27	20	20	20	20	20	21	22	261
	Demand Response	ROS:	13	2	1	0	0	0	0	0	0	0	16
		G-I:	18	5	5	0	0	0	0	0	0	0	29
		J:	27	17	18	19	19	19	19	19	19	20	195
		K:	7	4	3	2	2	2	2	2	2	2	29
		Total:	65	29	27	21	21	20	21	21	22	23	270

CARIS 2017 ICAP Variant #1 Savings ($2017M)													
Study	**Solution**	**Capacity Zone**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**10-Year Total**
Study 4: Study 3 with Edic-Marcy relaxed	**Transmission**	ROS:	1	0	0	0	0	0	0	0	0	0	**1**
		G-I:	1	0	0	0	0	0	0	0	0	0	**1**
		J:	1	1	1	1	1	1	1	1	1	1	**8**
		K:	0	0	0	0	0	0	0	0	0	0	**1**
		Total:	**3**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**11**
	Generation	ROS:	4	1	0	0	0	0	0	0	0	0	**5**
		G-I:	6	2	2	0	0	0	0	0	0	0	**9**
		J:	8	5	5	6	6	6	6	6	6	6	**58**
		K:	2	1	1	1	1	1	1	1	1	1	**9**
		Total:	**20**	**9**	**8**	**6**	**6**	**6**	**6**	**6**	**6**	**7**	**81**
	Energy Efficiency	ROS:	13	2	1	0	0	0	0	0	0	0	**16**
		G-I:	17	5	5	0	0	0	0	0	0	0	**28**
		J:	26	17	18	18	18	18	18	18	19	20	**189**
		K:	7	4	3	2	2	2	2	2	2	2	**28**
		Total:	**63**	**28**	**27**	**20**	**20**	**20**	**20**	**20**	**21**	**22**	**261**
	Demand Response	ROS:	13	2	1	0	0	0	0	0	0	0	**16**
		G-I:	18	5	5	0	0	0	0	0	0	0	**29**
		J:	27	17	18	19	19	19	19	19	19	20	**195**
		K:	7	4	3	2	2	2	2	2	2	2	**29**
		Total:	**65**	**29**	**27**	**21**	**21**	**20**	**21**	**21**	**22**	**23**	**270**
Study 5: Study 3 under System Resource Shift Base Case	**Transmission**	ROS:	1	0	0	0	0	0	0	0	0	0	**1**
		G-I:	1	0	0	0	1	1	1	1	0	0	**4**
		J:	1	1	1	1	1	1	1	1	1	1	**9**
		K:	0	0	0	0	0	0	0	0	0	0	**1**
		Total:	**3**	**1**	**1**	**1**	**2**	**2**	**1**	**1**	**1**	**1**	**16**
	Generation	ROS:	1	0	0	0	0	0	0	0	0	0	**2**
		G-I:	1	0	0	0	1	1	1	1	1	1	**7**
		J:	2	1	1	1	2	2	2	1	1	1	**15**
		K:	1	0	0	0	0	0	0	0	0	0	**1**
		Total:	**6**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**26**
	Energy Efficiency	ROS:	26	0	0	0	4	0	0	0	0	0	**31**
		G-I:	23	6	5	4	18	17	15	15	11	11	**126**
		J:	40	25	25	24	32	30	27	26	23	23	**275**
		K:	12	7	4	1	1	0	0	0	0	0	**24**
		Total:	**101**	**37**	**33**	**29**	**56**	**47**	**42**	**41**	**34**	**35**	**455**
	Demand Response	ROS:	27	0	0	0	4	0	0	0	0	0	**31**
		G-I:	23	6	5	4	19	17	16	15	12	12	**128**
		J:	41	25	25	24	33	31	27	26	24	24	**280**
		K:	12	7	4	1	1	0	0	0	0	0	**24**
		Total:	**103**	**38**	**34**	**29**	**57**	**48**	**43**	**41**	**35**	**36**	**464**
Study 6: Study 5 with Edic-Marcy relaxed	**Transmission**	ROS:	1	0	0	0	0	0	0	0	0	0	**1**
		G-I:	1	0	0	0	1	1	1	1	0	0	**4**
		J:	1	1	1	1	1	1	1	1	1	1	**9**
		K:	0	0	0	0	0	0	0	0	0	0	**1**
		Total:	**3**	**1**	**1**	**1**	**2**	**2**	**1**	**1**	**1**	**1**	**16**
	Generation	ROS:	1	0	0	0	0	0	0	0	0	0	**2**
		G-I:	1	0	0	0	1	1	1	1	1	1	**7**
		J:	2	1	1	1	2	2	2	1	1	1	**15**
		K:	1	0	0	0	0	0	0	0	0	0	**1**
		Total:	**6**	**2**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**26**
	Energy Efficiency	ROS:	26	0	0	0	4	0	0	0	0	0	**31**
		G-I:	23	6	5	4	18	17	15	15	11	11	**126**
		J:	40	25	25	24	32	30	27	26	23	23	**275**
		K:	12	7	4	1	1	0	0	0	0	0	**24**
		Total:	**101**	**37**	**33**	**29**	**56**	**47**	**42**	**41**	**34**	**35**	**455**
	Demand Response	ROS:	27	0	0	0	4	0	0	0	0	0	**31**
		G-I:	23	6	5	4	19	17	16	15	12	12	**128**
		J:	41	25	25	24	33	31	27	26	24	24	**280**
		K:	12	7	4	1	1	0	0	0	0	0	**24**
		Total:	**103**	**38**	**34**	**29**	**57**	**48**	**43**	**41**	**35**	**36**	**464**

Figure 39: ICAP Costs Savings - Variant 2

CARIS 2017 ICAP Variant #2 Savings ($2017M)													
Study	**Solution**	**Capacity Zone**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**10-Year Total**
Study 1: CARIS Base Case, Central East + Edic - Marcy (Marcy - New Scotland)	**Transmission**	ROS:	14	7	7	0	0	0	0	0	0	0	**28**
		G-I:	5	3	2	0	0	0	0	0	0	0	**10**
		J:	10	9	9	9	8	8	7	7	7	6	**81**
		K:	4	2	2	2	2	2	1	1	1	1	**18**
		Total:	**33**	**21**	**20**	**10**	**10**	**9**	**9**	**8**	**8**	**8**	**136**
	Generation	ROS:	73	31	13	0	0	0	0	0	0	0	**117**
		G-I:	25	13	13	0	0	0	0	0	0	0	**51**
		J:	54	29	44	45	43	41	39	37	35	34	**402**
		K:	22	9	9	8	8	8	7	7	7	6	**91**
		Total:	**173**	**83**	**79**	**54**	**51**	**49**	**46**	**44**	**42**	**40**	**662**
	Energy Efficiency	ROS:	101	31	13	0	0	0	0	0	0	0	**146**
		G-I:	44	24	23	0	0	0	0	0	0	0	**90**
		J:	96	48	62	68	74	73	69	66	63	60	**677**
		K:	29	16	16	15	14	14	13	12	12	11	**153**
		Total:	**270**	**119**	**113**	**83**	**88**	**86**	**82**	**78**	**75**	**71**	**1,065**
	Demand Response	ROS:	101	31	13	0	0	0	0	0	0	0	**145**
		G-I:	44	24	23	0	0	0	0	0	0	0	**90**
		J:	95	47	61	68	74	72	69	65	62	59	**672**
		K:	29	16	15	15	14	14	13	12	12	11	**151**
		Total:	**268**	**118**	**112**	**82**	**88**	**86**	**82**	**78**	**74**	**70**	**1,058**
Study 2: CARIS Base Case, Central East (Edic - New Scotland)	**Transmission**	ROS:	14	7	7	0	0	0	0	0	0	0	**28**
		G-I:	5	3	2	0	0	0	0	0	0	0	**10**
		J:	10	9	9	9	8	8	7	7	7	6	**81**
		K:	4	2	2	2	2	2	1	1	1	1	**18**
		Total:	**33**	**21**	**20**	**10**	**10**	**9**	**9**	**8**	**8**	**8**	**136**
	Generation	ROS:	73	31	13	0	0	0	0	0	0	0	**117**
		G-I:	25	13	13	0	0	0	0	0	0	0	**51**
		J:	54	29	44	45	43	41	39	37	35	34	**402**
		K:	22	9	9	8	8	8	7	7	7	6	**91**
		Total:	**173**	**83**	**79**	**54**	**51**	**49**	**46**	**44**	**42**	**40**	**662**
	Energy Efficiency	ROS:	101	31	13	0	0	0	0	0	0	0	**146**
		G-I:	44	24	23	0	0	0	0	0	0	0	**90**
		J:	96	48	62	68	74	73	69	66	63	60	**677**
		K:	29	16	16	15	14	14	13	12	12	11	**153**
		Total:	**270**	**119**	**113**	**83**	**88**	**86**	**82**	**78**	**75**	**71**	**1,065**
	Demand Response	ROS:	101	31	13	0	0	0	0	0	0	0	**145**
		G-I:	44	24	23	0	0	0	0	0	0	0	**90**
		J:	95	47	61	68	74	72	69	65	62	59	**672**
		K:	29	16	15	15	14	14	13	12	12	11	**151**
		Total:	**268**	**118**	**112**	**82**	**88**	**86**	**82**	**78**	**74**	**70**	**1,058**
Study 3: CARIS Base Case, Central East + Leeds - Pleasant Valley (Edic - New Scotland; New Scotland - Pleasant Valley)	**Transmission**	ROS:	14	7	7	0	0	0	0	0	0	0	**28**
		G-I:	5	3	2	0	0	0	0	0	0	0	**10**
		J:	10	9	9	9	8	8	7	7	7	6	**81**
		K:	4	2	2	2	2	2	1	1	1	1	**18**
		Total:	**33**	**21**	**20**	**10**	**10**	**9**	**9**	**8**	**8**	**8**	**136**
	Generation	ROS:	86	31	13	0	0	0	0	0	0	0	**131**
		G-I:	34	18	17	0	0	0	0	0	0	0	**69**
		J:	73	38	52	59	58	55	53	50	48	45	**532**
		K:	25	12	12	11	11	10	10	9	9	9	**119**
		Total:	**218**	**100**	**94**	**70**	**69**	**66**	**63**	**60**	**57**	**54**	**851**
	Energy Efficiency	ROS:	196	31	13	0	0	0	0	0	0	0	**240**
		G-I:	106	59	56	0	0	0	0	0	0	0	**221**
		J:	232	110	121	125	128	127	129	132	138	147	**1,390**
		K:	53	40	38	36	34	33	32	31	29	28	**355**
		Total:	**588**	**240**	**229**	**161**	**162**	**161**	**161**	**163**	**168**	**175**	**2,206**
	Demand Response	ROS:	201	31	13	0	0	0	0	0	0	0	**246**
		G-I:	108	61	58	0	0	0	0	0	0	0	**227**
		J:	235	114	124	128	131	130	132	134	141	149	**1,417**
		K:	55	41	40	36	34	33	33	32	30	29	**363**
		Total:	**600**	**247**	**235**	**163**	**165**	**163**	**165**	**166**	**171**	**178**	**2,253**

CARIS 2017 ICAP Variant #2 Savings ($2017M)													
Study	**Solution**	**Capacity Zone**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**10-Year Total**
Study 4: Study 3 with Edic-Marcy relaxed	**Transmission**	ROS:	14	7	7	0	0	0	0	0	0	0	**28**
		G-I:	5	3	2	0	0	0	0	0	0	0	**10**
		J:	10	9	9	9	8	8	7	7	7	6	**81**
		K:	4	2	2	2	2	2	1	1	1	1	**18**
		Total:	**33**	**21**	**20**	**10**	**10**	**9**	**9**	**8**	**8**	**8**	**136**
	Generation	ROS:	86	31	13	0	0	0	0	0	0	0	**131**
		G-I:	34	18	17	0	0	0	0	0	0	0	**69**
		J:	73	38	52	59	58	55	53	50	48	45	**532**
		K:	25	12	12	11	11	10	10	9	9	9	**119**
		Total:	**218**	**100**	**94**	**70**	**69**	**66**	**63**	**60**	**57**	**54**	**851**
	Energy Efficiency	ROS:	196	31	13	0	0	0	0	0	0	0	**240**
		G-I:	106	59	56	0	0	0	0	0	0	0	**221**
		J:	232	110	121	125	128	127	129	132	138	147	**1,390**
		K:	53	40	38	36	34	33	32	31	29	28	**355**
		Total:	**588**	**240**	**229**	**161**	**162**	**161**	**161**	**163**	**168**	**175**	**2,206**
	Demand Response	ROS:	201	31	13	0	0	0	0	0	0	0	**246**
		G-I:	108	61	58	0	0	0	0	0	0	0	**227**
		J:	235	114	124	128	131	130	132	134	141	149	**1,417**
		K:	55	41	40	36	34	33	33	32	30	29	**363**
		Total:	**600**	**247**	**235**	**163**	**165**	**163**	**165**	**166**	**171**	**178**	**2,253**
Study 5: Study 3 under System Resource Shift Base Case	**Transmission**	ROS:	23	0	0	0	10	0	0	0	0	0	**33**
		G-I:	6	3	3	3	5	5	4	4	4	4	**41**
		J:	13	6	6	6	11	11	10	10	9	9	**92**
		K:	7	3	3	3	3	0	0	0	0	0	**18**
		Total:	**49**	**12**	**12**	**11**	**29**	**15**	**15**	**14**	**14**	**13**	**185**
	Generation	ROS:	33	0	0	0	16	0	0	0	0	0	**49**
		G-I:	10	5	5	5	8	7	7	7	7	6	**68**
		J:	22	10	10	9	19	18	17	16	15	15	**151**
		K:	9	4	4	4	5	0	0	0	0	0	**27**
		Total:	**74**	**20**	**19**	**18**	**48**	**25**	**24**	**23**	**22**	**21**	**294**
	Energy Efficiency	ROS:	158	0	0	0	25	0	0	0	0	0	**184**
		G-I:	129	48	44	36	97	91	84	81	69	68	**748**
		J:	289	180	172	164	230	216	197	186	152	149	**1,934**
		K:	84	62	32	7	8	0	0	0	0	0	**193**
		Total:	**661**	**291**	**248**	**207**	**360**	**307**	**281**	**267**	**221**	**218**	**3,059**
	Demand Response	ROS:	158	0	0	0	25	0	0	0	0	0	**184**
		G-I:	131	48	44	36	98	92	85	82	71	69	**757**
		J:	293	184	175	167	233	219	199	189	154	152	**1,965**
		K:	86	62	32	7	8	0	0	0	0	0	**195**
		Total:	**668**	**294**	**251**	**210**	**364**	**311**	**285**	**271**	**225**	**221**	**3,100**
Study 6: Study 5 with Edic-Marcy relaxed	**Transmission**	ROS:	23	0	0	0	10	0	0	0	0	0	**33**
		G-I:	6	3	3	3	5	5	4	4	4	4	**41**
		J:	13	6	6	6	11	11	10	10	9	9	**92**
		K:	7	3	3	3	3	0	0	0	0	0	**18**
		Total:	**49**	**12**	**12**	**11**	**29**	**15**	**15**	**14**	**14**	**13**	**185**
	Generation	ROS:	33	0	0	0	16	0	0	0	0	0	**49**
		G-I:	10	5	5	5	8	7	7	7	7	6	**68**
		J:	22	10	10	9	19	18	17	16	15	15	**151**
		K:	9	4	4	4	5	0	0	0	0	0	**27**
		Total:	**74**	**20**	**19**	**18**	**48**	**25**	**24**	**23**	**22**	**21**	**294**
	Energy Efficiency	ROS:	158	0	0	0	25	0	0	0	0	0	**184**
		G-I:	129	48	44	36	97	91	84	81	69	68	**748**
		J:	289	180	172	164	230	216	197	186	152	149	**1,934**
		K:	84	62	32	7	8	0	0	0	0	0	**193**
		Total:	**661**	**291**	**248**	**207**	**360**	**307**	**281**	**267**	**221**	**218**	**3,059**
	Demand Response	ROS:	158	0	0	0	25	0	0	0	0	0	**184**
		G-I:	131	48	44	36	98	92	85	82	71	69	**757**
		J:	293	184	175	167	233	219	199	189	154	152	**1,965**
		K:	86	62	32	7	8	0	0	0	0	0	**195**
		Total:	**668**	**294**	**251**	**210**	**364**	**311**	**285**	**271**	**225**	**221**	**3,100**

CARIS Base Case Metrics Results

When comparing historic CROS values of congestion and other metrics with the projected CARIS values, it is important to note that there are significant differences in assumptions used by these tools. MAPS, unlike CROS, did not simulate the following: (a) virtual bidding; (b) transmission outages; (c) fixed load and price-capped load; (d) production costs based on mitigated bids;(e)

BPCG payments; and (f) co-optimization with ancillary services.

The detailed projected CARIS results for each of the six studies are presented in Figures 28 through 94. Figures 38-41 below presents the summation of the NYCA zonal results for the ten-year study period (except for NYCA-wide production costs) for each of the four base cases developed in 2017 CARIS.

Figure 40: Projected CARIS Base Case Results 2017-2026 (nominal $M)

Case Summary	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
NYCA-Wide Production Cost ($M)	2,845	3,016	3,215	3,484	3,592	3,739	3,924	4,035	4,312	4,512
NYCA Demand Congestion ($M)	636	851	990	999	979	859	674	822	735	762
Load LBMP Payment ($M)	4,975	5,244	5,711	6,137	6,340	6,564	6,921	7,106	7,593	7,841
Generator LBMP Payment ($M)	4,073	4,205	4,455	4,744	4,960	5,165	5,608	5,605	6,163	6,233
Load Payment Losses ($M)	258	253	273	288	296	304	319	327	335	355
SO_2 Costs ($M)	0	0	0	0	0	0	0	0	0	0
SO_2 Emission (Short Tons)	1,679	1,425	1,503	1,501	2,018	1,759	2,480	2,092	3,791	3,675
CO_2 Costs ($M)	98	111	119	134	151	165	181	186	210	220
CO_2 Emission (Short Tons)	30,315	28,455	26,069	25,374	25,254	25,805	26,466	25,325	26,713	26,046
NO_X Costs ($M)	2	2	1	1	0	1	1	1	1	1
NO_X Emission (Short Tons)	14,845	13,903	13,188	12,918	13,072	13,109	13,459	13,010	13,904	13,543
NYCA Avg. LBMP ($/MWh)	29	31	33	36	37	39	41	42	45	47

Figure 41: Projected CARIS Base Case with Edic-Marcy Relaxed Results 2017-2026 (nominal $M)

Case Summary	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
NYCA-Wide Production Cost ($M)	2,844	3,021	3,223	3,486	3,584	3,736	3,926	4,040	4,309	4,513
NYCA Demand Congestion ($M)	647	853	1,034	1,050	1,033	906	726	866	773	811
Load LBMP Payment ($M)	5,032	5,275	5,726	6,179	6,414	6,615	6,985	7,145	7,634	7,890
Generator LBMP Payment ($M)	4,111	4,245	4,477	4,782	4,992	5,189	5,643	5,627	6,189	6,260
Load Payment Losses ($M)	261	254	270	285	294	302	319	327	337	355
SO_2 Costs ($M)	0	0	0	0	0	0	0	0	0	0
SO_2 Emission (Short Tons)	1,652	1,595	1,513	1,527	1,972	1,890	2,839	2,199	3,959	4,007
CO_2 Costs ($M)	99	112	121	136	150	165	182	188	211	221
CO_2 Emission (Short Tons)	30,408	28,760	26,497	25,694	25,244	25,885	26,656	25,484	26,913	26,216
NO_X Costs ($M)	2	2	1	1	1	1	1	1	1	1
NO_X Emission (Short Tons)	14,900	14,069	13,345	13,025	13,164	13,216	13,710	13,169	14,019	13,810
NYCA Avg. LBMP ($/MWh)	30	31	34	36	38	39	42	42	46	47

Figure 42: Projected CARIS System Resource Shift Case Results 2017-2026 (nominal $M)

Case Summary	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
NYCA-Wide Production Cost ($M)	2,817	2,952	3,068	3,399	3,646	3,744	3,761	3,666	3,588	3,542
NYCA Demand Congestion ($M)	633	868	1,131	1,283	1,343	1,386	1,277	1,612	1,629	2,220
Load LBMP Payment ($M)	4,929	5,133	5,462	5,879	6,113	6,236	6,447	6,355	6,521	6,350
Generator LBMP Payment ($M)	4,043	4,137	4,300	4,511	4,644	4,749	5,099	4,901	5,258	4,941
Load Payment Losses ($M)	255	244	255	273	294	299	307	307	297	273
SO_2 Costs ($M)	0	0	0	0	0	0	0	0	0	0
SO_2 Emission (Short Tons)	1,667	1,624	1,524	1,359	1,480	1,365	1,409	1,488	1,353	1,341
CO_2 Costs ($M)	98	109	116	135	160	172	182	182	192	198
CO_2 Emission (Short Tons)	30,036	28,007	25,230	25,563	27,080	27,305	27,105	25,025	24,455	23,260
NO_X Costs ($M)	2	2	1	1	1	1	1	1	0	0
NO_X Emission (Short Tons)	14,746	13,674	12,954	12,602	12,829	12,972	13,010	12,559	12,544	11,947
NYCA Avg. LBMP ($/MWh)	29	30	32	35	37	38	40	39	40	39

Figure 43: Projected CARIS System Resource Shift Case with Edic-Marcy Relaxed Results 2017-2026 (nominal $M)

Case Summary	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
NYCA-Wide Production Cost ($M)	2,816	2,948	3,033	3,353	3,595	3,677	3,696	3,549	3,460	3,323
NYCA Demand Congestion ($M)	650	890	1,185	1,332	1,391	1,451	1,336	1,682	1,659	2,270
Load LBMP Payment ($M)	4,977	5,167	5,514	5,921	6,143	6,270	6,466	6,386	6,530	6,376
Generator LBMP Payment ($M)	4,077	4,174	4,339	4,546	4,662	4,768	5,109	4,916	5,276	4,965
Load Payment Losses ($M)	258	246	252	271	292	294	304	302	295	269
SO_2 Costs ($M)	0	0	0	0	0	0	0	0	0	0
SO_2 Emission (Short Tons)	1,670	1,572	1,418	1,360	1,449	1,365	1,410	1,488	1,355	1,342
CO_2 Costs ($M)	98	110	116	136	160	172	183	183	193	198
CO_2 Emission (Short Tons)	30,216	28,308	25,427	25,771	27,214	27,403	27,227	25,107	24,639	23,359
NO_X Costs ($M)	2	1	1	1	1	1	1	0	0	0
NO_X Emission (Short Tons)	14,854	13,775	13,047	12,718	12,931	13,068	13,062	12,602	12,593	11,978
NYCA Avg. LBMP ($/MWh)	30	31	33	35	37	38	40	39	40	39

Figure 44: Projected Base Case Production Costs (2017-2026) by Zone (nominal $M)

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	12	13	20	32	30	51	39	89	84
Genesee	33	37	35	37	42	41	43	48	48	50
Central	268	244	249	265	293	299	350	324	383	386
North	4	3	3	3	3	3	3	4	5	4
Mohawk Valley	4	4	5	5	5	5	6	6	7	6
Capital	418	407	408	423	452	479	514	505	565	573
Hudson Valley	98	196	244	321	325	344	345	359	378	377
Millwood	118	124	129	132	139	146	155	161	171	181
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	1,050	1,075	1,095	1,142	1,162	1,200	1,226	1,266	1,321	1,365
Long Island	322	319	326	336	338	348	356	372	389	405
NYCA Total	**2,330**	**2,421**	**2,507**	**2,683**	**2,792**	**2,896**	**3,049**	**3,085**	**3,355**	**3,432**
NYCA Imports	754	829	956	1,073	1,063	1,094	1,118	1,213	1,205	1,331
NYCA Exports	239	233	247	272	263	251	243	263	248	251
NYCA + Imports - Exports	**2,845**	**3,016**	**3,215**	**3,484**	**3,592**	**3,739**	**3,924**	**4,035**	**4,312**	**4,512**
Total IESO	1,077	1,098	1,133	1,164	1,239	1,302	1,606	1,429	1,812	1,708
Total PJM	14,954	16,031	17,394	18,323	19,020	19,646	20,348	20,750	22,123	22,662
Total ISONE	2,442	2,626	2,958	3,251	3,343	3,372	3,454	3,577	3,752	3,892
Total System	**20,803**	**22,176**	**23,992**	**25,421**	**26,393**	**27,217**	**28,458**	**28,841**	**31,042**	**31,694**

Figure 45: Projected Base Case with Edic-Marcy Relaxed Production Costs (2017-2026) by Zone (nominal $M)

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	16	14	15	22	32	35	61	45	94	97
Genesee	33	37	35	37	42	41	43	49	48	50
Central	266	247	254	263	288	293	342	323	382	379
North	4	3	3	3	3	3	3	5	5	5
Mohawk Valley	4	5	5	6	5	5	6	7	7	7
Capital	417	419	416	435	442	478	507	512	575	576
Hudson Valley	98	205	257	330	322	338	343	363	372	373
Millwood	118	124	129	132	139	146	155	161	171	181
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	1,054	1,075	1,104	1,148	1,168	1,208	1,235	1,268	1,321	1,371
Long Island	328	323	330	340	343	353	360	375	391	409
NYCA Total	**2,338**	**2,452**	**2,547**	**2,717**	**2,783**	**2,899**	**3,054**	**3,106**	**3,367**	**3,446**
NYCA Imports	755	826	951	1,074	1,081	1,103	1,133	1,222	1,218	1,354
NYCA Exports	250	257	276	305	280	266	261	288	275	287
NYCA + Imports - Exports	**2,844**	**3,021**	**3,223**	**3,486**	**3,584**	**3,736**	**3,926**	**4,040**	**4,309**	**4,513**
Total IESO	1,085	1,101	1,134	1,173	1,261	1,313	1,636	1,457	1,848	1,761
Total PJM	14,955	16,041	17,402	18,299	19,008	19,635	20,325	20,717	22,080	22,607
Total ISONE	2,428	2,595	2,924	3,207	3,317	3,347	3,427	3,541	3,717	3,845
Total System	**20,807**	**22,189**	**24,007**	**25,396**	**26,369**	**27,193**	**28,443**	**28,821**	**31,011**	**31,659**

Figure 46: Projected System Resource Shift Case Production Costs (2017-2026) by Zone (nominal $M)

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	14	13	12	12	13	12	13	14	16	17
Genesee	33	37	35	36	42	40	43	49	48	49
Central	265	241	242	244	271	261	295	280	312	304
North	4	3	3	4	4	4	4	6	6	7
Mohawk Valley	4	4	5	6	6	6	6	8	9	11
Capital	414	397	386	413	490	507	513	481	521	511
Hudson Valley	97	199	245	362	397	438	439	430	427	414
Millwood	118	124	129	87	23	6	7	7	7	7
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	1,044	1,058	1,076	1,168	1,273	1,308	1,339	1,328	1,353	1,381
Long Island	320	313	317	327	335	342	353	349	353	355
NYCA Total	**2,313**	**2,389**	**2,450**	**2,660**	**2,854**	**2,925**	**3,011**	**2,951**	**3,050**	**3,056**
NYCA Imports	747	810	907	1,035	1,071	1,092	1,076	1,097	1,045	1,089
NYCA Exports	242	247	288	296	278	273	326	382	508	603
NYCA + Imports - Exports	**2,817**	**2,952**	**3,068**	**3,399**	**3,646**	**3,744**	**3,761**	**3,666**	**3,588**	**3,542**
Total IESO	1,076	1,093	1,124	1,153	1,219	1,260	1,475	1,361	1,617	1,548
Total PJM	14,949	16,007	17,344	18,226	18,969	19,577	20,262	20,508	21,829	22,213
Total ISONE	2,439	2,616	2,931	3,253	3,375	3,415	3,474	3,564	3,671	3,759
Total System	**20,777**	**22,105**	**23,849**	**25,293**	**26,416**	**27,177**	**28,221**	**28,385**	**30,167**	**30,577**

Figure 47: Projected System Resource Shift Case with Edic-Marcy Relaxed Production Costs (2017-2026) by Zone (nominal $M)

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	16	15	13	13	14	13	13	14	17	17
Genesee	33	37	35	36	42	40	43	49	48	49
Central	265	238	236	243	270	257	291	277	314	304
North	4	3	3	4	4	4	5	6	6	7
Mohawk Valley	4	5	5	6	6	6	6	8	9	10
Capital	416	410	388	424	492	510	519	486	534	518
Hudson Valley	97	206	249	360	404	438	444	423	432	412
Millwood	118	124	129	87	23	6	7	7	7	7
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	1,047	1,062	1,083	1,172	1,274	1,315	1,343	1,332	1,353	1,386
Long Island	325	317	322	331	337	344	354	352	353	356
NYCA Total	**2,326**	**2,417**	**2,464**	**2,677**	**2,867**	**2,933**	**3,026**	**2,955**	**3,073**	**3,066**
NYCA Imports	745	799	875	996	1,029	1,033	1,020	1,000	913	873
NYCA Exports	255	267	306	319	301	289	349	406	526	616
NYCA + Imports - Exports	**2,816**	**2,948**	**3,033**	**3,353**	**3,595**	**3,677**	**3,696**	**3,549**	**3,460**	**3,323**
Total IESO	1,084	1,096	1,124	1,160	1,237	1,269	1,498	1,375	1,626	1,558
Total PJM	14,943	16,016	17,345	18,246	18,956	19,560	20,238	20,502	21,817	22,189
Total ISONE	2,423	2,591	2,906	3,220	3,349	3,393	3,448	3,538	3,644	3,738
Total System	**20,777**	**22,119**	**23,840**	**25,303**	**26,409**	**27,156**	**28,209**	**28,370**	**30,159**	**30,551**

Figure 48: Projected Base Case Load Payments (2017-2026) by Zone (nominal $M)

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	364	349	383	425	460	503	557	554	615	628
Genesee	241	244	262	288	306	327	367	361	405	413
Central	406	413	443	482	509	543	596	598	657	678
North	113	117	125	136	141	150	167	165	183	187
Mohawk Valley	197	203	218	236	244	259	283	285	311	321
Capital	407	442	491	532	556	570	590	616	652	675
Hudson Valley	335	358	390	418	427	438	454	472	498	515
Millwood	93	99	108	115	118	121	126	131	138	143
Dunwoodie	203	216	235	251	256	262	272	282	298	308
NY City	1,817	1,964	2,140	2,272	2,312	2,360	2,433	2,527	2,660	2,755
Long Island	799	838	917	982	1,010	1,032	1,077	1,114	1,176	1,218
NYCA Total	4,975	5,244	5,711	6,137	6,340	6,564	6,921	7,106	7,593	7,841

Figure 49: Projected Base Case with Edic-Marcy Relaxed Load Payments (2017-2026) by Zone (nominal $M)

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	371	356	387	432	469	511	562	561	618	631
Genesee	243	246	261	288	307	327	367	361	404	413
Central	410	417	441	482	512	544	598	598	657	679
North	113	117	124	134	140	149	166	164	182	186
Mohawk Valley	198	204	215	235	244	258	283	284	311	320
Capital	415	447	498	543	570	582	603	625	661	686
Hudson Valley	338	359	391	420	433	441	460	474	501	519
Millwood	94	99	108	116	120	122	127	132	139	145
Dunwoodie	205	217	236	253	259	264	275	284	300	311
NY City	1,835	1,970	2,143	2,285	2,339	2,377	2,458	2,540	2,677	2,774
Long Island	809	843	923	991	1,020	1,039	1,086	1,123	1,183	1,226
NYCA Total	5,032	5,275	5,726	6,179	6,414	6,615	6,985	7,145	7,634	7,890

Figure 50: Projected System Resource Shift Case Load Payments (2017-2026) by Zone (nominal $M)

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	358	332	333	334	350	348	367	320	335	254
Genesee	239	236	236	250	261	263	282	251	264	215
Central	402	400	403	424	442	446	474	431	445	371
North	113	115	117	126	131	135	149	134	142	121
Mohawk Valley	196	198	201	216	222	227	242	221	228	197
Capital	403	432	476	515	537	549	556	558	570	585
Hudson Valley	332	351	378	413	429	440	452	452	461	465
Millwood	92	97	105	115	121	126	129	131	135	137
Dunwoodie	201	213	231	253	266	274	282	287	295	300
NY City	1,801	1,931	2,091	2,270	2,364	2,425	2,488	2,522	2,590	2,634
Long Island	793	826	890	963	989	1,002	1,025	1,048	1,057	1,071
NYCA Total	4,929	5,133	5,462	5,879	6,113	6,236	6,447	6,355	6,521	6,350

Figure 51: Projected System Resource Shift Case with Edic-Marcy Relaxed Load Payments (2017-2026) by Zone (nominal $M)

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	364	338	340	341	355	357	372	325	339	260
Genesee	240	237	236	251	261	263	282	251	264	216
Central	404	402	404	425	441	445	472	429	444	370
North	113	115	116	125	129	132	146	132	140	119
Mohawk Valley	196	197	200	214	220	224	239	218	226	195
Capital	411	439	487	526	547	562	566	570	576	594
Hudson Valley	335	353	382	415	431	442	453	455	461	466
Millwood	93	98	106	116	122	126	130	132	135	137
Dunwoodie	203	214	233	254	267	276	283	288	295	301
NY City	1,817	1,940	2,109	2,283	2,375	2,435	2,495	2,533	2,591	2,642
Long Island	802	833	899	970	994	1,008	1,030	1,054	1,060	1,076
NYCA Total	4,977	5,167	5,514	5,921	6,143	6,270	6,466	6,386	6,530	6,376

Figure 52: Projected Base Case Generator Payments (2017-2026) by Zone (nominal $M)

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	332	334	360	409	455	489	580	554	672	676
Genesee	114	126	126	139	160	159	180	191	199	203
Central	719	677	746	795	865	887	1,053	987	1,156	1,137
North	220	226	240	259	268	285	317	317	350	358
Mohawk Valley	78	83	91	99	103	111	123	125	137	141
Capital	495	481	484	489	520	552	594	583	652	656
Hudson Valley	98	213	266	344	344	365	371	384	406	403
Millwood	564	603	658	706	718	732	759	787	825	849
Dunwoodie	2	2	3	5	6	7	8	9	11	12
NY City	1,099	1,110	1,114	1,123	1,140	1,184	1,215	1,246	1,308	1,339
Long Island	351	349	367	377	382	394	409	422	448	459
NYCA Total	4,073	4,205	4,455	4,744	4,960	5,165	5,608	5,605	6,163	6,233

Figure 53: Projected Base Case with Edic-Marcy Relaxed Generator Payments (2017-2026) by Zone (nominal $M)

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	334	337	357	407	455	492	583	555	670	679
Genesee	115	128	126	139	161	160	180	191	199	203
Central	720	680	742	788	862	879	1,047	982	1,153	1,127
North	220	226	237	256	267	283	316	314	349	356
Mohawk Valley	78	83	90	98	102	109	123	124	136	140
Capital	501	495	494	507	522	559	598	594	668	665
Hudson Valley	99	219	274	352	344	362	371	387	403	402
Millwood	570	605	659	710	727	738	768	790	830	857
Dunwoodie	2	2	3	5	6	7	8	9	11	12
NY City	1,112	1,114	1,124	1,135	1,158	1,200	1,235	1,253	1,316	1,353
Long Island	359	355	372	384	389	400	416	427	452	466
NYCA Total	4,111	4,245	4,477	4,782	4,992	5,189	5,643	5,627	6,189	6,260

Figure 54: Projected System Resource Shift Case Generator Payments (2017-2026) by Zone (nominal $M)

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	330	333	363	408	440	460	539	473	534	431
Genesee	114	124	117	124	142	135	148	143	144	123
Central	713	662	691	718	780	804	920	790	887	765
North	219	222	225	243	253	262	288	263	278	243
Mohawk Valley	78	82	85	92	112	116	142	179	211	217
Capital	489	467	458	516	652	693	712	767	814	796
Hudson Valley	97	213	266	392	448	491	512	481	515	488
Millwood	563	600	653	475	123	23	25	26	27	28
Dunwoodie	2	2	3	5	6	7	9	10	11	11
NY City	1,090	1,087	1,085	1,166	1,298	1,355	1,393	1,350	1,352	1,350
Long Island	348	345	354	372	392	403	412	420	485	489
NYCA Total	4,043	4,137	4,300	4,511	4,644	4,749	5,099	4,901	5,258	4,941

Figure 55: Projected System Resource Shift Case with Edic-Marcy Relaxed Generator Payments (2017-2026) by Zone (nominal $M)

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	331	334	362	411	441	466	541	477	539	438
Genesee	114	124	117	125	142	135	147	143	144	123
Central	713	660	688	712	773	795	908	779	883	759
North	219	222	224	240	250	257	283	258	275	239
Mohawk Valley	78	81	84	91	110	114	140	175	208	214
Capital	497	483	469	535	662	708	726	786	831	814
Hudson Valley	98	218	270	393	454	490	515	476	518	487
Millwood	568	603	659	479	124	23	25	26	27	28
Dunwoodie	2	2	3	5	6	7	9	10	11	11
NY City	1,101	1,096	1,101	1,176	1,304	1,366	1,400	1,360	1,354	1,359
Long Island	356	350	362	379	396	407	415	425	487	493
NYCA Total	4,077	4,174	4,339	4,546	4,662	4,768	5,109	4,916	5,276	4,965

Figure 56: Projected Base Case Generation (2017-2026) by Zone (GWh)

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	14,618	14,775	14,843	15,196	15,456	15,427	15,884	15,638	16,510	16,373
Genesee	4,859	5,312	4,921	4,971	5,389	4,988	5,004	5,433	5,019	5,022
Central	28,943	26,760	27,600	26,888	28,120	27,087	29,004	27,123	29,001	27,670
North	8,673	8,673	8,660	8,672	8,667	8,667	8,673	8,722	8,719	8,716
Mohawk Valley	2,966	3,112	3,219	3,253	3,258	3,274	3,295	3,334	3,338	3,343
Capital	15,672	14,160	12,896	12,118	12,438	12,986	13,566	12,829	13,550	13,167
Hudson Valley	2,835	6,125	7,085	8,594	8,355	8,684	8,505	8,541	8,515	8,260
Millwood	17,086	17,111	17,108	17,193	17,148	17,177	17,182	17,250	17,197	17,227
Dunwoodie	46	63	82	106	131	155	175	194	209	221
NY City	32,433	30,423	27,774	26,235	25,850	26,248	26,126	25,705	25,681	25,398
Long Island	9,593	8,916	8,511	8,129	8,006	8,101	8,181	8,021	8,122	8,036
NYCA Total	**137,724**	**135,431**	**132,700**	**131,354**	**132,818**	**132,795**	**135,595**	**132,790**	**135,860**	**133,432**
Total IESO	157,527	156,513	156,728	154,380	150,183	150,470	139,820	146,953	136,671	140,585
Total PJM	808,760	818,414	821,716	822,773	821,252	820,872	828,993	830,989	837,122	839,663
Total ISONE	111,571	110,937	110,326	108,666	107,754	107,020	106,495	105,387	105,673	104,976
Total HQ *	22,421	22,390	22,397	22,481	22,430	22,423	22,421	22,460	22,411	22,432
Total System	**1,238,003**	**1,243,686**	**1,243,868**	**1,239,653**	**1,234,436**	**1,233,580**	**1,233,324**	**1,238,579**	**1,237,737**	**1,241,088**

Figure 57: Projected Base Case with Edic-Marcy Relaxed Generation (2017-2026) by Zone (GWh)

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	14,582	14,716	14,759	15,139	15,365	15,426	15,932	15,607	16,499	16,449
Genesee	4,863	5,317	4,926	4,974	5,388	4,986	5,001	5,437	5,018	5,021
Central	28,894	26,757	27,683	26,832	28,052	26,946	28,837	27,113	29,021	27,536
North	8,674	8,685	8,668	8,676	8,661	8,664	8,675	8,730	8,720	8,718
Mohawk Valley	2,965	3,125	3,229	3,260	3,247	3,273	3,295	3,341	3,338	3,343
Capital	15,644	14,449	13,090	12,401	12,321	12,997	13,547	12,950	13,785	13,239
Hudson Valley	2,843	6,260	7,260	8,723	8,311	8,572	8,447	8,547	8,436	8,141
Millwood	17,086	17,111	17,108	17,193	17,148	17,177	17,182	17,250	17,197	17,227
Dunwoodie	46	63	82	106	131	155	175	194	209	221
NY City	32,525	30,440	27,985	26,407	25,982	26,407	26,293	25,759	25,711	25,499
Long Island	9,708	9,005	8,582	8,200	8,076	8,177	8,233	8,069	8,161	8,095
NYCA Total	**137,830**	**135,929**	**133,373**	**131,909**	**132,681**	**132,780**	**135,617**	**132,995**	**136,096**	**133,489**
Total IESO	157,770	156,614	156,752	154,555	150,591	150,690	140,382	147,401	137,216	141,348
Total PJM	809,196	818,910	822,002	823,305	821,770	821,442	829,135	831,258	837,271	839,816
Total ISONE	111,249	110,241	109,600	107,758	107,228	106,570	106,042	104,798	105,047	104,262
Total HQ *	22,421	22,390	22,397	22,481	22,430	22,423	22,421	22,460	22,411	22,432
Total System	**1,238,465**	**1,244,083**	**1,244,124**	**1,240,009**	**1,234,699**	**1,233,906**	**1,233,598**	**1,238,912**	**1,238,041**	**1,241,347**

Figure 58: Projected System Resource Shift Case Generation (2017-2026) by Zone (GWh)

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	14,604	15,078	16,578	17,843	18,076	18,976	20,424	20,364	21,806	22,195
Genesee	4,860	5,308	4,913	4,955	5,364	4,950	4,987	5,384	4,983	5,188
Central	28,822	26,564	27,271	26,234	27,437	27,275	28,770	27,008	29,023	29,758
North	8,671	8,673	8,669	8,678	8,676	8,675	8,682	8,740	8,725	8,887
Mohawk Valley	2,965	3,112	3,224	3,261	3,842	3,852	4,326	6,188	7,068	8,617
Capital	15,507	13,829	12,148	12,682	15,441	15,914	16,164	17,244	17,923	16,945
Hudson Valley	2,810	6,140	7,127	9,653	10,656	11,239	11,317	10,465	10,826	10,178
Millwood	17,086	17,111	17,108	11,210	2,606	508	524	538	549	558
Dunwoodie	46	63	82	106	131	155	175	194	209	221
NY City	32,263	29,945	27,325	26,932	28,322	28,550	28,492	27,088	26,283	25,618
Long Island	9,532	8,891	8,316	8,059	8,156	8,195	8,132	8,147	9,281	9,094
NYCA Total	**137,165**	**134,714**	**132,763**	**129,613**	**128,708**	**128,289**	**131,991**	**131,360**	**136,675**	**137,259**
Total IESO	157,498	156,365	156,380	154,099	149,675	150,302	138,822	147,209	134,717	139,426
Total PJM	808,635	817,795	820,184	821,334	820,796	819,456	827,145	825,568	831,806	830,467
Total ISONE	111,497	110,642	109,662	108,673	108,420	107,825	106,785	104,978	103,891	102,391
Total HQ *	22,421	22,390	22,397	22,481	22,430	22,423	22,421	22,460	22,411	22,432
Total System	**1,237,217**	**1,241,906**	**1,241,386**	**1,236,201**	**1,230,028**	**1,228,294**	**1,227,163**	**1,231,575**	**1,229,501**	**1,231,975**

Figure 59: Projected System Resource Shift Case with Edic-Marcy Relaxed Generation (2017-2026) by Zone (GWh)

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	14,573	15,009	16,465	17,793	18,034	18,942	20,366	20,343	21,824	22,245
Genesee	4,862	5,311	4,915	4,956	5,364	4,951	4,989	5,383	4,986	5,192
Central	28,844	26,499	27,157	26,209	27,434	27,192	28,692	26,938	29,061	29,725
North	8,676	8,679	8,668	8,681	8,683	8,676	8,688	8,737	8,729	8,890
Mohawk Valley	2,966	3,120	3,224	3,260	3,848	3,855	4,328	6,185	7,072	8,615
Capital	15,584	14,160	12,299	12,891	15,470	15,959	16,289	17,403	18,193	17,102
Hudson Valley	2,819	6,235	7,185	9,634	10,712	11,182	11,369	10,342	10,913	10,134
Millwood	17,086	17,111	17,108	11,210	2,606	508	524	538	549	558
Dunwoodie	46	63	82	106	131	155	175	194	209	221
NY City	32,338	30,066	27,522	27,068	28,382	28,689	28,581	27,204	26,282	25,698
Long Island	9,645	8,955	8,403	8,146	8,211	8,229	8,157	8,196	9,290	9,118
NYCA Total	**137,438**	**135,208**	**133,029**	**129,952**	**128,875**	**128,338**	**132,159**	**131,463**	**137,109**	**137,498**
Total IESO	157,737	156,456	156,401	154,257	150,033	150,527	139,240	147,433	134,877	139,588
Total PJM	808,890	818,132	820,681	821,876	821,018	819,942	827,224	825,859	831,911	830,403
Total ISONE	111,093	110,059	109,102	108,014	107,918	107,424	106,308	104,545	103,458	102,081
Total HQ *	22,421	22,390	22,397	22,481	22,428	22,423	22,421	22,460	22,411	22,432
Total System	**1,237,580**	**1,242,245**	**1,241,611**	**1,236,581**	**1,230,272**	**1,228,654**	**1,227,352**	**1,231,760**	**1,229,766**	**1,232,000**

Figure 60: Projected Base Case Loss Payments (2017-2026) by Zone (nominal $M)

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	5	4	3	0	4	5	13	6	16	10
Genesee	2	2	2	2	3	4	8	4	9	7
Central	10	10	10	10	11	12	13	12	14	14
North	-4	-4	-5	-5	-5	-5	-4	-5	-4	-5
Mohawk Valley	6	6	6	7	7	7	8	8	8	9
Capital	21	22	26	28	29	29	30	32	33	36
Hudson Valley	20	19	20	22	22	22	22	24	23	25
Millwood	6	6	6	6	6	7	7	7	7	7
Dunwoodie	13	12	13	14	14	15	14	16	15	16
NY City	127	125	136	145	146	149	148	158	152	167
Long Island	52	51	55	58	59	60	61	65	63	69
NYCA Total	258	253	273	288	296	304	319	327	335	355

Figure 61: Projected Base Case with Edic-Marcy Relaxed Loss Payments (2017-2026) by Zone (nominal $M)

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	4	3	2	-1	2	3	10	3	13	6
Genesee	2	2	2	1	2	3	6	3	8	6
Central	10	10	10	10	10	11	12	12	13	13
North	-4	-4	-5	-5	-5	-5	-4	-5	-4	-5
Mohawk Valley	6	6	6	7	7	7	8	8	8	9
Capital	21	23	25	28	29	30	31	33	33	36
Hudson Valley	20	19	20	22	22	23	22	24	23	25
Millwood	6	6	6	6	7	7	7	7	7	8
Dunwoodie	13	13	13	14	14	15	15	16	15	17
NY City	129	126	135	145	147	149	150	160	155	170
Long Island	53	52	55	58	60	60	61	66	64	70
NYCA Total	261	254	270	285	294	302	319	327	337	355

Figure 62: Projected System Resource Shift Case Loss Payments (2017-2026) by Zone (nominal $M)

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	5	3	1	-4	-1	-3	0	-4	2	-3
Genesee	2	2	0	-1	-1	-2	0	-2	2	-1
Central	10	10	8	8	8	7	7	6	5	2
North	-4	-4	-4	-5	-5	-5	-4	-4	-3	-4
Mohawk Valley	6	6	5	6	5	5	5	2	1	0
Capital	20	22	24	24	23	23	23	19	17	17
Hudson Valley	20	18	19	22	24	25	25	26	24	23
Millwood	6	5	6	7	7	7	8	8	8	7
Dunwoodie	13	12	13	15	16	17	17	18	17	16
NY City	126	122	131	146	156	163	164	174	165	158
Long Island	52	50	52	57	60	62	63	66	60	57
NYCA Total	255	244	255	273	294	299	307	307	297	273

Figure 63: Projected System Resource Shift Case with Edic-Marcy Relaxed Loss Payments (2017-2026) by Zone (nominal $M)

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	4	2	1	-5	-2	-4	-1	-5	1	-3
Genesee	2	2	0	-2	-1	-2	0	-2	1	-1
Central	10	10	8	8	8	7	7	6	5	2
North	-4	-4	-4	-5	-5	-5	-4	-4	-3	-4
Mohawk Valley	6	6	5	6	5	5	5	2	1	0
Capital	21	22	24	24	23	22	23	18	17	17
Hudson Valley	20	19	19	22	24	24	24	26	24	23
Millwood	6	6	6	6	7	7	8	8	7	7
Dunwoodie	13	12	13	14	16	17	17	18	17	16
NY City	128	123	130	145	156	161	163	172	164	156
Long Island	53	50	51	56	60	61	63	65	60	57
NYCA Total	258	246	252	271	292	294	304	302	295	269

Figure 64: Projected Base Case SO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 65: Projected Base Case with Edic-Marcy Relaxed SO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 66: Projected System Resource Shift Case SO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 67: Projected System Resource Shift Case with Edic-Marcy Relaxed SO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Figure 68: Projected Base Case SO_2 Emissions (2017-2026) by Zone (Tons)

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	154	86	87	222	679	473	1,207	817	2,520	2,407
Genesee	0	0	0	0	0	0	0	0	0	0
Central	379	184	270	136	200	145	132	133	132	132
North	0	0	0	0	0	0	0	0	0	0
Mohawk Valley	17	17	17	17	17	17	17	17	17	17
Capital	346	343	341	339	340	340	341	341	342	340
Hudson Valley	9	28	33	36	35	36	35	35	35	35
Millwood	325	325	325	326	325	325	325	326	325	325
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	84	79	71	66	65	65	65	64	63	62
Long Island	365	361	359	359	358	358	358	359	358	358
NYCA Total	1,679	1,425	1,503	1,501	2,018	1,759	2,480	2,092	3,791	3,675

Figure 69: Projected Base Case with Edic-Marcy Relaxed SO_2 Emissions (2017-2026) by Zone (Tons)

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	148	86	87	247	627	604	1,558	926	2,687	2,694
Genesee	0	0	0	0	0	0	0	0	0	0
Central	357	353	278	136	205	145	140	131	132	177
North	0	0	0	0	0	0	0	0	0	0
Mohawk Valley	17	17	17	17	17	17	17	17	17	17
Capital	346	344	341	340	340	340	341	342	342	340
Hudson Valley	9	29	34	36	35	36	35	35	35	34
Millwood	325	325	325	326	325	325	325	326	325	325
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	85	79	72	66	65	66	65	64	63	63
Long Island	366	361	359	359	358	358	358	359	358	358
NYCA Total	1,652	1,595	1,513	1,527	1,972	1,890	2,839	2,199	3,959	4,007

Figure 70: Projected System Resource Shift Case SO_2 Emissions (2017-2026) by Zone (Tons)

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	145	142	85	84	84	84	87	86	86	84
Genesee	0	0	0	0	0	0	0	0	0	0
Central	376	331	296	129	246	129	171	258	128	127
North	0	0	0	0	0	0	0	0	0	0
Mohawk Valley	17	17	17	17	17	17	17	17	17	16
Capital	346	343	339	339	341	341	341	338	339	335
Hudson Valley	8	28	33	38	39	40	40	38	37	35
Millwood	325	325	325	325	325	325	325	326	325	324
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	84	77	69	68	71	71	71	67	65	63
Long Island	366	361	359	359	358	358	358	358	356	355
NYCA Total	1,667	1,624	1,524	1,359	1,480	1,365	1,409	1,488	1,353	1,341

Figure 71: Projected System Resource Shift Case with Edic-Marcy Relaxed SO_2 Emissions (2017-2026) by Zone (Tons)

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	148	145	85	84	84	84	87	86	87	85
Genesee	0	0	0	0	0	0	0	0	0	0
Central	374	274	189	129	214	128	171	258	128	127
North	0	0	0	0	0	0	0	0	0	0
Mohawk Valley	17	17	17	17	17	17	17	17	17	16
Capital	347	343	339	339	341	341	341	339	340	335
Hudson Valley	9	29	33	38	39	40	40	38	37	35
Millwood	325	325	325	325	325	325	325	326	325	324
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	84	78	70	68	72	72	71	67	65	63
Long Island	366	361	359	359	358	358	358	358	356	356
NYCA Total	1,670	1,572	1,418	1,360	1,449	1,365	1,410	1,488	1,355	1,342

Figure 72: Projected Base Case CO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.6	0.5	0.5	1.1	2.5	2.3	5.2	3.8	11.0	10.9
Genesee	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Central	5.9	5.1	4.6	6.3	7.4	8.3	10.5	9.0	11.9	12.6
North	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Mohawk Valley	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2
Capital	21.4	22.8	23.9	25.4	29.5	32.9	37.1	37.3	42.3	43.9
Hudson Valley	5.3	11.1	14.6	19.9	21.6	24.1	24.8	26.8	28.4	29.3
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	49.0	54.0	57.1	62.1	68.8	74.6	78.8	83.5	88.1	93.4
Long Island	16.0	16.9	18.0	19.0	20.8	22.5	24.2	25.3	27.3	28.9
NYCA Total	98.4	110.6	118.9	134.3	151.0	165.1	181.2	186.3	209.7	219.7

Figure 73: Projected Base Case with Edic-Marcy Relaxed CO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.7	0.6	0.6	1.3	2.6	2.9	6.5	4.3	11.9	12.6
Genesee	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Central	5.8	5.1	4.9	6.2	7.2	7.8	10.0	9.0	11.9	12.1
North	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3
Mohawk Valley	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.2
Capital	21.3	23.3	24.4	26.1	29.1	33.0	36.9	37.7	43.0	44.1
Hudson Valley	5.3	11.5	15.1	20.4	21.4	23.6	24.7	26.9	28.1	28.8
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	48.9	53.9	57.5	62.4	68.8	74.8	79.1	83.6	88.0	93.6
Long Island	16.2	17.1	18.2	19.3	21.1	22.8	24.4	25.5	27.5	29.1
NYCA Total	98.6	111.9	121.0	136.1	150.5	165.4	182.1	187.6	211.2	220.9

Figure 74: Projected System Resource Shift Case CO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.6	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.9	1.0
Genesee	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Central	5.7	4.8	4.2	4.9	5.7	5.4	6.2	5.5	6.3	6.4
North	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.6
Mohawk Valley	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.4	0.5
Capital	21.2	22.3	22.2	24.4	31.3	33.8	36.2	33.8	37.7	37.2
Hudson Valley	5.2	11.2	14.6	22.3	26.4	29.9	31.0	31.0	31.4	31.5
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	48.8	53.1	56.5	63.5	74.4	79.0	83.8	86.4	90.0	95.2
Long Island	15.9	16.8	17.4	18.8	20.8	22.3	23.5	24.1	24.5	25.1
NYCA Total	97.6	109.0	115.7	134.9	159.7	171.6	181.9	182.4	191.7	197.7

Figure 75: Projected System Resource Shift Case with Edic-Marcy Relaxed CO_2 Emissions Costs (2017-2026) by Zone (nominal $M)

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.7	0.7	0.5	0.6	0.6	0.6	0.6	0.7	0.9	1.0
Genesee	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
Central	5.7	4.7	3.9	4.9	5.7	5.2	6.0	5.3	6.5	6.5
North	0.2	0.2	0.2	0.2	0.3	0.2	0.3	0.4	0.4	0.6
Mohawk Valley	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.4	0.4	0.5
Capital	21.3	22.9	22.5	25.0	31.4	34.0	36.6	34.3	38.6	37.7
Hudson Valley	5.2	11.5	14.7	22.3	26.6	29.9	31.2	30.5	31.8	31.2
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	48.7	53.3	56.5	63.5	74.5	79.3	83.9	86.6	90.0	95.4
Long Island	16.1	16.9	17.7	19.0	21.0	22.4	23.6	24.3	24.5	25.2
NYCA Total	98.1	110.3	116.2	135.7	160.4	171.8	182.6	182.7	193.4	198.3

Figure 76: Projected Base Case CO_2 Emissions (2017-2026) by Zone (1000 Tons)

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	155	98	90	184	376	311	682	466	1,282	1,196
Genesee	13	8	8	12	13	14	14	10	14	13
Central	1,614	1,141	871	1,036	1,082	1,145	1,380	1,089	1,364	1,339
North	46	29	23	25	26	23	23	29	31	29
Mohawk Valley	19	15	15	17	18	17	18	20	21	19
Capital	5,959	5,267	4,700	4,360	4,485	4,681	4,944	4,610	4,939	4,753
Hudson Valley	1,468	2,589	2,883	3,427	3,275	3,419	3,305	3,319	3,296	3,172
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	16,537	15,360	13,866	12,970	12,734	12,917	12,796	12,561	12,515	12,327
Long Island	4,504	3,948	3,612	3,343	3,246	3,278	3,305	3,222	3,251	3,199
NYCA Total	30,315	28,455	26,069	25,374	25,254	25,805	26,466	25,325	26,713	26,046

Figure 77: Projected Base Case with Edic-Marcy Relaxed CO_2 Emissions (2017-2026) by Zone (1000 Tons)

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	174	120	110	206	375	393	858	521	1,393	1,369
Genesee	14	10	10	13	12	13	13	12	14	13
Central	1,587	1,152	924	1,018	1,059	1,085	1,316	1,079	1,372	1,289
North	47	35	27	27	22	21	24	32	31	29
Mohawk Valley	19	20	21	22	13	16	18	24	21	19
Capital	5,945	5,390	4,789	4,473	4,414	4,682	4,920	4,658	5,015	4,778
Hudson Valley	1,471	2,671	2,988	3,507	3,262	3,366	3,293	3,327	3,268	3,121
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	16,584	15,362	13,980	13,048	12,805	12,991	12,882	12,589	12,528	12,369
Long Island	4,567	3,999	3,647	3,380	3,282	3,318	3,332	3,243	3,271	3,230
NYCA Total	30,408	28,760	26,497	25,694	25,244	25,885	26,656	25,484	26,913	26,216

Figure 78: Projected System Resource Shift Case CO_2 Emissions (2017-2026) by Zone (1000 Tons)

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	145	120	82	73	78	70	66	71	83	84
Genesee	13	7	10	11	12	10	11	15	16	17
Central	1,559	1,072	770	787	821	718	768	599	628	560
North	45	29	29	29	31	29	29	40	37	46
Mohawk Valley	19	14	19	24	22	17	21	34	37	44
Capital	5,893	5,137	4,349	4,171	4,783	4,835	4,844	4,144	4,318	3,896
Hudson Valley	1,452	2,609	2,859	3,834	4,049	4,295	4,146	3,819	3,599	3,332
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	16,442	15,099	13,616	13,340	14,041	14,088	14,021	13,247	12,834	12,500
Long Island	4,468	3,919	3,496	3,295	3,243	3,244	3,199	3,055	2,904	2,781
NYCA Total	30,036	28,007	25,230	25,563	27,080	27,305	27,105	25,025	24,455	23,260

Figure 79: Projected System Resource Shift Case with Edic-Marcy Relaxed CO_2 Emissions (2017-2026) by Zone (1000 Tons)

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	168	141	92	83	88	77	69	73	91	86
Genesee	14	9	10	12	13	9	12	15	16	17
Central	1,568	1,046	718	781	823	692	737	583	653	569
North	48	32	29	30	35	29	32	39	39	47
Mohawk Valley	20	19	19	25	25	20	22	34	39	43
Capital	5,925	5,276	4,401	4,252	4,796	4,858	4,893	4,200	4,426	3,955
Hudson Valley	1,457	2,667	2,901	3,830	4,084	4,292	4,185	3,770	3,636	3,307
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	16,484	15,166	13,718	13,416	14,079	14,165	14,065	13,313	12,831	12,542
Long Island	4,532	3,953	3,539	3,340	3,271	3,260	3,212	3,081	2,909	2,793
NYCA Total	30,216	28,308	25,427	25,771	27,214	27,403	27,227	25,107	24,639	23,359

Figure 80: Projected Base Case NO_X Emissions Costs (2017-2026) by Zone (nominal $M)

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	1.2	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Long Island	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NYCA Total	2.4	1.5	0.8	0.5	0.5	0.5	0.6	0.5	0.6	0.5

Figure 81: Projected Base Case with Edic-Marcy Relaxed NO_X Emissions Costs (2017-2026) by Zone (nominal $M)

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.3	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	1.2	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Long Island	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NYCA Total	2.4	1.5	0.9	0.5	0.5	0.5	0.6	0.5	0.6	0.5

Figure 82: Projected System Resource Shift Case NO_X Emissions Costs (2017-2026) by Zone (nominal $M)

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	1.2	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Long Island	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NYCA Total	2.3	1.5	0.8	0.5	0.5	0.5	0.5	0.5	0.5	0.4

Figure 83: Projected System Resource Shift Case with Edic-Marcy Relaxed NO_X Emissions Costs (2017-2026) by Zone (nominal $M)

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	1.2	0.8	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Long Island	0.6	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NYCA Total	2.3	1.5	0.8	0.6	0.5	0.6	0.5	0.5	0.5	0.4

Figure 84: Projected Base Case NO_X Emissions (2017-2026) by Zone (Tons)

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1,246	1,190	1,179	1,339	1,520	1,516	1,803	1,576	2,259	2,111
Genesee	231	224	224	237	238	247	256	253	257	255
Central	1,943	1,783	1,758	1,767	1,821	1,818	1,837	1,814	1,836	1,831
North	91	87	83	83	82	84	84	84	86	84
Mohawk Valley	117	113	111	113	113	113	116	116	117	116
Capital	989	939	904	881	896	902	922	906	918	911
Hudson Valley	643	663	569	521	455	494	459	462	494	438
Millwood	1,269	1,268	1,269	1,272	1,268	1,269	1,268	1,273	1,269	1,269
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	4,045	3,604	3,195	2,877	2,912	2,858	2,890	2,725	2,866	2,744
Long Island	4,271	4,033	3,895	3,827	3,767	3,809	3,824	3,801	3,802	3,784
NYCA Total	14,845	13,903	13,188	12,918	13,072	13,109	13,459	13,010	13,904	13,543

Figure 85: Projected Base Case with Edic-Marcy Relaxed NO_X Emissions (2017-2026) by Zone (Tons)

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1,267	1,221	1,210	1,360	1,519	1,583	1,978	1,673	2,343	2,310
Genesee	233	228	226	239	238	246	255	254	257	255
Central	1,934	1,794	1,783	1,763	1,823	1,807	1,846	1,799	1,837	1,839
North	91	88	85	86	82	84	86	88	88	87
Mohawk Valley	117	115	113	115	111	113	115	117	116	116
Capital	988	952	915	894	887	903	917	913	926	911
Hudson Valley	638	697	608	546	477	493	477	475	492	443
Millwood	1,269	1,268	1,269	1,272	1,268	1,269	1,268	1,273	1,269	1,269
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	4,065	3,646	3,208	2,883	2,941	2,876	2,919	2,747	2,869	2,760
Long Island	4,297	4,059	3,928	3,869	3,817	3,842	3,848	3,829	3,823	3,819
NYCA Total	14,900	14,069	13,345	13,025	13,164	13,216	13,710	13,169	14,019	13,810

Figure 86: Projected System Resource Shift Case NO_X Emissions (2017-2026) by Zone (Tons)

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1,231	1,196	1,111	1,103	1,121	1,108	1,147	1,084	1,115	1,026
Genesee	232	220	201	211	211	213	231	199	208	157
Central	1,931	1,783	1,713	1,677	1,684	1,672	1,734	1,653	1,641	1,464
North	91	86	83	82	82	82	85	84	84	73
Mohawk Valley	116	112	112	110	109	110	115	112	116	109
Capital	985	931	891	881	923	912	911	893	903	888
Hudson Valley	633	666	564	628	633	672	601	628	560	495
Millwood	1,269	1,268	1,269	1,271	1,268	1,268	1,268	1,273	1,269	1,268
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	3,999	3,389	3,134	2,842	3,000	3,138	3,127	2,879	2,926	2,793
Long Island	4,258	4,023	3,876	3,796	3,798	3,797	3,791	3,753	3,723	3,674
NYCA Total	14,746	13,674	12,954	12,602	12,829	12,972	13,010	12,559	12,544	11,947

Figure 87: Projected System Resource Shift Case with Edic-Marcy Relaxed NO_X Emissions (2017-2026) by Zone (Tons)

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1,253	1,230	1,137	1,127	1,138	1,127	1,157	1,096	1,138	1,043
Genesee	233	222	204	212	210	214	232	199	209	158
Central	1,932	1,787	1,695	1,675	1,678	1,662	1,731	1,646	1,643	1,461
North	92	87	84	84	83	82	86	84	84	73
Mohawk Valley	117	114	112	110	110	109	114	111	116	108
Capital	989	945	892	888	922	914	918	898	912	891
Hudson Valley	633	682	597	633	651	682	621	625	556	484
Millwood	1,269	1,268	1,269	1,271	1,268	1,268	1,268	1,273	1,269	1,268
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	4,052	3,412	3,151	2,874	3,031	3,181	3,129	2,888	2,928	2,799
Long Island	4,285	4,027	3,908	3,845	3,839	3,827	3,805	3,781	3,737	3,692
NYCA Total	14,854	13,775	13,047	12,718	12,931	13,068	13,062	12,602	12,593	11,978

Figure 88: Projected Congestion Rents (2017-2026) (nominal $M)

Congestion Rent ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Base Case	277	335	424	454	446	420	313	406	341	381
Base Case with Edic-Marcy Relaxed	297	343	451	484	482	447	335	433	361	408
System Resource Shift Case	272	336	460	540	593	602	542	713	732	1,018
System Resource Shift Case with Edic-Marcy Relaxed	294	351	487	564	617	624	564	742	745	1,036

Figure 89: Projected Base Case LBMP (2017-2026) by Zone ($/MWh)

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	22.98	22.13	24.16	26.92	29.27	32.10	35.72	35.32	39.39	40.18
Genesee	24.31	24.62	26.38	29.03	30.94	33.10	37.34	36.58	41.22	42.02
Central	25.07	25.50	27.24	29.63	31.33	33.48	36.91	36.86	40.65	41.88
North	25.56	26.32	28.04	30.31	31.40	33.29	37.00	36.72	40.65	41.59
Mohawk Valley	27.31	28.13	30.07	32.49	33.69	35.60	38.90	39.04	42.68	43.92
Capital	31.15	33.41	36.79	39.60	41.19	42.03	43.37	44.98	47.58	49.10
Hudson Valley	32.74	34.90	38.02	40.64	41.56	42.47	43.99	45.51	48.01	49.51
Millwood	32.92	35.15	38.32	40.97	41.89	42.78	44.27	45.84	48.30	49.83
Dunwoodie	33.08	35.36	38.55	41.21	42.10	42.98	44.47	46.05	48.50	50.03
NY City	33.34	35.95	39.29	42.00	43.13	44.14	45.58	47.25	49.77	51.41
Long Island	34.93	37.14	40.93	44.09	45.36	46.33	48.12	49.58	52.32	54.08
Average	29.40	30.78	33.43	36.08	37.44	38.94	41.43	42.16	45.37	46.69

Figure 90: Projected Base Case with Edic-Marcy Relaxed LBMP (2017-2026) by Zone ($/MWh)

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	23.43	22.60	24.53	27.44	29.87	32.62	36.04	35.79	39.66	40.41
Genesee	24.49	24.88	26.35	29.06	31.08	33.23	37.43	36.64	41.26	42.05
Central	25.29	25.75	27.18	29.69	31.52	33.60	37.04	36.92	40.73	41.95
North	25.63	26.38	27.71	30.04	31.28	33.10	36.87	36.42	40.51	41.38
Mohawk Valley	27.41	28.24	29.84	32.35	33.72	35.55	38.93	38.90	42.66	43.88
Capital	31.78	33.80	37.31	40.37	42.18	42.92	44.25	45.69	48.23	49.94
Hudson Valley	33.10	35.06	38.14	40.93	42.11	42.88	44.52	45.77	48.37	49.97
Millwood	33.29	35.32	38.44	41.26	42.44	43.19	44.81	46.11	48.67	50.30
Dunwoodie	33.43	35.51	38.65	41.47	42.63	43.38	45.00	46.31	48.86	50.48
NY City	33.67	36.10	39.38	42.26	43.62	44.50	46.05	47.52	50.12	51.85
Long Island	35.34	37.42	41.21	44.49	45.81	46.69	48.55	49.98	52.68	54.53
Average	29.71	31.00	33.52	36.31	37.84	39.24	41.77	42.37	45.62	46.98

Figure 91: Projected System Resource Shift Case LBMP (2017-2026) by Zone ($/MWh)

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	22.74	21.38	21.38	21.70	23.01	23.20	25.02	21.77	23.42	18.18
Genesee	24.17	24.10	24.19	25.85	27.21	27.75	30.50	27.25	29.28	24.45
Central	24.94	24.99	25.23	26.70	27.97	28.61	30.81	28.10	29.50	24.95
North	25.48	25.94	26.37	28.40	29.52	30.48	33.56	30.49	32.35	27.72
Mohawk Valley	27.21	27.70	28.37	30.50	31.58	32.53	35.03	32.13	33.51	29.38
Capital	31.05	33.16	36.57	39.73	41.65	42.74	43.45	44.07	45.34	47.17
Hudson Valley	32.65	34.68	37.68	41.33	43.34	44.72	46.19	46.63	47.97	48.84
Millwood	32.84	34.94	38.00	41.74	43.96	45.45	46.84	47.55	48.95	49.94
Dunwoodie	33.00	35.16	38.24	42.01	44.24	45.75	47.18	47.89	49.30	50.30
NY City	33.24	35.69	38.90	42.63	44.91	46.38	47.82	48.64	50.07	51.10
Long Island	34.84	37.08	40.56	44.59	46.22	47.28	48.55	49.81	50.65	51.91
Average	29.29	30.44	32.32	35.02	36.69	37.72	39.54	38.58	40.03	38.54

Figure 92: Projected System Resource Shift Case with Edic-Marcy Relaxed LBMP (2017-2026) by Zone ($/MWh)

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	23.12	21.77	21.91	22.19	23.34	23.75	25.36	22.12	23.68	18.51
Genesee	24.29	24.26	24.33	25.94	27.22	27.81	30.44	27.22	29.28	24.47
Central	25.07	25.14	25.38	26.77	27.97	28.59	30.70	28.00	29.44	24.91
North	25.47	25.86	26.20	28.09	29.17	29.90	32.92	29.90	31.95	27.27
Mohawk Valley	27.24	27.70	28.32	30.33	31.38	32.17	34.61	31.77	33.24	29.09
Capital	31.63	33.66	37.37	40.52	42.39	43.73	44.27	44.98	45.79	47.89
Hudson Valley	32.97	34.90	38.04	41.62	43.59	44.96	46.34	46.89	48.00	49.01
Millwood	33.16	35.16	38.37	42.03	44.23	45.71	47.00	47.80	49.00	50.15
Dunwoodie	33.31	35.36	38.58	42.28	44.48	45.99	47.31	48.12	49.33	50.48
NY City	33.55	35.89	39.22	42.89	45.15	46.60	47.95	48.86	50.11	51.27
Long Island	35.22	37.43	40.94	44.93	46.50	47.59	48.79	50.09	50.76	52.13
Average	29.55	30.65	32.61	35.24	36.86	37.89	39.61	38.70	40.05	38.65

Selection of Studies

The process for selecting the three CARIS studies occurs in two steps, as described below.

In Step 1, the top five congested elements for the fifteen-year period (both historic (5 years) and projected (10 years)) are ranked in descending order based on the calculated present value of demand congestion for further assessment. (The discount rate to be used for the present value analysis shall be the current weighted average cost of capital for the NY Transmission Owners, which was 6.99% for 2017 CARIS cycle.) The top congested elements are then iteratively relieved independently by relaxing their limits. This is to determine if any of the congested elements need to be grouped with other elements, depending on whether new electrically adjacent elements appear as limiting with significant congestion when a primary element is relieved.

In Step 2, the assessed element groupings are then ranked based upon the highest change in production cost as shown with the top 3 groupings selected to be studied.

Note that the procedure provides that if future system changes (*e.g.*, generation, transmission,

energy efficiency or demand side additions) produce a significant declining trend in congestion over an identified congested element in later years of the study period, such element shall be excluded from the rankings. Elements with significant increasing trend in congestion could also be evaluated in addition to the top 5 elements. As a result, the Western 230 kV system was included in the relaxation and grouping process.

The study selection procedures provide the NYISO with flexibility for grouping, assessing and recommending the three studies provided that the grouping process for each CARIS is reviewed with ESPWG. It is expected that the three groupings/elements with the most production cost savings will be selected as the three studies. The production cost savings based on modifying an existing element's limit will be different than that achieved when applying a transmission solution since an impedance value for a line is not being introduced.

Figure 95 shows the demand congestion for the base case and the relaxation cases over the 10-year study period.

Figure 93: Base Case and Relaxation Case Demand Congestion

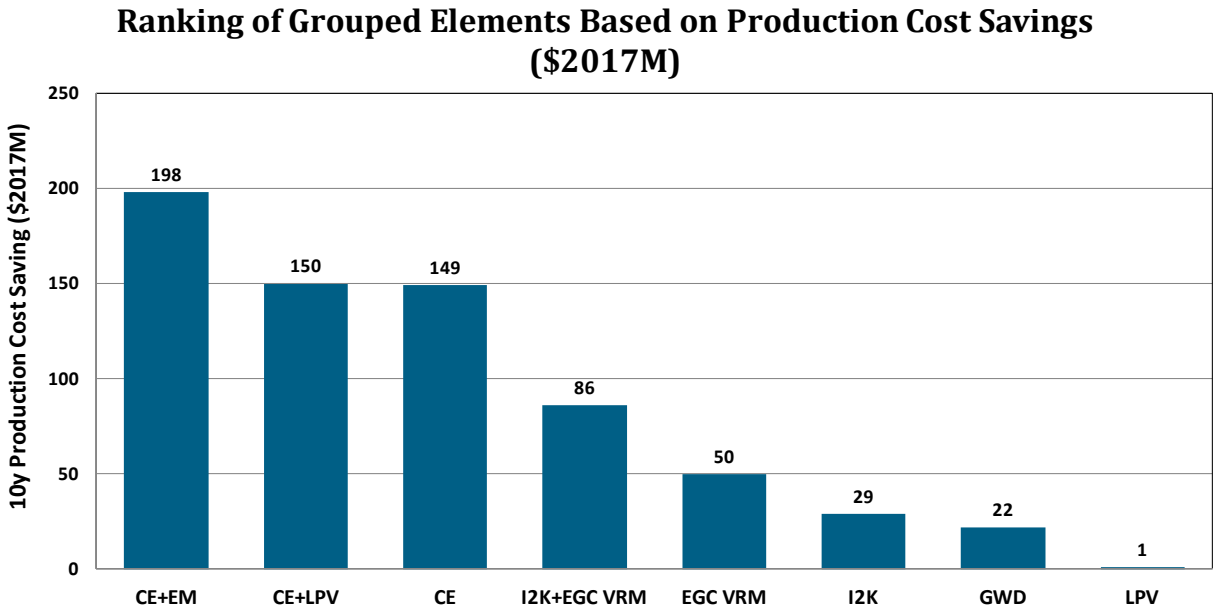
Demand Congestion ($2017M)	Base Case	10 YEAR RELAXATION								
		CENTRAL EAST (CE)	DUNWOODIE TO LONG ISLAND (I2K)	GREENWOOD	ERGNCTY VALLYSTR (EGC VRM)	LEEDS PLEASANT VALLEY (LPV)	EDIC MARCY (EM)	CE+EM	CE+LPV	I2K+EGC VRM
CENTRAL EAST	$1,966	$0	$2,001	$1,978	$1,960	$1,966	$2,578	$0	$0	$1,980
DUNWOODIE TO LONG ISLAND	$298	$313	$0	$297	$365	$299	$307	$314	$314	$0
LEEDS PLEASANT VALLEY	$17	$19	$21	$18	$18	$0	$19	$20	$0	$23
GREENWOOD	$182	$186	$179	$0	$183	$182	$181	$181	$186	$179
EGRDNCTY 138 VALLYSTR 138 1	$123	$125	$125	$122	$0	$123	$119	$121	$125	$0
EDIC MARCY	$57	$59	$59	$55	$56	$59	$0	$0	$61	$57

Figure 96 shows the change in production cost when the top congested elements are relieved. The NYISO presented the ranking and grouping analysis to ESPWG stakeholders and recommended three studies based upon the highest production cost savings: Central East-Edic-Marcy, Central East, and Central East-Leeds-Pleasant Valley. The recommendation was based upon these groupings meeting the NYISO's grouping and ranking guidelines.

The NYISO also recommended that three additional studies be performed to enhance the overall value of the CARIS. In each case one or more assumptions in the base case for the Central East-Leeds-Pleasant Valley were modified. In Study 4 the Edic-Marcy constraint was modeled as relaxed in both the base and project cases. In Study 5 a series of assumptions pertaining to a shift in the resource mix was modeled in the base case and project cases, specifically, additional renewable resources and energy efficiency, the retirement of New York coal units, and the retirement of the Indian Point 2 and 3 units. Study 6 modifies the base case for Study 5, as in Study 4, relaxing the

Edic-Marcy constraint in the base and study cases. After discussion with ESPWG, the NYISO selected the six recommended studies for the 2017 CARIS Phase 1.

Figure 94: Production Cost Savings Due to Relaxation



Generic Solutions

The NYISO developed generic solutions for each of the six studies. The generic solutions are each added to the base case in order to determine the impact on congestion for the grouped elements in each study. It is assumed that each of the generic solutions is installed in the first study year (2017). This assumption allows for the calculation of the full ten-year production cost and additional metrics resulting from the generic solution. The transfer limits were adjusted as necessary in the generic solution cases.

For each study, transmission solution in 1986 MVA block sizes for 345 kV, generation solution in 340MW block sizes, energy efficiency in 200MW block sizes and demand response in 200MW block sizes were implemented after considering whether a majority of the congestion on the grouped elements being studied could be relieved and whether diminishing returns could be realized from implementing additional blocks.

Note:

- Other solutions may exist which will better alleviate the congestion on the studied elements.
- No engineering, physical feasibility study, routing study or siting study has been completed

for the generic solutions. Therefore, it is unknown if the generic solutions can be physically constructed as proposed.

Study 1: Central East-Edic-Marcy

- Transmission: 345 kV line from Edic to New Scotland, 85 Miles
- Generation: 680 MW Plant at New Scotland
- Demand Response : 200 MW in Zone F; 200 MW in Zone G; 200 MW in Zone J
- Energy Efficiency : 200 MW in Zone F; 200 MW in Zone G; 200 MW in Zone J

Figure 95 below presents the change in the number of congested hours by constraints after the generic solution has been applied. Negative values indicate a reduction in congested hours. Detailed results for all CARIS metrics, representing the change between the base case values and the values after the three generic solutions have been applied, are presented in Attachment H.

Figure 95: Change in Number of Congested Hours (Solution Case – Base Case)

Study	Solution	Constraint	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Study 1: Central East - Edic-Marcy	Transmission Solution	CENTRAL EAST	(473)	(569)	(799)	(1,121)	(1,044)	(815)	(541)	(712)	(563)	(620)
		DUNWOODIE MOTTHAVEN	(2)	1	0	1	(3)	4	(3)	(1)	(1)	(5)
		DUNWOODIE TO LONG ISLAND	205	125	194	232	156	173	143	217	154	125
		EGRDNCTY 138 VALLYSTR 138 1	59	102	81	42	(18)	(29)	(31)	(25)	(32)	5
		GREENWOOD	(66)	27	35	1	34	0	6	2	6	5
		LEEDS PLEASANT VALLEY	10	5	2	3	3	2	5	2	2	9
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	8	3	21	11	3	43	12	8	2	4
		PACKARD HUNTLEY	57	15	66	80	142	91	37	61	32	44
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Generation Solution	CENTRAL EAST	0	26	(25)	(35)	(49)	27	24	14	(30)	(4)
		DUNWOODIE MOTTHAVEN	(5)	(5)	11	9	4	8	(2)	4	4	3
		DUNWOODIE TO LONG ISLAND	126	84	72	53	(61)	30	120	106	28	81
		EGRDNCTY 138 VALLYSTR 138 1	(108)	48	(13)	(23)	(108)	16	48	43	(62)	(9)
		GREENWOOD	6	24	10	(26)	2	2	9	4	8	9
		LEEDS PLEASANT VALLEY	27	36	14	7	7	5	8	4	11	16
		NEW SCOTLAND LEEDS	2	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	(9)	5	17	(13)	(6)	7	7	14	(4)	5
		PACKARD HUNTLEY	(26)	(12)	(10)	(25)	(23)	(35)	(79)	10	(4)	17
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Demand Response	CENTRAL EAST	1	0	(4)	(2)	4	(1)	5	(1)	8	(1)
		DUNWOODIE MOTTHAVEN	(3)	(5)	(6)	(4)	(18)	(12)	(12)	(17)	(17)	(15)
		DUNWOODIE TO LONG ISLAND	13	14	10	(4)	5	13	(1)	9	25	4
		EGRDNCTY 138 VALLYSTR 138 1	(2)	4	(1)	(4)	0	7	5	7	(9)	(1)
		GREENWOOD	(4)	4	12	(6)	1	(2)	0	(3)	(3)	0
		LEEDS PLEASANT VALLEY	(5)	(1)	0	1	0	3	0	2	0	5
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	1	0	4	1	(1)	1	5	0	4	4
		PACKARD HUNTLEY	(12)	6	0	(2)	(3)	(3)	5	16	8	(1)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Energy Efficiency	CENTRAL EAST	(11)	(55)	(73)	(89)	(134)	(69)	(85)	(146)	(90)	(37)
		DUNWOODIE MOTTHAVEN	(3)	(5)	(4)	(3)	(17)	(14)	(9)	(17)	(14)	(17)
		DUNWOODIE TO LONG ISLAND	385	228	145	330	195	231	248	253	128	137
		EGRDNCTY 138 VALLYSTR 138 1	33	58	10	(62)	(148)	39	3	47	2	(27)
		GREENWOOD	19	(3)	14	(20)	(9)	(2)	5	(3)	(7)	9
		LEEDS PLEASANT VALLEY	(3)	(4)	(5)	0	(2)	0	1	(4)	(1)	3
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	(22)	5	18	(6)	3	7	4	0	3	11
		PACKARD HUNTLEY	25	(3)	17	6	29	1	(18)	29	(2)	(1)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0

Study 2: Central East

- Transmission: 345 kV line from Edic to New Scotland, 85 Miles
- Generation: 680 MW Plant at New Scotland
- Demand Response : 200 MW in Zone F; 200 MW in Zone G; 200 MW in Zone J
- Energy Efficiency : 200 MW in Zone F; 200 MW in Zone G; 200 MW in Zone J

Figure 96 below presents the change in the number of congested hours by constraints after the generic solution has been applied. Negative values indicate a reduction in congested hours. Detailed results for all CARIS metrics, representing the change between the base case values and the values after the three generic solutions have been applied, are presented in Attachment H.

Figure 96: Change in Number of Congested Hours (Solution Case – Base Case)

Study	Solution	Constraint	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Study 2: Central East	Transmission Solution	CENTRAL EAST	(534)	(611)	(827)	(1,065)	(1,054)	(855)	(511)	(739)	(534)	(628)
		DUNWOODIE MOTTHAVEN	0	0	4	(2)	(1)	4	(2)	2	0	(3)
		DUNWOODIE TO LONG ISLAND	128	11	66	145	119	106	135	138	92	67
		EGRDNCTY 138 VALLYSTR 138 1	143	77	113	76	(10)	3	(25)	(17)	(9)	11
		GREENWOOD	(59)	32	43	31	38	11	3	8	3	18
		LEEDS PLEASANT VALLEY	15	4	1	1	1	7	7	8	4	4
		NEW SCOTLAND LEEDS	1	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	14	3	20	15	3	6	6	5	4	13
		PACKARD HUNTLEY	65	16	60	30	(18)	26	26	36	7	37
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Generation Solution	CENTRAL EAST	0	26	(25)	(35)	(49)	27	24	14	(30)	(4)
		DUNWOODIE MOTTHAVEN	(5)	(5)	11	9	4	8	(2)	4	4	3
		DUNWOODIE TO LONG ISLAND	126	84	72	53	(61)	30	120	106	28	81
		EGRDNCTY 138 VALLYSTR 138 1	(108)	48	(13)	(23)	(108)	16	48	43	(62)	(9)
		GREENWOOD	6	24	10	(26)	2	2	9	4	8	9
		LEEDS PLEASANT VALLEY	27	36	14	7	7	5	8	4	11	16
		NEW SCOTLAND LEEDS	2	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	(9)	5	17	(13)	(6)	7	7	14	(4)	5
		PACKARD HUNTLEY	(26)	(12)	(10)	(25)	(23)	(35)	(79)	10	(4)	17
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Demand Response	CENTRAL EAST	1	0	(4)	(2)	4	(1)	5	(1)	8	(1)
		DUNWOODIE MOTTHAVEN	(3)	(5)	(6)	(4)	(18)	(12)	(12)	(17)	(17)	(15)
		DUNWOODIE TO LONG ISLAND	13	14	10	(4)	5	13	(1)	9	25	4
		EGRDNCTY 138 VALLYSTR 138 1	(2)	4	(1)	(4)	0	7	5	7	(9)	(1)
		GREENWOOD	(4)	4	12	(6)	1	(2)	0	(3)	(3)	0
		LEEDS PLEASANT VALLEY	(5)	(1)	0	1	0	3	0	2	0	5
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	1	0	4	1	(1)	1	5	0	4	4
		PACKARD HUNTLEY	(12)	6	0	(2)	(3)	(3)	5	16	8	(1)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Energy Efficiency	CENTRAL EAST	(11)	(55)	(73)	(89)	(134)	(69)	(85)	(146)	(90)	(37)
		DUNWOODIE MOTTHAVEN	(3)	(5)	(4)	(3)	(17)	(14)	(9)	(17)	(14)	(17)
		DUNWOODIE TO LONG ISLAND	385	228	145	330	195	231	248	253	128	137
		EGRDNCTY 138 VALLYSTR 138 1	33	58	10	(62)	(148)	39	3	47	2	(27)
		GREENWOOD	19	(3)	14	(20)	(9)	(2)	5	(3)	(7)	9
		LEEDS PLEASANT VALLEY	(3)	(4)	(5)	0	(2)	0	1	(4)	(1)	3
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	(22)	5	18	(6)	3	7	4	0	3	11
		PACKARD HUNTLEY	25	(3)	17	6	29	1	(18)	29	(2)	(1)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0

Study 3: Central East-NS-PV

- Transmission: 345 kV line from Edic to New Scotland to Pleasant Valley, 150 Miles
- Generation: 1360 MW Plant at Pleasant Valley

- Demand Response : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J
- Energy Efficiency : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J

Figure 97 below presents the change in the number of congested hours by constraint after the generic solution has been applied. Negative values indicate a reduction in congested hours. Detailed results for all CARIS metrics, representing the change between the base case values and the values after the three generic solutions have been applied, are presented in Attachment H.

Figure 97: Change in Number of Congested Hours (Solution Case – Base Case)

Study	Solution	Constraint	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Study 3: Central East - New Scotland - Pleasant Valley	Transmission Solution	CENTRAL EAST	(531)	(589)	(865)	(1,090)	(1,037)	(856)	(492)	(707)	(507)	(592)
		DUNWOODIE MOTTHAVEN	5	8	7	2	3	9	5	(1)	0	0
		DUNWOODIE TO LONG ISLAND	340	219	195	300	218	200	217	240	143	111
		EGRDNCTY 138 VALLYSTR 138 1	320	321	327	222	119	(40)	7	(5)	43	26
		GREENWOOD	(40)	56	78	69	63	8	22	13	22	27
		LEEDS PLEASANT VALLEY	(26)	(19)	(20)	(9)	(14)	(9)	(4)	(19)	(16)	(11)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	59	3	25	58	33	25	18	12	0	17
		PACKARD HUNTLEY	125	45	95	124	119	114	63	107	52	83
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Generation Solution	CENTRAL EAST	8	12	16	(18)	(54)	2	(17)	(20)	10	66
		DUNWOODIE MOTTHAVEN	10	14	18	21	11	12	9	16	19	17
		DUNWOODIE TO LONG ISLAND	524	241	161	211	22	97	182	195	215	266
		EGRDNCTY 138 VALLYSTR 138 1	(77)	(34)	(14)	47	37	101	39	(27)	(55)	(50)
		GREENWOOD	19	45	13	(8)	(1)	5	(1)	5	5	11
		LEEDS PLEASANT VALLEY	(25)	(19)	(18)	(9)	(14)	(6)	(1)	(17)	(14)	(6)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	2	6	6	(5)	(14)	6	(3)	12	14	9
		PACKARD HUNTLEY	(14)	(6)	21	32	(46)	(2)	(77)	18	(6)	16
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Demand Response	CENTRAL EAST	1	1	(5)	(1)	4	1	5	(1)	8	(1)
		DUNWOODIE MOTTHAVEN	(6)	(23)	(25)	(11)	(54)	(49)	(50)	(57)	(57)	(62)
		DUNWOODIE TO LONG ISLAND	26	8	25	15	7	15	4	23	34	8
		EGRDNCTY 138 VALLYSTR 138 1	(1)	6	(4)	(1)	5	2	7	6	2	(4)
		GREENWOOD	8	3	12	(6)	1	(2)	0	(3)	(2)	(2)
		LEEDS PLEASANT VALLEY	(6)	(4)	0	0	1	3	0	2	0	5
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	2	2	4	1	(1)	(1)	4	5	5	6
		PACKARD HUNTLEY	(11)	3	7	(1)	7	(5)	10	7	11	(5)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Energy Efficiency	CENTRAL EAST	(33)	(22)	(75)	(147)	(176)	(74)	(64)	(207)	(141)	(128)
		DUNWOODIE MOTTHAVEN	(6)	(23)	(25)	(11)	(54)	(49)	(50)	(56)	(57)	(62)
		DUNWOODIE TO LONG ISLAND	729	693	400	624	351	427	372	355	358	371
		EGRDNCTY 138 VALLYSTR 138 1	(104)	(40)	(72)	(128)	(143)	11	(92)	(56)	(53)	(46)
		GREENWOOD	(6)	(32)	(45)	(81)	(18)	(3)	(6)	0	(10)	9
		LEEDS PLEASANT VALLEY	(7)	(8)	(10)	0	(2)	(3)	1	(7)	(3)	3
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	1	10	27	12	13	16	12	13	(1)	3
		PACKARD HUNTLEY	21	(12)	44	29	6	(7)	8	48	29	23
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0

Study 4: Central East-NS-PV with Edic-Marcy Relaxed

- Transmission: 345 kV line from Edic to New Scotland to Pleasant Valley, 150 Miles
- Generation: 1360 MW Plant at Pleasant Valley
- Demand Response : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J
- Energy Efficiency : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J

Figure 98 below presents the change in the number of congested hours by constraint after the

generic solution has been applied. Negative values indicate a reduction in congested hours. Detailed results for all CARIS metrics, representing the change between the base case values and the values after the four generic solutions have been applied, are presented in Attachment H.

Figure 98: Change in Number of Congested Hours (Solution Case – Base Case)

Study	Solution	Constraint	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Study 4: Central East - New Scotland - Pleasant Valley with Edic-Marcy relaxed	Transmission Solution	CENTRAL EAST	(668)	(759)	(971)	(1,174)	(1,121)	(884)	(604)	(866)	(594)	(817)
		DUNWOODIE MOTTHAVEN	3	6	3	7	6	0	7	5	5	3
		DUNWOODIE TO LONG ISLAND	473	308	202	255	247	184	191	250	128	207
		EGRDNCTY 138 VALLYSTR 138 1	286	242	276	202	110	(4)	17	4	27	29
		GREENWOOD	(37)	47	69	72	63	38	18	17	19	14
		LEEDS PLEASANT VALLEY	(25)	(18)	(19)	(11)	(15)	(11)	(4)	(20)	(16)	(12)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	49	12	7	49	30	37	7	(5)	0	24
		PACKARD HUNTLEY	82	54	100	157	169	187	124	133	80	145
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	(1)	0	0	0	0	0
	Generation Solution	CENTRAL EAST	(25)	37	(7)	66	2	(20)	45	43	73	26
		DUNWOODIE MOTTHAVEN	8	16	14	21	14	13	31	15	20	19
		DUNWOODIE TO LONG ISLAND	608	253	150	133	42	127	116	175	190	216
		EGRDNCTY 138 VALLYSTR 138 1	(39)	(77)	(40)	34	37	97	59	(34)	(63)	(44)
		GREENWOOD	23	14	(5)	5	(9)	22	(5)	5	0	4
		LEEDS PLEASANT VALLEY	(23)	(18)	(17)	(9)	(12)	(8)	(2)	(19)	(13)	(7)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	8	7	(12)	(8)	1	25	2	10	5	2
		PACKARD HUNTLEY	(48)	(6)	8	33	(18)	21	55	8	27	62
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	(1)	0	0	0	0	0
	Demand Response	CENTRAL EAST	1	1	2	(5)	(3)	0	(3)	(3)	(3)	(2)
		DUNWOODIE MOTTHAVEN	(6)	(22)	(27)	(7)	(52)	(55)	(41)	(55)	(57)	(60)
		DUNWOODIE TO LONG ISLAND	(7)	14	16	29	3	8	7	23	13	9
		EGRDNCTY 138 VALLYSTR 138 1	(4)	5	(2)	2	0	12	1	2	(5)	(8)
		GREENWOOD	(1)	(6)	(2)	2	(2)	0	2	2	2	1
		LEEDS PLEASANT VALLEY	(3)	(3)	1	0	0	0	0	0	(1)	3
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	1	2	0	(1)	(1)	1	3	0	(3)	3
		PACKARD HUNTLEY	7	0	(6)	(6)	8	7	18	6	19	5
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	(1)	0	0	0	0	0
	Energy Efficiency	CENTRAL EAST	(54)	(77)	(153)	(190)	(131)	(112)	(132)	(165)	(69)	(157)
		DUNWOODIE MOTTHAVEN	(6)	(22)	(27)	(7)	(52)	(55)	(41)	(55)	(57)	(60)
		DUNWOODIE TO LONG ISLAND	791	752	318	433	337	394	366	368	265	332
		EGRDNCTY 138 VALLYSTR 138 1	(89)	(111)	(100)	(135)	(91)	0	(86)	(56)	(70)	(22)
		GREENWOOD	(9)	(65)	(34)	(69)	(28)	5	(1)	(2)	(20)	(4)
		LEEDS PLEASANT VALLEY	(7)	(9)	(3)	(3)	(3)	(4)	2	(6)	0	2
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	16	12	5	22	22	31	6	(15)	9	2
		PACKARD HUNTLEY	(13)	8	42	32	(20)	39	21	46	33	50
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	(1)	0	0	0	0	0

Study 5: Central East-NS-PV under System Resource Shift

- Transmission: 345 kV line from Edic to New Scotland to Pleasant Valley, 150 Miles
- Generation: 1360 MW Plant at Pleasant Valley
- Demand Response : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J
- Energy Efficiency : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J

Figure 99 below presents the change in the number of congested hours by constraint after the generic solution has been applied. Negative values indicate a reduction in congested hours. Detailed results for all CARIS metrics, representing the change between the base case values and the values after the four generic solutions have been applied, are presented in Attachment H.

Figure 99: Change in Number of Congested Hours (Solution Case – Base Case)

Study	Solution	Constraint	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Study 5: Central East - New Scotland - Pleasant Valley under System Resource Shift Case	Transmission Solution	CENTRAL EAST	(558)	(622)	(1,064)	(1,243)	(1,038)	(950)	(826)	(1,114)	(1,039)	(1,634)
		DUNWOODIE MOTTHAVEN	2	7	10	2	0	0	0	0	0	1
		DUNWOODIE TO LONG ISLAND	388	339	239	96	192	177	241	234	177	172
		EGRDNCTY 138 VALLYSTR 138 1	282	283	279	348	135	54	82	66	56	6
		GREENWOOD	(61)	26	78	94	17	32	40	51	25	21
		LEEDS PLEASANT VALLEY	(22)	(18)	(16)	(18)	(37)	(44)	(32)	(97)	(108)	(177)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	(1)	0	(14)
		NIAGARA PACKARD	43	7	10	6	(2)	6	0	3	0	(1)
		PACKARD HUNTLEY	116	71	110	94	43	64	21	35	8	4
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Generation Solution	CENTRAL EAST	(43)	27	3	50	58	27	(37)	19	18	25
		DUNWOODIE MOTTHAVEN	7	15	21	4	0	2	0	4	0	0
		DUNWOODIE TO LONG ISLAND	481	332	204	280	285	309	317	203	182	247
		EGRDNCTY 138 VALLYSTR 138 1	(33)	(79)	11	43	(39)	(15)	(16)	(22)	(6)	(39)
		GREENWOOD	(2)	(4)	13	0	(20)	(9)	6	9	(1)	14
		LEEDS PLEASANT VALLEY	(22)	(18)	(13)	(14)	(32)	(25)	(21)	(56)	(56)	(78)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	(1)	0	(11)
		NIAGARA PACKARD	0	6	4	6	9	2	0	(1)	0	0
		PACKARD HUNTLEY	6	6	0	17	19	34	8	8	4	1
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Demand Response	CENTRAL EAST	5	2	5	(1)	0	(3)	(5)	2	5	(2)
		DUNWOODIE MOTTHAVEN	(6)	(19)	(18)	0	0	0	0	(1)	0	0
		DUNWOODIE TO LONG ISLAND	24	(10)	24	46	8	19	18	11	29	34
		EGRDNCTY 138 VALLYSTR 138 1	0	(6)	(4)	(3)	(3)	10	5	1	31	(19)
		GREENWOOD	4	(4)	(6)	(2)	(2)	(2)	(1)	0	(2)	(1)
		LEEDS PLEASANT VALLEY	(3)	(3)	0	0	1	(1)	2	2	(2)	7
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	1	2	(1)	1	0	0	0	0	0	0
		PACKARD HUNTLEY	8	(1)	2	4	5	4	1	3	1	1
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Energy Efficiency	CENTRAL EAST	(67)	(40)	(116)	(86)	(50)	(16)	(63)	(110)	(104)	(105)
		DUNWOODIE MOTTHAVEN	(6)	(19)	(18)	0	0	0	0	(1)	0	0
		DUNWOODIE TO LONG ISLAND	682	745	438	346	453	527	711	518	503	473
		EGRDNCTY 138 VALLYSTR 138 1	(108)	(55)	(28)	(67)	(44)	123	20	(19)	1	(34)
		GREENWOOD	(35)	(68)	(68)	(67)	(78)	(24)	(21)	(10)	(27)	(10)
		LEEDS PLEASANT VALLEY	(1)	(9)	(6)	(3)	(10)	3	4	(18)	(5)	(22)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	1	0	(7)
		NIAGARA PACKARD	(5)	11	17	5	9	9	0	3	0	1
		PACKARD HUNTLEY	33	8	3	35	4	16	(4)	5	14	11
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0

Study 6: Central East-NS-PV under System Resource Shift with Edic-Marcy Relaxed

- Transmission: 345 kV line from Edic to New Scotland to Pleasant Valley, 150 Miles
- Generation: 1360 MW Plant at Pleasant Valley
- Demand Response : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J
- Energy Efficiency : 200 MW in Zone F; 200 MW in Zone G; 800 MW in Zone J

Figure 100 below presents the change in the number of congested hours by constraint after the generic solution has been applied. Negative values indicate a reduction in congested hours. Detailed results for all CARIS metrics, representing the change between the base case values and the values after the four generic solutions have been applied, are presented in Attachment H.

Figure 100: Change in Number of Congested Hours (Solution Case – Base Case)

Study	Solution	Constraint	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Study 6: Central East - New Scotland - Pleasant Valley under System Resource Shift Case with Edic-Marcy relaxed	Transmission Solution	CENTRAL EAST	(674)	(734)	(1,051)	(1,248)	(1,015)	(937)	(821)	(1,093)	(1,003)	(1,640)
		DUNWOODIE MOTTHAVEN	5	12	9	1	0	0	0	0	1	2
		DUNWOODIE TO LONG ISLAND	416	323	258	230	169	226	221	164	158	204
		EGRDNCTY 138 VALLYSTR 138 1	286	268	273	340	145	78	72	32	60	6
		GREENWOOD	(64)	53	86	87	48	46	45	38	33	29
		LEEDS PLEASANT VALLEY	(24)	(20)	(20)	(15)	(38)	(47)	(36)	(101)	(114)	(191)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	(15)
		NIAGARA PACKARD	34	10	20	6	9	1	2	0	0	(1)
		PACKARD HUNTLEY	49	33	113	76	69	92	19	39	11	(2)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Generation Solution	CENTRAL EAST	(1)	29	(34)	85	75	76	36	(14)	53	(27)
		DUNWOODIE MOTTHAVEN	8	15	21	5	0	2	0	4	1	2
		DUNWOODIE TO LONG ISLAND	453	211	130	262	210	230	270	185	176	279
		EGRDNCTY 138 VALLYSTR 138 1	(51)	(54)	(16)	39	(21)	5	(70)	(19)	26	(7)
		GREENWOOD	21	(5)	21	(7)	(10)	9	(2)	(3)	1	12
		LEEDS PLEASANT VALLEY	(23)	(18)	(17)	(13)	(31)	(30)	(26)	(64)	(67)	(91)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	(9)
		NIAGARA PACKARD	(8)	5	1	2	7	(7)	2	1	0	0
		PACKARD HUNTLEY	(22)	(17)	9	0	26	30	0	5	2	(2)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Demand Response	CENTRAL EAST	(4)	(2)	(1)	(6)	(4)	4	0	4	2	(6)
		DUNWOODIE MOTTHAVEN	(4)	(15)	(18)	0	0	0	0	(1)	0	0
		DUNWOODIE TO LONG ISLAND	15	(5)	32	62	19	23	17	30	24	52
		EGRDNCTY 138 VALLYSTR 138 1	(5)	6	(7)	(8)	14	4	12	10	23	(28)
		GREENWOOD	2	2	3	1	2	(1)	(1)	(1)	2	1
		LEEDS PLEASANT VALLEY	1	(5)	0	0	0	2	1	(7)	(1)	8
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	0	0
		NIAGARA PACKARD	0	2	(1)	0	(1)	0	0	0	0	0
		PACKARD HUNTLEY	0	6	0	11	(1)	6	1	1	0	(2)
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0
	Energy Efficiency	CENTRAL EAST	(80)	(87)	(145)	(134)	4	(4)	(103)	(168)	(42)	(161)
		DUNWOODIE MOTTHAVEN	(4)	(15)	(18)	0	0	0	0	(1)	0	0
		DUNWOODIE TO LONG ISLAND	602	697	436	422	464	461	628	454	455	469
		EGRDNCTY 138 VALLYSTR 138 1	(80)	(116)	(66)	(46)	4	106	37	(21)	2	(25)
		GREENWOOD	(42)	(53)	(65)	(71)	(50)	(20)	(23)	(15)	(31)	(6)
		LEEDS PLEASANT VALLEY	(6)	(10)	(6)	(4)	(9)	2	6	(8)	(14)	(19)
		NEW SCOTLAND LEEDS	0	0	0	0	0	0	0	0	2	(7)
		NIAGARA PACKARD	0	9	13	2	12	4	2	3	0	0
		PACKARD HUNTLEY	(31)	(7)	33	12	6	5	(12)	5	11	3
		SHORE_RD 345 SHORE_RD 138 1	0	0	0	0	0	0	0	0	0	0

Benefit/Cost Analysis

The NYISO defines generic solutions to alleviate congestion for each resource type (generation, transmission, demand response, and energy efficiency), as required by the Tariff, Attachment Y, Section 31.3.1.3.3. The costs of each solution must be estimated to report B/C ratios in CARIS Phase 1 for each generic solution. The NYISO, in consultation with its stakeholders, estimates a high, mid and low cost for each solution type in CARIS Phase 1. This establishes a broader range of costs in order to provide more useful information to developers and other interested parties. The NYISO bases the costs upon data from publicly available sources.

The Generic Solution Cost Matrix should not be utilized for purposes outside of the CARIS generic solution process. No assessment was made concerning the actual feasibility of any generic solution proposed. These estimates should not be assumed as reflective or predictive of actual projects or imply that specific facilities can necessarily be built for these generic solution estimates.

Transmission cost estimates are based on cost estimates for specific projects submitted for

consideration in the New York State PSC's AC Transmission proceeding.[5] The NYISO analyzed the cost data presented for the various proposed projects and developed low, mid and high cost estimates for total project costs on a per-mile basis for new 345 kV transmission facilities.

Generation costs estimates were based on available NYISO consultant estimates for developing new combined cycle units in Zones F and G provided as part of the 2016 Demand-Curve Reset process[6].

Energy-efficient cost estimates were derived from the New York State Department of Public Service Final Generic Environmental Impact Statement for REV and Clean Energy Fund.[7]

Demand-response cost estimates were derived from recent utility filings with the NYPSC on Commercial System Relief Program (CSRP) costs and enrollments. [8]

The generic solutions cost matrix and assumptions for all four types of solutions are presented in Figure 101 through Figure 104 below.

5 12-T-0502-Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades; 13-E-0488 –In the Matter of Alternating Current Transmission Upgrades-Comparative Proceeding

6 *NYISO Staff Recommendations Initial Draft – Demand Curve Reset*, August 17, 2016.

7 *Final Generic Environmental Impact Statement* In CASE 14-M-0101 - *Reforming the Energy Vision* and CASE 14-M-0094 - *Clean Energy Fund*, New York State Department of Public Service, page 4-7.

8 Consolidated Edison (Case 13-E-0573, Demand Response Program Riders S and U); for Orange & Rockland, central Hudson, NYSEG and National Grid (Case 14-E-0423, Dynamic Load Management)

Figure 101: Transmission Cost Matrix

Base Case Modeling Assumptions for 2017-2026 CARIS Phase 1
Generic Transmission Cost Matrix
Order of Magnitude Unit Prices
(Estimates should not be assumed reflective or predictive of actual project costs)

Cost Range	Zone	Transmission			
		Line System Voltage (kV)	Block Capacity (MVA)	Construction Type	Transmission Cost ($M/Mile)
High	Zones E-G	345	1,986	Overhead	6.5
Mid	Zones E-G	345	1,986	Overhead	5.0
Low	Zones E-G	345	1,986	Overhead	3.5

Assumptions:

1. Estimates herein should not be utilized for purposes outside of the CARIS process. Also, these estimates should not be assumed as reflective or predictive of actual projects or imply that facilities can necessarily be built for these generic solution order of magnitude estimates. Estimate ranges were identified after Transmission Owner input and discussions at the ESPWG.

2. Lines constructed will be comprised of single circuit AC overhead construction.

3. The transmission line will be interconnected into an existing 345kV substation for Zones F and G.

4. The line can be permitted and constructed utilizing the shortest distance between the two selected substations.

5. The control house at the existing substations selected as the interconnection point has sufficient space for installing the new protection and communication equipment for the new line terminal.

6. Estimates include costs for material, construction labor, engineering labor, permits, testing and commissioning. The estimates do not include Allowance of Funds During Construction (AFDC).

7. The cost per mile includes a range to account for the variable land and permitting costs associated with a project such as utilizing an existing ROW, expanding an existing ROW or obtaining new ROW.

Figure 102: Generation Cost Matrix

Base Case Modeling Assumptions for 2017-2026 CARIS Phase 1
Generic Generation Cost Matrix
Order of Magnitude Unit Costs
(Estimates should not be assumed reflective or predictive of actual project costs)

Cost Range	Plant Location	Plant Block Size Capacity (MW)	Plant Cost per Block Size ($M)
High	New Scotland (Zone F)	340	680
Mid	New Scotland (Zone F)	340	540
Low	New Scotland (Zone F)	340	410
High	Pleasant Valley (Zone G / Dutchess County)	340	760
Mid	Pleasant Valley (Zone G / Dutchess County)	340	610
Low	Pleasant Valley (Zone G / Dutchess County)	340	460

Assumptions:

1. Estimates herein should not be utilized for purposes outside of the CARIS process. Also, these estimates should not be assumed as reflective or predictive of actual projects or imply that facilities can necessarily be built for these generic solution order of at FERC and Consultant estimates.magnitude estimates. Estimate ranges were identified based upon NYISO filings.

2. It is assumed that the plants located in Zones F and G will be gas combined cycle type. Configured as a 1 x 1 x1 Siemens SGT6-5000F(5), total generation 340MW.

Figure 103: Generator Cost per Unit - 2017 Price Level[9]

GENERATOR COST PER UNIT - 2016 Demand Curve Reset Cost Estimates						
Zone	Size	Combined Cycle	EPC Costs ($M)	Non-EPC Costs ($M)	Total ($M)	Unit Cost ($/kW)
Zone F (Capital)	340 MW	1 x 1 x 1 SGT6-5000F(5)	435	83	518	1,524
Zone G (Hudson Valley - Dutchess)	340 MW	1 x 1 x 1 SGT6-5000F(5)	487	93	580	1,706

Figure 104: Demand Response and Energy Efficiency Cost Matrix

Base Case Modeling Assumptions for 2017-2026 CARIS Phase 1
Generic Demand Response and Energy Efficiency Cost Matrix
Order of Magnitude Unit Costs
(Estimates should not be assumed reflective or predictive of actual project costs)

Cost Range	Zone	Portfolio Type	Per-Unit ($M/MW)
High	Zones F	Demand Response	0.25
Mid	Zones F	Demand Response	0.2
Low	Zones F	Demand Response	0.15
High	Zones G	Demand Response	0.375
Mid	Zones G	Demand Response	0.3
Low	Zones G	Demand Response	0.225
High	Zones J	Demand Response	1.375
Mid	Zones J	Demand Response	1.1
Low	Zones J	Demand Response	0.825
High	Zones F	Energy Efficiency	0.375
Mid	Zones F	Energy Efficiency	0.3
Low	Zones F	Energy Efficiency	0.225
High	Zones G	Energy Efficiency	0.75
Mid	Zones G	Energy Efficiency	0.6
Low	Zones G	Energy Efficiency	0.45
High	Zones J	Energy Efficiency	2.375
Mid	Zones J	Energy Efficiency	1.9
Low	Zones J	Energy Efficiency	1.425

Note: Estimates herein should not be utilized for purposes outside of the CARIS process. Also, these estimates should not be assumed as reflective or predictive of actual projects or imply that facilities can necessarily be built.

Figure 105 through Figure 111 present overnight installation costs for the generic solutions associated with each study. No verification was conducted to determine if the generic solution can be built within the generic cost estimate ranges. The generic solutions analysis is performed to provide a rough estimate of the benefit to cost opportunity based upon the assumptions contained in this report.

9 *Study to Establish New York Electricity Market ICAP Demand Curve Parameter*, September 13, 2016, The Analysis Group, pg. 129.

Figure 105: Generic Solution Costs for Each Study

Generic Solutions Cost Summary ($M)						
Studies	**Central East-Edic-Marcy (Study 1)**	**Central East (Study 2)**	**Central East-New Scotland-Pleasant Valley (Study 3)**	**Central East-New Scotland-Pleasant Valley (Study 4)**	**Central East-New Scotland-Pleasant Valley (Study 5)**	**Central East-New Scotland-Pleasant Valley (Study 6)**
TRANSMISSION						
Transmission Path	Marcy-New Scotland	Edic-New Scotland	Edic-New Scotland-Pleasant Valley	Edic-New Scotland-Pleasant Valley	Edic-New Scotland-Pleasant Valley	Edic-New Scotland-Pleasant Valley
Voltage	345 kV	345 kV	345 kV	345 kV	345 kV	345 kV
Miles	85	85	150	150	150	150
High	$553	$553	$975	$975	$975	$975
Mid	$425	$425	$750	$750	$750	$750
Low	$298	$298	$525	$525	$525	$525
GENERATION						
Unit Siting	New Scotland	New Scotland	Pleasant Valley	Pleasant Valley	Pleasant Valley	Pleasant Valley
# of 340 MW Blocks	2	2	4	4	4	4
High	$1,360	$1,360	$3,040	$3,040	$3,040	$3,040
Mid	$1,080	$1,080	$2,440	$2,440	$2,440	$2,440
Low	$820	$820	$1,840	$1,840	$1,840	$1,840
DEMAND RESPONSE						
Location (# of Blocks)	F(1), G(1) and J(1)	F(1), G(1) and J(1)	F(1), G(1) and J(4)	F(1), G(1) and J(4)	F(1), G(1) and J(4)	F(1), G(1) and J(4)
Total # of 200MW Blocks	3	3	6	6	6	6
High	$400	$400	$1,225	$1,225	$1,225	$1,225
Mid	$320	$320	$980	$980	$980	$980
Low	$240	$240	$735	$735	$735	$735
ENERGY EFFICIENCY						
Location (# of Blocks)	F(1), G(1) and J(1)	F(1), G(1) and J(1)	F(1), G(1) and J(4)	F(1), G(1) and J(4)	F(1), G(1) and J(4)	F(1), G(1) and J(4)
Total # of 200MW Blocks	3	3	6	6	6	6
High	$1,320	$1,320	$3,120	$3,120	$3,120	$3,120
Mid	$1,210	$1,210	$2,860	$2,860	$2,860	$2,860
Low	$1,100	$1,100	$2,600	$2,600	$2,600	$2,600

Figure 106: Generic Solutions for Study 1: Central East – Edic – Marcy

Generic Solution Study 1: Central East - Edic - Marcy *(Estimates should not be assumed reflective or predictive of actual project costs)*			
Transmission Solution: Marcy - New Scotland			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Transmission Line (Miles)	85	$6.50	$553
Total High Transmission Solution Cost			$553
Mid			
Transmission Line (Miles)	85	$5.00	$425
Total Mid Transmission Solution Cost			$425
Low			
Transmissin Line (Miles)	85	$3.50	$298
Total Low Transmission Solution Cost			$298
Generation Solution: New Scotland			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Plant in Zone F (340 MW Blocks)	2	$680	$1,360
Total High Generation Solution Cost			$1,360
Mid			
Plant in Zone F (340 MW Blocks)	2	$540	$1,080
Total Mid Generation Solution Cost			$1,080
Low			
Plant in Zone F (340 MW Blocks)	2	$410	$820
Total Low Generation Solution Cost			$820
Demand Response Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$50	$50
Zone G	1	$75	$75
Zone J	1	$275	$275
Total High Demand Response Solution Costs			$400
Mid	(200 MW Blocks)		
Zone F	1	$40	$40
Zone G	1	$60	$60
Zone J	1	$220	$220
Total Mid Demand Response Solution Costs			$320
Low	(200 MW Blocks)		
Zone F	1	$30	$30
Zone G	1	$45	$45
Zone J	1	$165	$165
Total Low Demand Response Solution Costs			$240
Energy Efficiency Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$340	$340
Zone G	1	$380	$380
Zone J	1	$600	$600
Total High Energy Efficiency Solution Costs			$1,320
Mid	(200 MW Blocks)		
Zone F	1	$310	$310
Zone G	1	$350	$350
Zone J	1	$550	$550
Total Mid Energy Efficiency Solution Costs			$1,210
Low	(200 MW Blocks)		
Zone F	1	$280	$280
Zone G	1	$320	$320
Zone J	1	$500	$500
Total Low Energy Efficiency Solution Costs			$1,100

Figure 107: Generic Solutions for Study 2: Central East

Generic Solution Study 2: Central East *(Estimates should not be assumed reflective or predictive of actual project costs)*			
Transmission Solution: Edic - New Scotland			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Transmission Line (Miles)	85	$6.50	$553
Total High Transmission Solution Cost			$553
Mid			
Transmission Line (Miles)	85	$5.00	$425
Total Mid Transmission Solution Cost			$425
Low			
Transmissin Line (Miles)	85	$3.50	$298
Total Low Transmission Solution Cost			$298
Generation Solution: New Scotland			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Plant in Zone F (340 MW Blocks)	2	$680	$1,360
Total High Generation Solution Cost			$1,360
Mid			
Plant in Zone F (340 MW Blocks)	2	$540	$1,080
Total Mid Generation Solution Cost			$1,080
Low			
Plant in Zone F (340 MW Blocks)	2	$410	$820
Total Low Generation Solution Cost			$820
Demand Response Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$50	$50
Zone G	1	$75	$75
Zone J	1	$275	$275
Total High Demand Response Solution Costs			$400
Mid	(200 MW Blocks)		
Zone F	1	$40	$40
Zone G	1	$60	$60
Zone J	1	$220	$220
Total Mid Demand Response Solution Costs			$320
Low	(200 MW Blocks)		
Zone F	1	$30	$30
Zone G	1	$45	$45
Zone J	1	$165	$165
Total Low Demand Response Solution Costs			$240
Energy Efficiency Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$340	$340
Zone G	1	$380	$380
Zone J	1	$600	$600
Total High Energy Efficiency Solution Costs			$1,320
Mid	(200 MW Blocks)		
Zone F	1	$310	$310
Zone G	1	$350	$350
Zone J	1	$550	$550
Total Mid Energy Efficiency Solution Costs			$1,210
Low	(200 MW Blocks)		
Zone F	1	$280	$280
Zone G	1	$320	$320
Zone J	1	$500	$500
Total Low Energy Efficiency Solution Costs			$1,100

Figure 108: Generic Solutions for Study 3: Central East-New Scotland-Pleasant Valley

Generic Solution Study 3: Central East-New Scotland-Pleasant Valley *(Estimates should not be assumed reflective or predictive of actual project costs)*			
Transmission Solution: Edic - New Scotland - Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Transmission Line (Miles)	150	$6.50	$975
Total High Transmission Solution Cost			$975
Mid			
Transmission Line (Miles)	150	$5.00	$750
Total Mid Transmission Solution Cost			$750
Low			
Transmissin Line (Miles)	150	$3.50	$525
Total Low Transmission Solution Cost			$525
Generation Solution: Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Plant in Zone G (340 MW Blocks)	4	$760	$3,040
Total High Generation Solution Cost			$3,040
Mid			
Plant in Zone G (340 MW Blocks)	4	$610	$2,440
Total Mid Generation Solution Cost			$2,440
Low			
Plant in Zone G (340 MW Blocks)	4	$460	$1,840
Total Low Generation Solution Cost			$1,840
Demand Response Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW**	**Total ($M)**
High		(200 MW Blocks)	
Zone F	1	$50	$50
Zone G	1	$75	$75
Zone J	4	$275	$1,100
Total High Demand Response Solution Costs			$1,225
Mid		(200 MW Blocks)	
Zone F	1	$40	$40
Zone G	1	$60	$60
Zone J	4	$220	$880
Total Mid Demand Response Solution Costs			$980
Low		(200 MW Blocks)	
Zone F	1	$30	$30
Zone G	1	$45	$45
Zone J	4	$165	$660
Total Low Demand Response Solution Costs			$735
Energy Efficiency Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW**	**Total ($M)**
High		(200 MW Blocks)	
Zone F	1	$340	$340
Zone G	1	$380	$380
Zone J	4	$600	$2,400
Total High Energy Efficiency Solution Costs			$3,120
Mid		(200 MW Blocks)	
Zone F	1	$310	$310
Zone G	1	$350	$350
Zone J	4	$550	$2,200
Total Mid Energy Efficiency Solution Costs			$2,860
Low		(200 MW Blocks)	
Zone F	1	$280	$280
Zone G	1	$320	$320
Zone J	4	$500	$2,000
Total Low Energy Efficiency Solution Costs			$2,600

Figure 109: Generic Solutions for Study 4: Central East-New Scotland-Pleasant Valley with Edic-Marcy Relaxed

Generic Solution Study 4: Central East-New Scotland-Pleasant Valley with Edic-Marcy Relaxed *(Estimates should not be assumed reflective or predictive of actual project costs)*			
Transmission Solution: Edic - New Scotland - Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Transmission Line (Miles)	150	$6.50	$975
Total High Transmission Solution Cost			$975
Mid			
Transmission Line (Miles)	150	$5.00	$750
Total Mid Transmission Solution Cost			$750
Low			
Transmissin Line (Miles)	150	$3.50	$525
Total Low Transmission Solution Cost			$525
Generation Solution: Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Plant in Zone G (340 MW Blocks)	4	$760	$3,040
Total High Generation Solution Cost			$3,040
Mid			
Plant in Zone G (340 MW Blocks)	4	$610	$2,440
Total Mid Generation Solution Cost			$2,440
Low			
Plant in Zone G (340 MW Blocks)	4	$460	$1,840
Total Low Generation Solution Cost			$1,840
Demand Response Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW**	**Total ($M)**
High		(200 MW Blocks)	
Zone F	1	$50	$50
Zone G	1	$75	$75
Zone J	4	$275	$1,100
Total High Demand Response Solution Costs			$1,225
Mid		(200 MW Blocks)	
Zone F	1	$40	$40
Zone G	1	$60	$60
Zone J	4	$220	$880
Total Mid Demand Response Solution Costs			$980
Low		(200 MW Blocks)	
Zone F	1	$30	$30
Zone G	1	$45	$45
Zone J	4	$165	$660
Total Low Demand Response Solution Costs			$735
Energy Efficiency Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW**	**Total ($M)**
High		(200 MW Blocks)	
Zone F	1	$340	$340
Zone G	1	$380	$380
Zone J	4	$600	$2,400
Total High Energy Efficiency Solution Costs			$3,120
Mid		(200 MW Blocks)	
Zone F	1	$310	$310
Zone G	1	$350	$350
Zone J	4	$550	$2,200
Total Mid Energy Efficiency Solution Costs			$2,860
Low		(200 MW Blocks)	
Zone F	1	$280	$280
Zone G	1	$320	$320
Zone J	4	$500	$2,000
Total Low Energy Efficiency Solution Costs			$2,600

Figure 110: Generic Solutions for Study 5: Central East-New Scotland-Pleasant Valley under System Resource Shift Case

Generic Solution Study 5: Central East-New Scotland-Pleasant Valley under System Resource Shift Case *(Estimates should not be assumed reflective or predictive of actual project costs)*			
Transmission Solution: Edic - New Scotland - Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Transmission Line (Miles)	150	$6.50	$975
Total High Transmission Solution Cost			$975
Mid			
Transmission Line (Miles)	150	$5.00	$750
Total Mid Transmission Solution Cost			$750
Low			
Transmissin Line (Miles)	150	$3.50	$525
Total Low Transmission Solution Cost			$525
Generation Solution: Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Plant in Zone G (340 MW Blocks)	4	$760	$3,040
Total High Generation Solution Cost			$3,040
Mid			
Plant in Zone G (340 MW Blocks)	4	$610	$2,440
Total Mid Generation Solution Cost			$2,440
Low			
Plant in Zone G (340 MW Blocks)	4	$460	$1,840
Total Low Generation Solution Cost			$1,840
Demand Response Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$50	$50
Zone G	1	$75	$75
Zone J	4	$275	$1,100
Total High Demand Response Solution Costs			$1,225
Mid	(200 MW Blocks)		
Zone F	1	$40	$40
Zone G	1	$60	$60
Zone J	4	$220	$880
Total Mid Demand Response Solution Costs			$980
Low	(200 MW Blocks)		
Zone F	1	$30	$30
Zone G	1	$45	$45
Zone J	4	$165	$660
Total Low Demand Response Solution Costs			$735
Energy Efficiency Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$340	$340
Zone G	1	$380	$380
Zone J	4	$600	$2,400
Total High Energy Efficiency Solution Costs			$3,120
Mid	(200 MW Blocks)		
Zone F	1	$310	$310
Zone G	1	$350	$350
Zone J	4	$550	$2,200
Total Mid Energy Efficiency Solution Costs			$2,860
Low	(200 MW Blocks)		
Zone F	1	$280	$280
Zone G	1	$320	$320
Zone J	4	$500	$2,000
Total Low Energy Efficiency Solution Costs			$2,600

Figure 111: Generic Solutions for Study 6: Central East-New Scotland-Pleasant Valley under System Resource Shift Case with Edic - Marcy Relaxed

Generic Solution Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with Edic-Marcy Relaxed *(Estimates should not be assumed reflective or predictive of actual project costs)*			
Transmission Solution: Edic - New Scotland - Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Transmission Line (Miles)	150	$6.50	$975
Total High Transmission Solution Cost			$975
Mid			
Transmission Line (Miles)	150	$5.00	$750
Total Mid Transmission Solution Cost			$750
Low			
Transmissin Line (Miles)	150	$3.50	$525
Total Low Transmission Solution Cost			$525
Generation Solution: Pleasant Valley			
Cost Range	**Quantity**	**Unit Pricing ($M)**	**Total ($M)**
High			
Plant in Zone G (340 MW Blocks)	4	$760	$3,040
Total High Generation Solution Cost			$3,040
Mid			
Plant in Zone G (340 MW Blocks)	4	$610	$2,440
Total Mid Generation Solution Cost			$2,440
Low			
Plant in Zone G (340 MW Blocks)	4	$460	$1,840
Total Low Generation Solution Cost			$1,840
Demand Response Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$50	$50
Zone G	1	$75	$75
Zone J	4	$275	$1,100
Total High Demand Response Solution Costs			$1,225
Mid	(200 MW Blocks)		
Zone F	1	$40	$40
Zone G	1	$60	$60
Zone J	4	$220	$880
Total Mid Demand Response Solution Costs			$980
Low	(200 MW Blocks)		
Zone F	1	$30	$30
Zone G	1	$45	$45
Zone J	4	$165	$660
Total Low Demand Response Solution Costs			$735
Energy Efficiency Solution : Zones F, G and J			
Cost Range	**Quantiy**	**Unit Pricing ($M/200MW block)**	**Total ($M)**
High	(200 MW Blocks)		
Zone F	1	$340	$340
Zone G	1	$380	$380
Zone J	4	$600	$2,400
Total High Energy Efficiency Solution Costs			$3,120
Mid	(200 MW Blocks)		
Zone F	1	$310	$310
Zone G	1	$350	$350
Zone J	4	$550	$2,200
Total Mid Energy Efficiency Solution Costs			$2,860
Low	(200 MW Blocks)		
Zone F	1	$280	$280
Zone G	1	$320	$320
Zone J	4	$500	$2,000
Total Low Energy Efficiency Solution Costs			$2,600

Appendix F - Economic Planning Process Manual - Congestion Assessment and Resource Integration Study (link)

http://www.nyiso.com/public/webdocs/markets_operations/documents/Manuals_and_Guides/Manuals/Planning/epp_caris_mnl.pdf

Appendix G - 2016 RNA and CRP Reports (link)

The 2016 RNA and CRP reports can be found through the following links:

http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Reliability_Planning_Studies/Reliability_Assessment_Documents/2016RNA_Final_Oct18_2016.pdf

http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Reliability_Planning_Studies/Reliability_Assessment_Documents/2016CRP_Report_Final_Apr11_2017.pdf

Appendix H - Generic Solution Results - Additional Details

Tables below present the CARIS metrics results for each of the six studies. The CARIS metrics are calculated as the change between the base case values and the change case values after each of the respective generic solutions have been added to the base case. The values are expressed in nominal $M and are calculated as Solution minus base case. Negative values are shown in red and with brackets (except for tables showing percentage changes) and represent a reduction in costs/payments.

Study 1: Central East - Edic - Marcy

Generic Transmission Solution (Study 1: Central East - Edic - Marcy)

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	1	(0)	(2)	1	5	45	(6)	1
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	(0)	(0)	(1)	(1)	(0)	(0)	0	(0)	(1)	1
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(0)	0	(0)	(1)	(0)	(1)	(0)	1	(1)
Hudson Valley	(1)	(4)	(1)	(2)	(0)	(0)	(2)	(0)	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(11)	(17)	(18)	(13)	(11)	(14)	(12)	(14)	(11)	(12)
Long Island	(1)	(2)	0	(1)	3	4	4	(0)	(0)	0
NYCA Total	(14)	(24)	(20)	(18)	(11)	(11)	(7)	29	(18)	(11)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	(0)	0	(0)	(8)	(2)	(6)	29	(8)	2
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	0	(1)	(3)	(8)	1	(1)	(1)	(4)	(6)	8
North	(1)	(1)	(1)	(2)	(2)	(2)	(1)	(2)	(1)	(0)
Mohawk Valley	(1)	(1)	(0)	(1)	(0)	(0)	(1)	(0)	(1)	(0)
Capital	(0)	(1)	4	(1)	(6)	(4)	(8)	(3)	2	(9)
Hudson Valley	(3)	(10)	(7)	(13)	(2)	(6)	(15)	(4)	(4)	(10)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(8)	(8)	(24)	(10)	(5)	(4)	(4)	(7)	(6)	(18)
Long Island	0	(0)	1	(1)	(1)	(0)	2	(2)	(0)	(1)
NYCA Total	(11)	(23)	(29)	(36)	(22)	(19)	(34)	7	(24)	(28)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	86	245	117	224	246	271	189	37	128	167
LINDEN VFT	(24)	(16)	(1)	(6)	(18)	(14)	(12)	(13)	(9)	(8)
NEPTUNE	(58)	(37)	(33)	(25)	(29)	(53)	(46)	(55)	(12)	(32)
HTP	(118)	(190)	(170)	(216)	(180)	(183)	(180)	(204)	(174)	(147)
ISONE - NYISO	(284)	(580)	(638)	(707)	(656)	(516)	(444)	(547)	(326)	(439)
CROSS SOUND CABLE	(14)	(13)	(6)	(22)	19	2	(19)	2	(16)	(6)
NORTHPORT NORWALK	(18)	(39)	(27)	(43)	(17)	(25)	(21)	(17)	(17)	(13)
IESO - NYISO	641	667	746	901	980	939	549	829	496	564
HQ - NYISO CHAT	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	203	29	(19)	99	338	413	10	25	64	81

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	9	18	15	17	20	16	14	16	22	24
Genesee	4	7	7	7	8	6	4	6	5	5
Central	32	50	55	56	62	54	38	47	48	46
North	8	14	16	17	18	14	8	12	12	12
Mohawk Valley	3	6	7	8	8	6	4	5	5	5
Capital	(17)	(13)	(17)	(14)	(20)	(21)	(10)	(12)	(12)	(12)
Hudson Valley	(2)	0	0	(4)	(8)	(13)	(7)	(8)	(12)	(13)
Millwood	(1)	(1)	(3)	(5)	(5)	(5)	(5)	(9)	(4)	(3)
Dunwoodie	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(5)	(7)	(13)	(16)	(21)	(22)	(16)	(26)	(20)	(18)
Long Island	2	1	(2)	(1)	(2)	(1)	(1)	(3)	(2)	(0)
NYCA Total	34	76	66	65	59	34	30	28	43	46

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	13	19	21	21	22	18	12	15	15	14
Genesee	7	13	13	14	15	11	7	9	9	9
Central	12	22	23	24	26	20	13	17	17	17
North	4	7	8	9	9	8	4	6	6	6
Mohawk Valley	8	12	13	14	15	13	9	11	11	11
Capital	(5)	(8)	(12)	(13)	(17)	(15)	(9)	(15)	(9)	(11)
Hudson Valley	(0)	(0)	(2)	(3)	(3)	(3)	(3)	(5)	(2)	(2)
Millwood	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dunwoodie	(0)	0	(1)	(2)	(2)	(2)	(2)	(3)	(1)	(1)
NY City	2	3	(7)	(10)	(12)	(12)	(10)	(19)	(7)	(6)
Long Island	1	1	(2)	(2)	(3)	(3)	(2)	(4)	(2)	(0)
NYCA Total	41	69	53	50	48	34	20	11	37	37

PROJECTED LBMPS CHANGE ($/MWh) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.8	1.2	1.4	1.4	1.5	1.3	0.8	1.1	1.0	0.9
Genesee	0.7	1.3	1.4	1.4	1.6	1.3	0.8	1.0	1.0	1.0
Central	0.8	1.3	1.5	1.5	1.6	1.3	0.8	1.1	1.1	1.1
North	1.0	1.6	1.8	1.9	2.1	1.7	1.0	1.4	1.3	1.3
Mohawk Valley	0.8	1.4	1.6	1.7	1.8	1.5	0.9	1.2	1.2	1.1
Capital	(0.4)	(0.5)	(0.8)	(0.9)	(1.2)	(1.0)	(0.5)	(1.0)	(0.5)	(0.6)
Hudson Valley	(0.0)	(0.0)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.5)	(0.2)	(0.2)
Millwood	(0.1)	(0.0)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.5)	(0.2)	(0.2)
Dunwoodie	(0.0)	(0.0)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.5)	(0.2)	(0.2)
NY City	0.0	0.0	(0.1)	(0.2)	(0.3)	(0.3)	(0.2)	(0.4)	(0.2)	(0.1)
Long Island	0.0	0.0	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.0)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	2	1	0	26	89	137	247	319	425	473
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(19)	(2)	(47)	1	(2)	4	1	2	9	7
North	0	0	0	0	(0)	(0)	0	0	0	0
Mohawk Valley	(0)	0	0	0	0	(0)	0	0	(0)	(0)
Capital	(1)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)	(0)
Hudson Valley	0	0	0	(0)	(0)	(1)	(0)	(0)	(0)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Long Island	0	1	(0)	0	(0)	0	0	(0)	(0)	(0)
NYCA Total	(18)	(1)	(47)	25	86	140	247	320	432	479

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	21	43	41	21	69	61	68	180	46	90
Genesee	6	12	11	8	8	5	0	2	(0)	0
Central	28	36	61	39	28	33	17	28	31	40
North	1	2	4	3	4	1	2	4	3	4
Mohawk Valley	(1)	2	3	2	2	1	1	1	(1)	(1)
Capital	(13)	(2)	1	4	(4)	3	14	4	11	5
Hudson Valley	(18)	9	17	7	(2)	(10)	4	(9)	(4)	2
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	8	17	(40)	(25)	(38)	(31)	(31)	(15)	(22)	(35)
Long Island	9	22	16	28	27	21	13	9	13	14
NYCA Total	42	141	115	88	95	83	87	206	77	120

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	13	14	15	14	56	75	138	177	223	250
Genesee	1	(0)	0	1	0	(0)	0	2	(1)	(0)
Central	142	140	145	106	111	142	121	163	145	133
North	1	3	1	0	(1)	(3)	1	3	1	2
Mohawk Valley	(2)	(0)	0	(0)	(1)	(3)	2	2	(2)	(2)
Capital	(151)	(82)	(75)	(52)	(91)	(100)	(17)	(27)	(48)	(33)
Hudson Valley	(36)	6	21	(28)	(86)	(112)	(58)	(71)	(80)	(111)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(98)	(120)	(88)	(101)	(156)	(166)	(113)	(150)	(130)	(117)
Long Island	15	14	(4)	5	(4)	9	4	(18)	(7)	(1)
NYCA Total	(115)	(26)	17	(56)	(170)	(160)	77	81	101	121

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.1	0.1	0.1	0.4	0.5	1.0	1.4	1.8	2.3
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)
Central	0.5	0.6	0.7	0.5	0.6	0.9	0.8	1.2	1.1	1.1
North	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0	0.0	0.0
Mohawk Valley	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	(0.0)
Capital	(0.5)	(0.4)	(0.3)	(0.2)	(0.5)	(0.7)	(0.1)	(0.2)	(0.4)	(0.3)
Hudson Valley	(0.1)	0.0	0.1	(0.2)	(0.6)	(0.9)	(0.4)	(0.6)	(0.7)	(1.1)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.4)	(0.4)	(0.3)	(0.5)	(0.7)	(0.8)	(0.4)	(0.7)	(0.7)	(0.6)
Long Island	0.0	0.1	(0.0)	0.1	0.0	0.1	0.1	(0.1)	(0.0)	0.0
NYCA Total	(0.5)	(0.1)	0.2	(0.2)	(0.7)	(0.9)	1.1	1.2	1.1	1.3

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Transmission Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2.7)	(3.5)	(3.7)	(4.1)	(4.5)	(4.5)	(3.8)	(4.6)	(4.6)	(4.8)
Genesee	(1.0)	(1.4)	(1.4)	(1.6)	(1.8)	(1.8)	(1.5)	(1.9)	(1.9)	(2.0)
Central	(0.8)	(0.8)	(1.0)	(1.1)	(1.1)	(1.3)	(1.3)	(1.4)	(1.5)	(1.6)
North	(0.3)	(0.4)	(0.5)	(0.5)	(0.6)	(0.4)	(0.3)	(0.4)	(0.4)	(0.4)
Mohawk Valley	0.1	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Capital	(1.4)	(0.8)	(1.0)	(1.1)	(0.9)	(1.3)	(2.2)	(1.9)	(1.7)	(2.2)
Hudson Valley	(0.8)	(0.5)	(0.6)	(0.8)	(0.6)	(0.9)	(1.4)	(1.1)	(1.2)	(1.4)
Millwood	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.3)	(0.3)	(0.3)	(0.4)
Dunwoodie	(0.4)	(0.2)	(0.3)	(0.4)	(0.2)	(0.5)	(0.8)	(0.6)	(0.6)	(0.8)
NY City	(3.4)	(1.2)	(2.0)	(2.7)	(1.1)	(3.3)	(6.3)	(4.7)	(4.9)	(6.3)
Long Island	(1.4)	(0.3)	(0.5)	(0.8)	(0.1)	(1.2)	(2.4)	(1.6)	(1.7)	(2.3)
NYCA Total	(12.4)	(9.2)	(11.0)	(13.0)	(10.8)	(15.2)	(20.2)	(18.4)	(18.5)	(22.1)

Generic Generation Solution (Study 1: Central East - Edic - Marcy)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	(0)	(1)	0	1	0	(2)	(1)	(2)	(1)
Genesee	0	(0)	(0)	(0)	0	(0)	(1)	(0)	(0)	(0)
Central	1	(0)	(1)	(0)	0	(0)	(1)	(0)	(0)	(0)
North	(0)	0	0	(0)	0	(0)	0	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	0	0	(0)	(0)	0	(0)	(0)	(0)
Capital	(3)	(1)	3	1	1	(0)	1	(0)	(1)	(2)
Hudson Valley	(1)	0	2	1	1	(0)	0	(1)	(1)	(1)
Millwood	(0)	0	0	0	0	(0)	0	(0)	(0)	(0)
Dunwoodie	(1)	0	1	0	0	(0)	0	(0)	(1)	(1)
NY City	(4)	2	8	12	10	1	5	4	(2)	2
Long Island	(1)	1	5	2	3	(2)	2	6	2	0
NYCA Total	(10)	2	19	16	17	(2)	6	8	(6)	(3)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(1)	(1)	(1)	(5)	(3)	(7)	1	(0)	1
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Central	(2)	0	(6)	(6)	(6)	(5)	(4)	0	(10)	(7)
North	(1)	(1)	(0)	(0)	(0)	(0)	(0)	0	(1)	(1)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)
Capital	15	14	15	27	22	21	31	33	31	54
Hudson Valley	(5)	(7)	(6)	(6)	(15)	(15)	(10)	(3)	(18)	(18)
Millwood	0	(0)	0	0	(0)	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(2)	(3)	(9)	0	(3)	(8)	(10)	(6)	(18)
Long Island	0	(1)	(0)	0	1	(2)	(1)	(2)	1	(1)
NYCA Total	2	3	(1)	5	(5)	(8)	0	19	(4)	7
NYCA Imports	(9)	(9)	(7)	(8)	(4)	(2)	(11)	(17)	(5)	(15)
NYCA Exports	4	3	3	3	4	3	4	8	4	10
NYCA + Imports - Exports	(10)	(9)	(10)	(7)	(12)	(13)	(15)	(6)	(13)	(17)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(30)	21	22	9	(75)	(27)	(109)	26	17	31
Genesee	(1)	(3)	(2)	(5)	(7)	(6)	(5)	1	(5)	(5)
Central	19	33	(83)	(174)	(93)	(110)	(85)	(4)	(195)	(161)
North	(15)	(18)	(4)	(11)	(7)	(9)	(9)	2	(16)	(14)
Mohawk Valley	(7)	(7)	(5)	(7)	(5)	(3)	(3)	(3)	(12)	(11)
Capital	597	558	506	719	558	572	895	752	763	1,114
Hudson Valley	(107)	(123)	(67)	(150)	(176)	(214)	(139)	(45)	(245)	(282)
Millwood	(0)	(0)	0	(0)	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(90)	(99)	(67)	(62)	(50)	(68)	(127)	(134)	(88)	(190)
Long Island	7	(15)	(3)	1	19	(23)	(22)	(28)	13	(21)
NYCA Total	373	348	296	318	164	114	396	568	232	462

PROJECTED NET IMPORTS CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	17	(84)	(146)	(29)	(90)	49	(137)	(225)	(89)	(168)
LINDEN VFT	(1)	(15)	8	(7)	(8)	(8)	(17)	(18)	(4)	(22)
NEPTUNE	(4)	(9)	(1)	(1)	14	13	(31)	(17)	(9)	(17)
HTP	(60)	(18)	(17)	(19)	(6)	(10)	(30)	(22)	(34)	(25)
ISONE - NYISO	(159)	(105)	(99)	(125)	(90)	(110)	(126)	(160)	(90)	(163)
CROSS SOUND CABLE	(21)	(2)	2	(11)	20	8	(8)	6	6	8
NORTHPORT NORWALK	(15)	(7)	(3)	(14)	11	(6)	(7)	1	(1)	(7)
IESO - NYISO	(133)	(108)	(40)	(111)	(19)	(49)	(41)	(131)	(11)	(70)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(376)	(347)	(297)	(317)	(169)	(114)	(398)	(566)	(231)	(464)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	0	(1)	0	(3)	0	(5)	(2)	2	0
Genesee	(0)	(0)	(1)	(0)	(0)	(0)	(1)	(1)	(0)	(1)
Central	(2)	(1)	(4)	(5)	(3)	(3)	(6)	(4)	(7)	(10)
North	(0)	(1)	(2)	(1)	(0)	(0)	(2)	(1)	(0)	(2)
Mohawk Valley	0	(0)	(1)	(0)	(0)	0	(1)	(1)	(0)	(1)
Capital	14	15	18	27	25	25	33	29	34	50
Hudson Valley	(5)	(6)	(4)	(6)	(10)	(11)	(8)	(4)	(15)	(16)
Millwood	(1)	(2)	(0)	1	1	(1)	(3)	(4)	(2)	(4)
Dunwoodie	0	(0)	0	(0)	0	(0)	(0)	(0)	(0)	(0)
NY City	(5)	(4)	(3)	(4)	2	(3)	(7)	(11)	(5)	(16)
Long Island	0	(1)	(1)	(0)	1	(1)	(1)	(1)	(0)	(1)
NYCA Total	4	(0)	1	12	12	6	(2)	0	7	(1)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(1)	(2)	(1)	(1)	(0)	(1)	(2)	3	(1)
Genesee	0	(1)	(1)	(0)	(0)	1	(1)	(2)	0	(1)
Central	0	(1)	(2)	(1)	(0)	0	(2)	(3)	1	(3)
North	0	(0)	(1)	(0)	0	0	(1)	(1)	0	(1)
Mohawk Valley	0	(1)	(1)	(0)	0	0	(1)	(1)	0	(1)
Capital	(3)	(2)	0	0	1	(0)	(1)	(3)	(1)	(5)
Hudson Valley	(1)	(1)	(0)	(0)	0	(1)	(2)	(3)	(1)	(3)
Millwood	(0)	(0)	(0)	0	0	(0)	(1)	(1)	(0)	(1)
Dunwoodie	(1)	(1)	(0)	(0)	0	(0)	(1)	(2)	(1)	(2)
NY City	(3)	(3)	(3)	8	8	0	(5)	(7)	(3)	(7)
Long Island	(1)	(1)	1	0	2	(2)	(2)	1	2	(4)
NYCA Total	(8)	(12)	(10)	6	10	(2)	(19)	(23)	(0)	(28)

PROJECTED LBMPS CHANGE ($/MWh) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)	(0.1)	(0.1)	0.1	(0.1)
Genesee	0.0	(0.1)	(0.1)	(0.0)	(0.0)	0.0	(0.1)	(0.1)	0.0	(0.1)
Central	0.0	(0.1)	(0.1)	(0.0)	(0.0)	0.0	(0.1)	(0.2)	0.0	(0.1)
North	0.0	(0.1)	(0.2)	(0.0)	0.0	0.0	(0.2)	(0.1)	0.0	(0.1)
Mohawk Valley	0.0	(0.1)	(0.2)	(0.0)	0.0	0.0	(0.2)	(0.2)	0.0	(0.2)
Capital	(0.2)	(0.1)	0.0	0.0	0.0	(0.0)	(0.1)	(0.2)	(0.1)	(0.3)
Hudson Valley	(0.1)	(0.1)	(0.0)	0.0	0.1	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)
Millwood	(0.1)	(0.1)	(0.0)	0.0	0.1	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)
Dunwoodie	(0.1)	(0.1)	(0.0)	0.0	0.1	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)
NY City	(0.0)	(0.1)	(0.0)	0.2	0.1	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)
Long Island	(0.1)	(0.1)	0.1	0.0	0.1	(0.1)	(0.1)	0.0	0.1	(0.2)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(70)	(0)	(0)	4	(195)	(94)	(232)	1	9	35
Genesee	(0)	0	0	(0)	(0)	(0)	(0)	0	(0)	(0)
Central	(72)	(53)	(135)	(6)	(51)	(15)	(0)	1	(0)	(0)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	0	(0)	0	0	(0)	(0)
Capital	51	40	38	49	52	49	62	56	60	70
Hudson Valley	(1)	(0)	(0)	(0)	(1)	(1)	(0)	(0)	(1)	(1)
Millwood	0	0	0	0	(0)	0	(0)	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
Long Island	(0)	0	0	0	0	(0)	0	(1)	0	(0)
NYCA Total	(93)	(14)	(97)	47	(195)	(61)	(171)	56	67	103

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(63)	(11)	(11)	(6)	(71)	(47)	(81)	18	(17)	(5)
Genesee	4	(0)	(1)	(3)	(3)	1	(1)	1	(2)	(1)
Central	(69)	(34)	(43)	(22)	(33)	(40)	(7)	4	(13)	(14)
North	(2)	(2)	(1)	(1)	0	(2)	(0)	2	(3)	(2)
Mohawk Valley	(2)	(2)	0	(2)	(2)	(1)	(1)	(0)	(3)	(3)
Capital	155	118	122	161	159	145	188	181	186	229
Hudson Valley	(17)	(8)	(10)	(0)	(5)	(9)	(2)	(9)	(13)	(8)
Millwood	0	0	0	0	(1)	0	(1)	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(22)	40	(36)	(1)	(32)	(27)	(29)	(9)	(19)	(10)
Long Island	19	(4)	(2)	4	11	(4)	(4)	(15)	11	9
NYCA Total	1	97	19	128	22	16	61	171	128	195

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.1	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(51)	(7)	(5)	(5)	(90)	(51)	(120)	5	1	15
Genesee	(2)	(1)	(1)	(2)	(3)	(3)	(2)	1	(2)	(2)
Central	(28)	(7)	(60)	(80)	(62)	(67)	(39)	(4)	(87)	(72)
North	(8)	(9)	(2)	(5)	(4)	(4)	(4)	1	(8)	(7)
Mohawk Valley	(4)	(3)	(2)	(4)	(3)	(2)	(1)	(1)	(6)	(6)
Capital	233	220	199	296	221	228	359	313	296	457
Hudson Valley	(72)	(72)	(47)	(75)	(104)	(113)	(84)	(39)	(114)	(150)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(63)	(44)	(43)	(40)	(24)	(35)	(63)	(71)	(55)	(104)
Long Island	8	(6)	(4)	2	11	(11)	(15)	(17)	7	(7)
NYCA Total	12	68	33	87	(57)	(58)	31	187	30	126

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.2)	(0.0)	(0.0)	(0.0)	(0.6)	(0.3)	(0.9)	0.0	0.0	0.1
Genesee	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.1)	0.0	(0.3)	(0.5)	(0.4)	(0.4)	(0.3)	0.0	(0.7)	(0.6)
North	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.1)	(0.1)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)
Capital	0.9	1.0	1.1	1.8	1.5	1.6	2.7	2.6	2.6	4.3
Hudson Valley	(0.2)	(0.3)	(0.2)	(0.4)	(0.7)	(0.8)	(0.6)	(0.2)	(1.0)	(1.4)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.3)	0.0	(0.2)	(0.2)	(0.3)	(0.2)	(0.3)	(0.4)	(0.4)	(0.7)
Long Island	0.0	(0.0)	(0.0)	0.0	0.1	(0.1)	(0.1)	(0.2)	0.0	(0.1)
NYCA Total	0.0	0.5	0.2	0.6	(0.5)	(0.4)	0.5	1.9	0.3	1.5

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Generation Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.3	0.2	0.3	0.5	0.5	0.3	0.7	0.5	0.2	0.5
Genesee	0.1	0.1	0.1	0.2	0.3	0.2	0.4	0.2	0.1	0.2
Central	0.1	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2
North	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1
Mohawk Valley	0.0	0.0	(0.0)	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0
Capital	0.2	(0.0)	(0.2)	(0.2)	0.1	0.0	(0.3)	(0.1)	0.1	(0.3)
Hudson Valley	0.2	0.1	(0.1)	(0.0)	0.0	0.1	0.0	0.1	0.1	0.2
Millwood	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Dunwoodie	0.1	0.1	(0.0)	0.0	0.0	0.1	0.0	0.1	0.1	0.2
NY City	1.1	0.6	(0.4)	0.1	0.2	0.6	0.4	0.9	0.9	1.8
Long Island	0.4	0.2	(0.2)	(0.0)	0.1	0.3	0.1	0.3	0.3	0.7
NYCA Total	2.7	1.3	(0.5)	0.8	1.3	1.7	1.6	2.1	2.0	3.7

Generic Demand Response Solution (Study 1: Central East - Edic - Marcy)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	(0)	(1)	(0)	(0)	(0)	(0)	(1)	(0)
Genesee	0	(0)	0	0	0	0	0	0	(0)	(0)
Central	0	0	0	0	0	0	(0)	(0)	(0)	(0)
North	(0)	0	0	0	0	0	0	0	0	0
Mohawk Valley	(0)	0	0	0	0	0	0	0	0	0
Capital	(0)	0	(0)	0	0	(0)	0	0	0	(0)
Hudson Valley	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	(0)
Millwood	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	(0)
Dunwoodie	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	(0)
NY City	(2)	(7)	(7)	1	(3)	(1)	(1)	(1)	(1)	(0)
Long Island	(0)	0	(0)	0	0	1	0	1	1	1
NYCA Total	(2)	(7)	(7)	1	(2)	(1)	(1)	1	(2)	(0)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	(0)	(0)	(0)	(0)	2	(0)	0
Genesee	(0)	0	0	(0)	0	0	(0)	(0)	(0)	(0)
Central	(0)	(0)	(0)	(1)	0	(0)	(0)	(1)	(1)	1
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(0)	(0)	0	(0)	(1)	(0)	(1)	(0)	0	(1)
Hudson Valley	(0)	(1)	(1)	(1)	(0)	(0)	(2)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(1)	(2)	(1)	(0)	(0)	(0)	(1)	(1)	(2)
Long Island	0	(0)	0	(0)	(0)	(0)	0	(0)	(0)	(0)
NYCA Total	(1)	(2)	(2)	(3)	(2)	(2)	(4)	(1)	(2)	(3)
NYCA Imports	(1)	(1)	(1)	(0)	(1)	(2)	(1)	(3)	(1)	(1)
NYCA Exports	1	0	0	0	0	0	(1)	(1)	0	0
NYCA + Imports - Exports	(3)	(3)	(3)	(4)	(3)	(3)	(4)	(3)	(4)	(4)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	(0)	2	(4)	(13)	(4)	(6)	26	(8)	5
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(1)	(0)	(0)
Central	1	(2)	(7)	(18)	2	(2)	(1)	(10)	(14)	19
North	(1)	(2)	(1)	(3)	(3)	(3)	(2)	(3)	(2)	(1)
Mohawk Valley	(1)	(2)	(0)	(2)	(1)	(1)	(2)	(1)	(2)	(0)
Capital	24	24	38	20	9	14	4	17	27	1
Hudson Valley	16	3	9	1	17	12	(7)	9	13	5
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	9	8	(18)	6	14	16	16	10	9	(9)
Long Island	1	(0)	1	(1)	(2)	(1)	2	(3)	(0)	(3)
NYCA Total	50	29	23	(1)	24	33	5	45	23	17

PROJECTED NET IMPORTS CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(19)	(4)	(6)	5	(16)	(19)	(7)	(28)	(0)	3
LINDEN VFT	(1)	(4)	0	(1)	(1)	(4)	(3)	(2)	(3)	2
NEPTUNE	(6)	(2)	(5)	(0)	2	2	(1)	3	(1)	(1)
HTP	1	1	(1)	3	(5)	(2)	(1)	(3)	(7)	(1)
ISONE - NYISO	(16)	(11)	(1)	(10)	(9)	(2)	1	(6)	(8)	(23)
CROSS SOUND CABLE	2	(1)	1	1	(2)	(2)	1	(2)	(2)	(1)
NORTHPORT NORWALK	(1)	(2)	(3)	(1)	(2)	(2)	(0)	(0)	(1)	0
IESO - NYISO	(11)	(7)	(8)	2	9	(7)	5	(7)	(1)	2
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(51)	(29)	(22)	0	(24)	(35)	(5)	(44)	(22)	(18)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	(0)	0	(1)	(0)	(0)	0	(0)	0
Genesee	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	0	(0)
Central	(0)	(0)	(0)	1	(0)	(0)	0	(1)	(1)	1
North	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Capital	0	0	1	2	0	0	0	1	1	(0)
Hudson Valley	1	(0)	0	1	1	1	(0)	0	1	0
Millwood	(0)	(0)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	0	0	0	0	0	0	(0)	(0)	(0)	(0)
NY City	(1)	(4)	(4)	1	(1)	(0)	0	(1)	(1)	(1)
Long Island	(0)	(1)	(0)	1	(0)	0	(0)	(0)	(0)	0
NYCA Total	(2)	(6)	(4)	8	(1)	0	(1)	(1)	(1)	(0)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(1)	(0)	1	(0)	0	0	0	1	(0)
Genesee	(0)	(0)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Central	(0)	(0)	(0)	1	(0)	(0)	(0)	(0)	0	(0)
North	(0)	(0)	(0)	0	(0)	0	0	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(0)	(1)	(0)	1	(0)	(0)	(0)	(0)	0	(0)
Hudson Valley	(0)	(1)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(3)	(9)	(8)	2	(4)	(2)	(1)	(3)	(3)	(1)
Long Island	(1)	(1)	(1)	2	(0)	0	(0)	0	(0)	0
NYCA Total	(6)	(13)	(10)	10	(5)	(2)	(2)	(4)	(2)	(2)

PROJECTED LBMPS CHANGE ($/MWh) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	(0.0)	(0.0)	0.1	(0.0)	0.0	0.0	0.0	0.0	(0.0)
Genesee	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)
Central	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	0.0	(0.0)	0.0	(0.0)
North	(0.0)	(0.0)	(0.0)	0.1	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)
Mohawk Valley	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Capital	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	0.0	(0.0)	0.0	(0.0)
Hudson Valley	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Millwood	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)
Dunwoodie	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
NY City	(0.0)	(0.1)	(0.1)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	(0.0)	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	0.0	0.0

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	0	(19)	(5)	(12)	70	(18)	5
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(0)	0	(0)	(0)	0	(0)	0	(0)	(0)	0
North	0	0	0	(0)	(0)	(0)	0	(0)	0	0
Mohawk Valley	0	0	0	0	0	0	0	0	0	0
Capital	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	0	(0)
Hudson Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(1)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Long Island	(0)	(0)	0	(0)	(0)	0	0	(0)	0	(0)
NYCA Total	(1)	(2)	(1)	(0)	(19)	(6)	(13)	70	(18)	5

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	1	(0)	(2)	1	5	45	(6)	1
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	(0)	(0)	(1)	(1)	(0)	(0)	0	(0)	(1)	1
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(0)	0	(0)	(1)	(0)	(1)	(0)	1	(1)
Hudson Valley	(1)	(4)	(1)	(2)	(0)	(0)	(2)	(0)	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(11)	(17)	(18)	(13)	(11)	(14)	(12)	(14)	(11)	(12)
Long Island	(1)	(2)	0	(1)	3	4	4	(0)	(0)	0
NYCA Total	(14)	(24)	(20)	(18)	(11)	(11)	(7)	29	(18)	(11)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	(0)	0	(0)	(8)	(2)	(6)	29	(8)	2
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	0	(1)	(3)	(8)	1	(1)	(1)	(4)	(6)	8
North	(1)	(1)	(1)	(2)	(2)	(2)	(1)	(2)	(1)	(0)
Mohawk Valley	(1)	(1)	(0)	(1)	(0)	(0)	(1)	(0)	(1)	(0)
Capital	(0)	(1)	4	(1)	(6)	(4)	(8)	(3)	2	(9)
Hudson Valley	(3)	(10)	(7)	(13)	(2)	(6)	(15)	(4)	(4)	(10)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(8)	(8)	(24)	(10)	(5)	(4)	(4)	(7)	(6)	(18)
Long Island	0	(0)	1	(1)	(1)	(0)	2	(2)	(0)	(1)
NYCA Total	(11)	(23)	(29)	(36)	(22)	(19)	(34)	7	(24)	(28)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.2	(0.1)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	(0.1)	0.1
North	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.0
Capital	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	0.0	(0.1)
Hudson Valley	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.2)
Long Island	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)
NYCA Total	(0.0)	(0.1)	(0.1)	(0.2)	(0.1)	(0.1)	(0.2)	0.1	(0.2)	(0.2)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Demand Response Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.0	0.0	0.1	0.0	0.0	0.0	(0.0)	0.0	(0.0)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)
Hudson Valley	(0.0)	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	0.0
Millwood	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	0.0
Dunwoodie	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
NY City	(0.2)	(0.3)	(0.1)	0.2	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	0.1
Long Island	(0.1)	(0.1)	(0.1)	0.1	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	0.1
NYCA Total	(0.2)	(0.6)	(0.3)	0.5	(0.3)	(0.3)	(0.4)	(0.5)	(0.4)	0.1

Generic Energy Efficiency Solution (Study 1: Central East - Edic - Marcy)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(2)	(4)	(2)	(1)	(1)	(3)	(2)	(4)	(4)
Genesee	(0)	(1)	(1)	(1)	0	(0)	(1)	(0)	(1)	(1)
Central	0	(1)	(1)	(1)	0	0	(1)	(0)	(1)	(2)
North	(0)	(0)	0	(0)	0	0	0	(0)	(0)	0
Mohawk Valley	(0)	(0)	0	0	(0)	0	0	(0)	(0)	(0)
Capital	(5)	(9)	(9)	(6)	(11)	(9)	(4)	(11)	(10)	(5)
Hudson Valley	(5)	(8)	(8)	(7)	(9)	(7)	(5)	(8)	(8)	(5)
Millwood	(0)	(1)	(1)	(0)	(1)	(1)	(0)	(1)	(1)	(0)
Dunwoodie	(1)	(2)	(2)	(1)	(2)	(1)	(1)	(3)	(3)	(1)
NY City	(16)	(30)	(30)	(15)	(26)	(24)	(14)	(30)	(30)	(13)
Long Island	4	8	(1)	3	(3)	(1)	2	3	6	6
NYCA Total	(24)	(45)	(57)	(30)	(52)	(44)	(27)	(53)	(51)	(25)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	2	1	(0)	(0)	(2)	(0)	(0)	(1)	1
Genesee	0	0	0	(0)	0	(0)	(0)	1	(0)	(0)
Central	(4)	1	(4)	(1)	(2)	(6)	(3)	(4)	(4)	(4)
North	0	(0)	0	0	(0)	0	(0)	1	(0)	0
Mohawk Valley	0	0	0	0	0	(0)	0	0	(0)	(0)
Capital	(17)	(17)	(27)	(16)	(21)	(27)	(22)	(13)	(21)	(30)
Hudson Valley	(1)	(3)	(8)	(15)	(14)	(19)	(17)	(16)	(15)	(23)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(25)	(30)	(26)	(27)	(29)	(29)	(25)	(30)	(37)	(30)
Long Island	(5)	(7)	(3)	(1)	(2)	(2)	(2)	(0)	(6)	(6)
NYCA Total	(52)	(54)	(66)	(61)	(69)	(86)	(68)	(61)	(85)	(91)
NYCA Imports	(19)	(19)	(18)	(25)	(21)	(18)	(29)	(29)	(28)	(26)
NYCA Exports	16	17	17	22	20	16	19	25	19	18
NYCA + Imports - Exports	(87)	(90)	(101)	(108)	(111)	(119)	(117)	(116)	(131)	(135)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	43	5	0	(14)	(29)	(15)	(8)	(26)	5
Genesee	3	2	0	(1)	(0)	(2)	(4)	7	(2)	(2)
Central	(140)	(96)	(169)	(92)	(42)	(159)	(81)	(130)	(96)	(117)
North	(0)	(6)	(1)	3	(5)	2	(6)	9	(9)	1
Mohawk Valley	0	2	0	(1)	0	(2)	3	5	(2)	(1)
Capital	(529)	(472)	(681)	(395)	(562)	(669)	(491)	(332)	(486)	(595)
Hudson Valley	(68)	(103)	(196)	(399)	(347)	(401)	(395)	(401)	(322)	(448)
Millwood	0	(0)	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(728)	(977)	(673)	(568)	(655)	(564)	(500)	(568)	(673)	(519)
Long Island	(128)	22	(56)	(36)	(36)	(41)	(39)	(10)	(2)	6
NYCA Total	(1,594)	(1,586)	(1,770)	(1,490)	(1,662)	(1,865)	(1,529)	(1,428)	(1,617)	(1,669)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(299)	(324)	(277)	(350)	(341)	(227)	(332)	(442)	(345)	(335)
LINDEN VFT	(34)	(8)	(7)	(16)	(20)	(25)	(37)	(17)	(24)	(30)
NEPTUNE	(91)	(93)	(35)	(25)	(3)	(38)	(64)	(57)	(65)	(86)
HTP	(160)	(201)	(162)	(135)	(139)	(110)	(130)	(186)	(163)	(85)
ISONE - NYISO	(416)	(469)	(381)	(509)	(396)	(327)	(390)	(481)	(354)	(379)
CROSS SOUND CABLE	13	38	(24)	(29)	(26)	3	(19)	14	(2)	3
NORTHPORT NORWALK	(4)	36	(31)	(34)	(26)	(20)	(25)	(13)	0	(7)
IESO - NYISO	(135)	(102)	(10)	(102)	(58)	(54)	(128)	(38)	(70)	(47)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,127)	(1,122)	(927)	(1,199)	(1,010)	(798)	(1,125)	(1,220)	(1,022)	(967)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	2	0	(2)	(2)	(1)	(2)	(3)	(0)	(1)
Genesee	(1)	(0)	(0)	(1)	(1)	(0)	(1)	(1)	(0)	(1)
Central	(14)	(5)	(5)	(8)	(4)	(1)	(8)	(11)	(5)	(10)
North	(2)	(1)	(1)	(2)	(1)	(0)	(2)	(1)	(1)	(3)
Mohawk Valley	(1)	(0)	(0)	(1)	(0)	(0)	(1)	(1)	(0)	(1)
Capital	(25)	(24)	(32)	(21)	(29)	(31)	(29)	(24)	(30)	(37)
Hudson Valley	(4)	(6)	(10)	(18)	(17)	(18)	(20)	(21)	(20)	(27)
Millwood	(7)	(8)	(7)	(6)	(7)	(5)	(7)	(11)	(9)	(8)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(38)	(47)	(39)	(37)	(41)	(37)	(36)	(46)	(50)	(38)
Long Island	(6)	(4)	(5)	(3)	(3)	(3)	(4)	(3)	(5)	(3)
NYCA Total	(100)	(93)	(99)	(99)	(105)	(96)	(110)	(121)	(120)	(129)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(3)	0	2	(1)	(1)	1	(1)	(1)	3	(0)
Genesee	(2)	(1)	(0)	(2)	(1)	(0)	(2)	(2)	(0)	(2)
Central	(4)	(2)	(1)	(3)	(2)	(1)	(3)	(3)	(1)	(3)
North	(1)	(1)	(0)	(1)	(0)	(0)	(1)	(1)	(0)	(1)
Mohawk Valley	(2)	(1)	(1)	(2)	(1)	(1)	(2)	(2)	(1)	(2)
Capital	(38)	(41)	(43)	(45)	(48)	(47)	(50)	(56)	(57)	(56)
Hudson Valley	(32)	(34)	(36)	(38)	(40)	(39)	(42)	(45)	(46)	(47)
Millwood	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(1)
Dunwoodie	(3)	(3)	(3)	(2)	(3)	(2)	(3)	(4)	(3)	(3)
NY City	(57)	(66)	(67)	(63)	(64)	(61)	(66)	(79)	(76)	(69)
Long Island	(2)	4	(4)	(3)	(6)	(3)	(5)	(3)	3	(0)
NYCA Total	(144)	(145)	(155)	(163)	(166)	(154)	(176)	(199)	(181)	(184)

PROJECTED LBMPS CHANGE ($/MWh) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.2)	0.0	0.1	(0.1)	(0.0)	0.0	(0.1)	(0.1)	0.2	(0.0)
Genesee	(0.2)	(0.0)	(0.0)	(0.2)	(0.1)	(0.0)	(0.2)	(0.2)	(0.0)	(0.2)
Central	(0.2)	(0.1)	(0.0)	(0.2)	(0.1)	(0.0)	(0.2)	(0.2)	(0.0)	(0.2)
North	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.0)	(0.2)	(0.2)	(0.1)	(0.3)
Mohawk Valley	(0.3)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)	(0.3)	(0.2)	(0.1)	(0.3)
Capital	(0.5)	(0.6)	(0.4)	(0.4)	(0.6)	(0.4)	(0.5)	(0.8)	(0.7)	(0.5)
Hudson Valley	(0.4)	(0.5)	(0.4)	(0.4)	(0.4)	(0.3)	(0.5)	(0.7)	(0.5)	(0.5)
Millwood	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.6)	(0.5)	(0.4)
Dunwoodie	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.6)	(0.5)	(0.4)
NY City	(0.4)	(0.5)	(0.5)	(0.4)	(0.4)	(0.4)	(0.5)	(0.6)	(0.6)	(0.4)
Long Island	(0.1)	0.2	(0.2)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	0.1	(0.1)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(10)	62	(0)	(5)	(29)	(75)	(2)	(51)	(63)	14
Genesee	0	0	0	(0)	0	(0)	(0)	0	(0)	0
Central	(70)	204	58	7	(35)	(10)	5	(3)	(0)	(0)
North	(0)	(0)	0	0	(0)	0	(0)	0	(0)	(0)
Mohawk Valley	(0)	0	0	(0)	0	(0)	0	0	(0)	0
Capital	(1)	(1)	(1)	(0)	(2)	(1)	(0)	(0)	(1)	(1)
Hudson Valley	(1)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	(0)	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(4)	(3)	(2)	(2)	(1)	(1)	(2)	(2)	(1)
Long Island	(0)	(0)	0	0	(0)	(0)	(0)	(0)	0	(0)
NYCA Total	(84)	261	54	(1)	(69)	(89)	1	(57)	(67)	10

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	37	4	(5)	(8)	(28)	(17)	(4)	(56)	22
Genesee	(1)	0	1	1	(2)	(1)	(1)	2	(1)	0
Central	(27)	18	17	12	4	(32)	9	(21)	(6)	(8)
North	(0)	(3)	2	0	(0)	0	(1)	3	(2)	2
Mohawk Valley	0	2	1	(0)	0	(0)	1	2	0	(1)
Capital	(13)	(14)	(13)	(1)	(13)	(18)	(11)	(4)	(11)	(10)
Hudson Valley	(26)	(30)	(17)	(22)	(12)	(20)	(16)	(53)	(16)	(3)
Millwood	0	0	0	0	(0)	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(177)	(291)	(234)	(138)	(178)	(80)	(80)	(82)	(104)	(132)
Long Island	(16)	(9)	(12)	2	20	(5)	(29)	(8)	(3)	(5)
NYCA Total	(263)	(290)	(253)	(151)	(188)	(184)	(145)	(164)	(198)	(136)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	0.0	(0.0)
Long Island	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.1)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(7)	35	5	(3)	(11)	(33)	(7)	(18)	(26)	10
Genesee	2	1	0	(1)	0	(1)	(2)	4	(1)	(1)
Central	(71)	(25)	(56)	(25)	(14)	(77)	(29)	(61)	(43)	(50)
North	0	(2)	(1)	2	(3)	2	(3)	5	(4)	(0)
Mohawk Valley	0	1	0	(0)	(0)	(2)	1	3	(1)	(0)
Capital	(212)	(188)	(280)	(155)	(225)	(263)	(199)	(108)	(194)	(234)
Hudson Valley	(40)	(54)	(96)	(173)	(144)	(186)	(169)	(189)	(129)	(180)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(407)	(515)	(376)	(298)	(356)	(294)	(242)	(311)	(346)	(266)
Long Island	(75)	(6)	(34)	(20)	(22)	(23)	(24)	(6)	(6)	1
NYCA Total	(809)	(753)	(836)	(674)	(774)	(878)	(675)	(682)	(750)	(721)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.2	0.0	(0.0)	(0.0)	(0.2)	(0.0)	(0.1)	(0.2)	0.1
Genesee	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.3)	(0.1)	(0.3)	(0.1)	(0.1)	(0.5)	(0.2)	(0.4)	(0.3)	(0.4)
North	0.0	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)	0.1	(0.0)	0.0
Mohawk Valley	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0	(0.0)	0.0
Capital	(0.7)	(0.8)	(1.4)	(0.8)	(1.4)	(1.8)	(1.4)	(0.8)	(1.6)	(2.1)
Hudson Valley	(0.1)	(0.2)	(0.5)	(1.0)	(0.9)	(1.3)	(1.2)	(1.4)	(1.1)	(1.6)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.0)	(1.6)	(1.3)	(1.0)	(1.6)	(1.4)	(1.0)	(1.7)	(1.9)	(1.6)
Long Island	(0.3)	(0.0)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)	(0.0)
NYCA Total	(2.4)	(2.6)	(3.6)	(3.0)	(4.1)	(5.4)	(4.0)	(4.3)	(5.3)	(5.7)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 1: Central East - Edic-Marcy | Generic Emergency Efficiency Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.5	0.4	0.2	0.7	0.4	0.5	0.7	0.5	0.4	0.5
Genesee	0.2	0.2	0.1	0.2	0.1	0.3	0.3	0.2	0.2	0.2
Central	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2
North	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
Mohawk Valley	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)
Capital	(2.9)	(3.0)	(3.1)	(3.7)	(3.6)	(3.5)	(4.1)	(4.2)	(4.3)	(4.6)
Hudson Valley	(2.1)	(1.9)	(2.1)	(2.3)	(2.2)	(2.3)	(2.4)	(2.4)	(2.3)	(2.6)
Millwood	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	0.0	(0.0)
Dunwoodie	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)
NY City	(3.2)	(2.6)	(3.3)	(4.0)	(2.8)	(3.5)	(4.1)	(3.3)	(2.6)	(4.0)
Long Island	(0.2)	(0.3)	(0.2)	(0.4)	0.0	(0.2)	(0.4)	(0.2)	0.2	(0.2)
NYCA Total	(7.8)	(7.2)	(8.5)	(9.6)	(7.9)	(8.7)	(10.1)	(9.3)	(8.2)	(10.7)

Study 2: Central East

Generic Transmission Solution (Study 2: Central East)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 2: Central East | Generic Transmission Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(9)	(6)	(2)	3	4	1	(2)	2	2	0
Genesee	(5)	(4)	(2)	1	1	0	(0)	1	1	0
Central	(7)	(6)	(3)	2	3	1	0	2	2	1
North	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	3	2	1	0	(1)	1	(1)	(1)	(1)	(1)
Capital	(8)	(17)	(27)	(31)	(34)	(24)	(14)	(26)	(22)	(20)
Hudson Valley	(2)	(7)	(13)	(17)	(18)	(13)	(8)	(14)	(12)	(11)
Millwood	(1)	(2)	(4)	(5)	(5)	(4)	(2)	(4)	(3)	(3)
Dunwoodie	(1)	(4)	(8)	(10)	(10)	(7)	(5)	(9)	(7)	(6)
NY City	(7)	(32)	(64)	(81)	(87)	(61)	(38)	(66)	(55)	(52)
Long Island	(1)	(12)	(23)	(31)	(33)	(24)	(14)	(23)	(22)	(21)
NYCA Total	(36)	(87)	(145)	(167)	(180)	(130)	(85)	(138)	(117)	(113)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	3	5	9	15	8	12	10	13	10	14
Genesee	0	0	0	0	0	(0)	0	0	(0)	(0)
Central	12	14	13	11	13	13	16	18	23	17
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0	(0)
Mohawk Valley	0	0	0	0	(0)	(0)	(0)	0	(0)	(1)
Capital	(10)	(10)	(12)	(8)	(17)	(8)	(2)	(8)	(5)	(9)
Hudson Valley	(2)	(3)	(4)	(6)	(15)	(17)	(16)	(6)	(18)	(19)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(11)	(14)	(18)	(18)	(17)	(18)	(13)	(22)	(18)	(15)
Long Island	(1)	0	(1)	(2)	(1)	(1)	(1)	(3)	(1)	(0)
NYCA Total	(9)	(8)	(14)	(8)	(30)	(21)	(6)	(7)	(8)	(13)
NYCA Imports	1	2	8	7	14	10	3	9	1	6
NYCA Exports	3	8	13	15	10	8	5	15	9	13
NYCA + Imports - Exports	(11)	(14)	(19)	(15)	(26)	(18)	(8)	(13)	(17)	(20)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 2: Central East | Generic Transmission Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	66	99	139	258	134	194	163	190	251	290
Genesee	5	4	5	5	5	1	1	2	(1)	(4)
Central	460	483	455	323	411	374	395	419	527	359
North	(4)	(7)	(4)	(3)	0	(4)	(0)	0	7	(1)
Mohawk Valley	5	4	10	5	3	2	0	4	(2)	(7)
Capital	(286)	(209)	(249)	(139)	(300)	(156)	(70)	(191)	(67)	(142)
Hudson Valley	(38)	(71)	(94)	(117)	(276)	(314)	(272)	(124)	(269)	(271)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(296)	(367)	(403)	(378)	(345)	(379)	(264)	(399)	(313)	(252)
Long Island	(20)	7	(27)	(39)	(28)	(16)	(18)	(36)	(23)	(7)
NYCA Total	(108)	(56)	(167)	(85)	(396)	(298)	(65)	(134)	109	(34)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 2: Central East | Generic Transmission Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	41	69	63	52	82	51	18	(4)	(73)	6
LINDEN VFT	3	(8)	(2)	1	(10)	(8)	(25)	(2)	(6)	(10)
NEPTUNE	(41)	(40)	(21)	(14)	(23)	(55)	(44)	(30)	(16)	(29)
HTP	(147)	(195)	(170)	(179)	(146)	(135)	(183)	(200)	(152)	(144)
ISONE - NYISO	(157)	(238)	(310)	(362)	(227)	(216)	(88)	(290)	(189)	(181)
CROSS SOUND CABLE	10	20	28	14	10	14	(4)	6	(18)	(5)
NORTHPORT NORWALK	2	7	(0)	(15)	2	3	(6)	(9)	(3)	2
IESO - NYISO	386	436	584	592	705	651	396	663	354	400
HQ - NYISO CHAT	(6)	(7)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	90	45	166	83	388	297	59	128	(108)	32

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	10	17	19	22	22	18	16	16	24	27
Genesee	3	5	6	6	7	5	3	4	4	4
Central	33	44	52	50	57	46	36	43	51	45
North	4	8	11	13	14	10	6	10	10	9
Mohawk Valley	2	5	6	7	7	5	3	5	5	4
Capital	(16)	(14)	(21)	(15)	(22)	(14)	(9)	(18)	(10)	(12)
Hudson Valley	(2)	(3)	(5)	(7)	(13)	(15)	(14)	(8)	(16)	(15)
Millwood	(4)	(4)	(7)	(7)	(5)	(6)	(6)	(11)	(4)	(3)
Dunwoodie	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(15)	(16)	(28)	(27)	(22)	(26)	(19)	(34)	(22)	(19)
Long Island	(2)	(0)	(4)	(4)	(2)	(3)	(2)	(4)	(2)	(1)
NYCA Total	12	42	28	39	42	21	14	2	39	40

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	11	15	16	16	17	12	9	10	12	12
Genesee	6	10	11	11	13	9	6	7	8	8
Central	10	17	19	19	22	16	10	13	14	14
North	2	4	6	7	8	6	3	5	5	5
Mohawk Valley	6	10	11	12	13	11	7	9	10	10
Capital	(8)	(10)	(15)	(15)	(16)	(13)	(9)	(17)	(10)	(10)
Hudson Valley	(3)	(2)	(5)	(4)	(3)	(4)	(3)	(7)	(3)	(2)
Millwood	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(1)
Dunwoodie	(1)	(1)	(3)	(2)	(2)	(2)	(2)	(4)	(1)	(1)
NY City	(10)	(7)	(21)	(17)	(13)	(16)	(13)	(27)	(8)	(8)
Long Island	(3)	(2)	(6)	(4)	(2)	(4)	(3)	(6)	(2)	(2)
NYCA Total	8	33	12	20	35	14	4	(18)	24	26

PROJECTED LBMPS CHANGE ($/MWh) | Study 2: Central East | Generic Transmission Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.7	1.0	1.1	1.0	1.1	0.8	0.6	0.7	0.7	0.8
Genesee	0.6	1.0	1.2	1.2	1.3	0.9	0.6	0.8	0.8	0.8
Central	0.6	1.0	1.2	1.2	1.4	1.0	0.6	0.8	0.9	0.9
North	0.5	1.0	1.3	1.5	1.7	1.2	0.7	1.1	1.1	1.1
Mohawk Valley	0.7	1.1	1.3	1.4	1.6	1.2	0.7	1.0	1.0	1.0
Capital	(0.6)	(0.7)	(1.0)	(1.0)	(1.1)	(0.9)	(0.5)	(1.1)	(0.6)	(0.6)
Hudson Valley	(0.2)	(0.2)	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)	(0.6)	(0.2)	(0.2)
Millwood	(0.3)	(0.2)	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.6)	(0.2)	(0.2)
Dunwoodie	(0.2)	(0.2)	(0.4)	(0.4)	(0.3)	(0.3)	(0.3)	(0.6)	(0.2)	(0.2)
NY City	(0.2)	(0.2)	(0.4)	(0.3)	(0.3)	(0.3)	(0.3)	(0.5)	(0.2)	(0.2)
Long Island	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.3)	(0.1)	(0.1)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Transmission Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	66	130	243	499	229	361	331	357	449	528
Genesee	0	0	0	0	0	(0)	0	0	0	(0)
Central	16	42	(91)	10	(26)	(4)	12	2	10	21
North	0	(0)	(0)	0	(0)	(0)	0	0	0	(0)
Mohawk Valley	0	0	0	0	0	(0)	0	0	0	(0)
Capital	(1)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(0)
Hudson Valley	(0)	0	(0)	(0)	(1)	(1)	(1)	(0)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Long Island	0	1	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	81	172	149	507	200	355	342	357	457	548

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Transmission Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	65	117	179	310	181	226	85	186	47	48
Genesee	6	10	10	8	8	4	0	2	(0)	(0)
Central	34	41	25	62	26	15	56	34	43	66
North	(1)	(1)	0	(1)	(0)	(2)	(2)	(1)	0	(3)
Mohawk Valley	1	2	4	2	1	1	0	1	(1)	(1)
Capital	(6)	(2)	(1)	8	(4)	7	10	(0)	11	4
Hudson Valley	(15)	(10)	(13)	7	(5)	(9)	(11)	(8)	(15)	(4)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(60)	(27)	(73)	(77)	(48)	(39)	(26)	(24)	(23)	(21)
Long Island	(7)	23	(5)	6	0	0	9	(8)	(5)	(4)
NYCA Total	17	153	127	324	160	203	122	184	57	84

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 2: Central East | Generic Transmission Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	47	85	149	265	139	213	170	203	251	287
Genesee	1	0	1	1	(0)	(1)	0	1	(0)	(2)
Central	193	192	162	129	143	140	183	177	231	174
North	(2)	(3)	(2)	(1)	0	(1)	0	1	4	(0)
Mohawk Valley	1	0	3	1	(2)	(1)	(0)	2	(1)	(4)
Capital	(112)	(86)	(97)	(54)	(127)	(60)	(30)	(73)	(30)	(58)
Hudson Valley	(25)	(33)	(53)	(39)	(124)	(134)	(119)	(53)	(114)	(121)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(166)	(190)	(205)	(184)	(178)	(182)	(127)	(194)	(151)	(116)
Long Island	(9)	10	(13)	(18)	(14)	(9)	(7)	(17)	(10)	(2)
NYCA Total	(72)	(24)	(55)	101	(163)	(36)	71	45	178	159

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.2	0.4	0.8	1.6	0.9	1.5	1.3	1.6	2.0	2.5
Genesee	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	(0.0)
Central	0.7	0.8	0.8	0.7	0.9	0.9	1.3	1.4	1.9	1.5
North	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	0.0	0.0	(0.0)
Mohawk Valley	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)
Capital	(0.4)	(0.4)	(0.5)	(0.3)	(0.8)	(0.4)	(0.2)	(0.5)	(0.2)	(0.6)
Hudson Valley	(0.1)	(0.1)	(0.3)	(0.2)	(0.8)	(1.0)	(0.9)	(0.4)	(1.0)	(1.2)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.4)	(0.6)	(0.6)	(0.7)	(0.7)	(0.7)	(0.4)	(0.8)	(0.8)	(0.6)
Long Island	(0.0)	0.0	(0.0)	(0.1)	(0.1)	(0.1)	0.0	(0.2)	(0.1)	(0.0)
NYCA Total	(0.1)	0.1	0.2	1.0	(0.6)	0.3	1.1	1.2	1.8	1.6

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 2: Central East | Generic Transmission Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2.3)	(2.9)	(3.4)	(3.6)	(3.7)	(3.4)	(3.0)	(4.0)	(3.8)	(4.0)
Genesee	(1.0)	(1.3)	(1.5)	(1.5)	(1.5)	(1.5)	(1.3)	(1.7)	(1.7)	(1.7)
Central	(1.2)	(1.1)	(1.2)	(1.1)	(1.1)	(1.2)	(1.3)	(1.4)	(1.4)	(1.5)
North	(0.1)	(0.2)	(0.3)	(0.4)	(0.4)	(0.3)	(0.2)	(0.3)	(0.3)	(0.3)
Mohawk Valley	(0.1)	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1
Capital	(2.0)	(1.6)	(1.6)	(1.6)	(1.4)	(2.0)	(2.5)	(2.2)	(2.0)	(2.6)
Hudson Valley	(1.7)	(1.3)	(1.2)	(1.1)	(0.9)	(1.3)	(1.5)	(1.5)	(1.2)	(1.5)
Millwood	(0.5)	(0.3)	(0.3)	(0.3)	(0.2)	(0.3)	(0.4)	(0.4)	(0.3)	(0.4)
Dunwoodie	(1.0)	(0.8)	(0.7)	(0.6)	(0.5)	(0.7)	(0.9)	(0.9)	(0.6)	(0.9)
NY City	(9.1)	(6.7)	(5.7)	(4.8)	(3.8)	(6.1)	(7.1)	(7.1)	(4.9)	(7.2)
Long Island	(3.8)	(2.7)	(2.2)	(1.8)	(1.4)	(2.4)	(2.8)	(2.7)	(1.8)	(2.8)
NYCA Total	(22.7)	(18.9)	(18.0)	(16.7)	(14.8)	(19.1)	(21.0)	(21.9)	(17.8)	(22.8)

Generic Generation Solution (Study 2: Central East)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 2: Central East | Generic Generation Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	(0)	(1)	0	1	0	(2)	(1)	(2)	(1)
Genesee	0	(0)	(0)	(0)	0	(0)	(1)	(0)	(0)	(0)
Central	1	(0)	(1)	(0)	0	(0)	(1)	(0)	(0)	(0)
North	(0)	0	0	(0)	0	(0)	0	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	0	0	(0)	(0)	0	(0)	(0)	(0)
Capital	(3)	(1)	3	1	1	(0)	1	(0)	(1)	(2)
Hudson Valley	(1)	0	2	1	1	(0)	0	(1)	(1)	(1)
Millwood	(0)	0	0	0	0	(0)	0	(0)	(0)	(0)
Dunwoodie	(1)	0	1	0	0	(0)	0	(0)	(1)	(1)
NY City	(4)	2	8	12	10	1	5	4	(2)	2
Long Island	(1)	1	5	2	3	(2)	2	6	2	0
NYCA Total	(10)	2	19	16	17	(2)	6	8	(6)	(3)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 2: Central East | Generic Generation Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(1)	(1)	(1)	(5)	(3)	(7)	1	(0)	1
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Central	(2)	0	(6)	(6)	(6)	(5)	(4)	0	(10)	(7)
North	(1)	(1)	(0)	(0)	(0)	(0)	(0)	0	(1)	(1)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)
Capital	15	14	15	27	22	21	31	33	31	54
Hudson Valley	(5)	(7)	(6)	(6)	(15)	(15)	(10)	(3)	(18)	(18)
Millwood	0	(0)	0	0	(0)	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(2)	(3)	(9)	0	(3)	(8)	(10)	(6)	(18)
Long Island	0	(1)	(0)	0	1	(2)	(1)	(2)	1	(1)
NYCA Total	2	3	(1)	5	(5)	(8)	0	19	(4)	7
NYCA Imports	(9)	(9)	(7)	(8)	(4)	(2)	(11)	(17)	(5)	(15)
NYCA Exports	4	3	3	3	4	3	4	8	4	10
NYCA + Imports - Exports	(10)	(9)	(10)	(7)	(12)	(13)	(15)	(6)	(13)	(17)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 2: Central East | Generic Generation Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(30)	21	22	9	(75)	(27)	(109)	26	17	31
Genesee	(1)	(3)	(2)	(5)	(7)	(6)	(5)	1	(5)	(5)
Central	19	33	(83)	(174)	(93)	(110)	(85)	(4)	(195)	(161)
North	(15)	(18)	(4)	(11)	(7)	(9)	(9)	2	(16)	(14)
Mohawk Valley	(7)	(7)	(5)	(7)	(5)	(3)	(3)	(3)	(12)	(11)
Capital	597	558	506	719	558	572	895	752	763	1,114
Hudson Valley	(107)	(123)	(67)	(150)	(176)	(214)	(139)	(45)	(245)	(282)
Millwood	(0)	(0)	0	(0)	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(90)	(99)	(67)	(62)	(50)	(68)	(127)	(134)	(88)	(190)
Long Island	7	(15)	(3)	1	19	(23)	(22)	(28)	13	(21)
NYCA Total	373	348	296	318	164	114	396	568	232	462

PROJECTED NET IMPORTS CHANGE (GWh) | Study 2: Central East | Generic Generation Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	17	(84)	(146)	(29)	(90)	49	(137)	(225)	(89)	(168)
LINDEN VFT	(1)	(15)	8	(7)	(8)	(8)	(17)	(18)	(4)	(22)
NEPTUNE	(4)	(9)	(1)	(1)	14	13	(31)	(17)	(9)	(17)
HTP	(60)	(18)	(17)	(19)	(6)	(10)	(30)	(22)	(34)	(25)
ISONE - NYISO	(159)	(105)	(99)	(125)	(90)	(110)	(126)	(160)	(90)	(163)
CROSS SOUND CABLE	(21)	(2)	2	(11)	20	8	(8)	6	6	8
NORTHPORT NORWALK	(15)	(7)	(3)	(14)	11	(6)	(7)	1	(1)	(7)
IESO - NYISO	(133)	(108)	(40)	(111)	(19)	(49)	(41)	(131)	(11)	(70)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(376)	(347)	(297)	(317)	(169)	(114)	(398)	(566)	(231)	(464)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Generation Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	0	(1)	0	(3)	0	(5)	(2)	2	0
Genesee	(0)	(0)	(1)	(0)	(0)	(0)	(1)	(1)	(0)	(1)
Central	(2)	(1)	(4)	(5)	(3)	(3)	(6)	(4)	(7)	(10)
North	(0)	(1)	(2)	(1)	(0)	(0)	(2)	(1)	(0)	(2)
Mohawk Valley	0	(0)	(1)	(0)	(0)	0	(1)	(1)	(0)	(1)
Capital	14	15	18	27	25	25	33	29	34	50
Hudson Valley	(5)	(6)	(4)	(6)	(10)	(11)	(8)	(4)	(15)	(16)
Millwood	(1)	(2)	(0)	1	1	(1)	(3)	(4)	(2)	(4)
Dunwoodie	0	(0)	0	(0)	0	(0)	(0)	(0)	(0)	(0)
NY City	(5)	(4)	(3)	(4)	2	(3)	(7)	(11)	(5)	(16)
Long Island	0	(1)	(1)	(0)	1	(1)	(1)	(1)	(0)	(1)
NYCA Total	4	(0)	1	12	12	6	(2)	0	7	(1)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Generation Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(1)	(2)	(1)	(1)	(0)	(1)	(2)	3	(1)
Genesee	0	(1)	(1)	(0)	(0)	1	(1)	(2)	0	(1)
Central	0	(1)	(2)	(1)	(0)	0	(2)	(3)	1	(3)
North	0	(0)	(1)	(0)	0	0	(1)	(1)	0	(1)
Mohawk Valley	0	(1)	(1)	(0)	0	0	(1)	(1)	0	(1)
Capital	(3)	(2)	0	0	1	(0)	(1)	(3)	(1)	(5)
Hudson Valley	(1)	(1)	(0)	(0)	0	(1)	(2)	(3)	(1)	(3)
Millwood	(0)	(0)	(0)	0	0	(0)	(1)	(1)	(0)	(1)
Dunwoodie	(1)	(1)	(0)	(0)	0	(0)	(1)	(2)	(1)	(2)
NY City	(3)	(3)	(3)	8	8	0	(5)	(7)	(3)	(7)
Long Island	(1)	(1)	1	0	2	(2)	(2)	1	2	(4)
NYCA Total	(8)	(12)	(10)	6	10	(2)	(19)	(23)	(0)	(28)

PROJECTED LBMPS CHANGE ($/MWh) | Study 2: Central East | Generic Generation Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)	(0.1)	(0.1)	0.1	(0.1)
Genesee	0.0	(0.1)	(0.1)	(0.0)	(0.0)	0.0	(0.1)	(0.1)	0.0	(0.1)
Central	0.0	(0.1)	(0.1)	(0.0)	(0.0)	0.0	(0.1)	(0.2)	0.0	(0.1)
North	0.0	(0.1)	(0.2)	(0.0)	0.0	0.0	(0.2)	(0.1)	0.0	(0.1)
Mohawk Valley	0.0	(0.1)	(0.2)	(0.0)	0.0	0.0	(0.2)	(0.2)	0.0	(0.2)
Capital	(0.2)	(0.1)	0.0	0.0	0.0	(0.0)	(0.1)	(0.2)	(0.1)	(0.3)
Hudson Valley	(0.1)	(0.1)	(0.0)	0.0	0.1	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)
Millwood	(0.1)	(0.1)	(0.0)	0.0	0.1	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)
Dunwoodie	(0.1)	(0.1)	(0.0)	0.0	0.1	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)
NY City	(0.0)	(0.1)	(0.0)	0.2	0.1	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)
Long Island	(0.1)	(0.1)	0.1	0.0	0.1	(0.1)	(0.1)	0.0	0.1	(0.2)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Generation Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(70)	(0)	(0)	4	(195)	(94)	(232)	1	9	35
Genesee	(0)	0	0	(0)	(0)	(0)	(0)	0	(0)	(0)
Central	(72)	(53)	(135)	(6)	(51)	(15)	(0)	1	(0)	(0)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	0	(0)	0	0	(0)	(0)
Capital	51	40	38	49	52	49	62	56	60	70
Hudson Valley	(1)	(0)	(0)	(0)	(1)	(1)	(0)	(0)	(1)	(1)
Millwood	0	0	0	0	(0)	0	(0)	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)
Long Island	(0)	0	0	0	0	(0)	0	(1)	0	(0)
NYCA Total	(93)	(14)	(97)	47	(195)	(61)	(171)	56	67	103

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Generation Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Generation Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(63)	(11)	(11)	(6)	(71)	(47)	(81)	18	(17)	(5)
Genesee	4	(0)	(1)	(3)	(3)	1	(1)	1	(2)	(1)
Central	(69)	(34)	(43)	(22)	(33)	(40)	(7)	4	(13)	(14)
North	(2)	(2)	(1)	(1)	0	(2)	(0)	2	(3)	(2)
Mohawk Valley	(2)	(2)	0	(2)	(2)	(1)	(1)	(0)	(3)	(3)
Capital	155	118	122	161	159	145	188	181	186	229
Hudson Valley	(17)	(8)	(10)	(0)	(5)	(9)	(2)	(9)	(13)	(8)
Millwood	0	0	0	0	(1)	0	(1)	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(22)	40	(36)	(1)	(32)	(27)	(29)	(9)	(19)	(10)
Long Island	19	(4)	(2)	4	11	(4)	(4)	(15)	11	9
NYCA Total	1	97	19	128	22	16	61	171	128	195

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Generation Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.1	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 2: Central East | Generic Generation Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(51)	(7)	(5)	(5)	(90)	(51)	(120)	5	1	15
Genesee	(2)	(1)	(1)	(2)	(3)	(3)	(2)	1	(2)	(2)
Central	(28)	(7)	(60)	(80)	(62)	(67)	(39)	(4)	(87)	(72)
North	(8)	(9)	(2)	(5)	(4)	(4)	(4)	1	(8)	(7)
Mohawk Valley	(4)	(3)	(2)	(4)	(3)	(2)	(1)	(1)	(6)	(6)
Capital	233	220	199	296	221	228	359	313	296	457
Hudson Valley	(72)	(72)	(47)	(75)	(104)	(113)	(84)	(39)	(114)	(150)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(63)	(44)	(43)	(40)	(24)	(35)	(63)	(71)	(55)	(104)
Long Island	8	(6)	(4)	2	11	(11)	(15)	(17)	7	(7)
NYCA Total	12	68	33	87	(57)	(58)	31	187	30	126

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Generation Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.2)	(0.0)	(0.0)	(0.0)	(0.6)	(0.3)	(0.9)	0.0	0.0	0.1
Genesee	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.1)	0.0	(0.3)	(0.5)	(0.4)	(0.4)	(0.3)	0.0	(0.7)	(0.6)
North	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.1)	(0.1)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)
Capital	0.9	1.0	1.1	1.8	1.5	1.6	2.7	2.6	2.6	4.3
Hudson Valley	(0.2)	(0.3)	(0.2)	(0.4)	(0.7)	(0.8)	(0.6)	(0.2)	(1.0)	(1.4)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.3)	0.0	(0.2)	(0.2)	(0.3)	(0.2)	(0.3)	(0.4)	(0.4)	(0.7)
Long Island	0.0	(0.0)	(0.0)	0.0	0.1	(0.1)	(0.1)	(0.2)	0.0	(0.1)
NYCA Total	0.0	0.5	0.2	0.6	(0.5)	(0.4)	0.5	1.9	0.3	1.5

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 2: Central East | Generic Generation Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.3	0.2	0.3	0.5	0.5	0.3	0.7	0.5	0.2	0.5
Genesee	0.1	0.1	0.1	0.2	0.3	0.2	0.4	0.2	0.1	0.2
Central	0.1	0.0	0.1	0.2	0.2	0.1	0.2	0.1	0.2	0.2
North	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.1
Mohawk Valley	0.0	0.0	(0.0)	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0
Capital	0.2	(0.0)	(0.2)	(0.2)	0.1	0.0	(0.3)	(0.1)	0.1	(0.3)
Hudson Valley	0.2	0.1	(0.1)	(0.0)	0.0	0.1	0.0	0.1	0.1	0.2
Millwood	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Dunwoodie	0.1	0.1	(0.0)	0.0	0.0	0.1	0.0	0.1	0.1	0.2
NY City	1.1	0.6	(0.4)	0.1	0.2	0.6	0.4	0.9	0.9	1.8
Long Island	0.4	0.2	(0.2)	(0.0)	0.1	0.3	0.1	0.3	0.3	0.7
NYCA Total	2.7	1.3	(0.5)	0.8	1.3	1.7	1.6	2.1	2.0	3.7

Generic Demand Response Solution (Study 2: Central East)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 2: Central East | Generic Demand Response Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	(0)	(1)	(0)	(0)	(0)	(0)	(1)	(0)
Genesee	0	(0)	0	0	0	0	0	0	(0)	(0)
Central	0	0	0	0	0	0	(0)	(0)	(0)	(0)
North	(0)	0	0	0	0	0	0	0	0	0
Mohawk Valley	(0)	0	0	0	0	0	0	0	0	0
Capital	(0)	0	(0)	0	0	(0)	0	0	0	(0)
Hudson Valley	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	(0)
Millwood	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	(0)
Dunwoodie	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	(0)
NY City	(2)	(7)	(7)	1	(3)	(1)	(1)	(1)	(1)	(0)
Long Island	(0)	0	(0)	0	0	1	0	1	1	1
NYCA Total	(2)	(7)	(7)	1	(2)	(1)	(1)	1	(2)	(0)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	(0)	(0)	(0)	(0)	2	(0)	0
Genesee	(0)	0	0	(0)	0	0	(0)	(0)	(0)	(0)
Central	(0)	(0)	(0)	(1)	0	(0)	(0)	(1)	(1)	1
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(0)	(0)	0	(0)	(1)	(0)	(1)	(0)	0	(1)
Hudson Valley	(0)	(1)	(1)	(1)	(0)	(0)	(2)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(1)	(2)	(1)	(0)	(0)	(0)	(1)	(1)	(2)
Long Island	0	(0)	0	(0)	(0)	(0)	0	(0)	(0)	(0)
NYCA Total	(1)	(2)	(2)	(3)	(2)	(2)	(4)	(1)	(2)	(3)
NYCA Imports	(1)	(1)	(1)	(0)	(1)	(2)	(1)	(3)	(1)	(1)
NYCA Exports	1	0	0	0	0	0	(1)	(1)	0	0
NYCA + Imports - Exports	(3)	(3)	(3)	(4)	(3)	(3)	(4)	(3)	(4)	(4)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 2: Central East | Generic Demand Response Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	(0)	2	(4)	(13)	(4)	(6)	26	(8)	5
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(1)	(0)	(0)
Central	1	(2)	(7)	(18)	2	(2)	(1)	(10)	(14)	19
North	(1)	(2)	(1)	(3)	(3)	(3)	(2)	(3)	(2)	(1)
Mohawk Valley	(1)	(2)	(0)	(2)	(1)	(1)	(2)	(1)	(2)	(0)
Capital	24	24	38	20	9	14	4	17	27	1
Hudson Valley	16	3	9	1	17	12	(7)	9	13	5
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	9	8	(18)	6	14	16	16	10	9	(9)
Long Island	1	(0)	1	(1)	(2)	(1)	2	(3)	(0)	(3)
NYCA Total	50	29	23	(1)	24	33	5	45	23	17

PROJECTED NET IMPORTS CHANGE (GWh) | Study 2: Central East | Generic Demand Response Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(19)	(4)	(6)	5	(16)	(19)	(7)	(28)	(0)	3
LINDEN VFT	(1)	(4)	0	(1)	(1)	(4)	(3)	(2)	(3)	2
NEPTUNE	(6)	(2)	(5)	(0)	2	2	(1)	3	(1)	(1)
HTP	1	1	(1)	3	(5)	(2)	(1)	(3)	(7)	(1)
ISONE - NYISO	(16)	(11)	(1)	(10)	(9)	(2)	1	(6)	(8)	(23)
CROSS SOUND CABLE	2	(1)	1	1	(2)	(2)	1	(2)	(2)	(1)
NORTHPORT NORWALK	(1)	(2)	(3)	(1)	(2)	(2)	(0)	(0)	(1)	0
IESO - NYISO	(11)	(7)	(8)	2	9	(7)	5	(7)	(1)	2
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(51)	(29)	(22)	0	(24)	(35)	(5)	(44)	(22)	(18)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	(0)	0	(1)	(0)	(0)	0	(0)	0
Genesee	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	0	(0)
Central	(0)	(0)	(0)	1	(0)	(0)	0	(1)	(1)	1
North	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Capital	0	0	1	2	0	0	0	1	1	(0)
Hudson Valley	1	(0)	0	1	1	1	(0)	0	1	0
Millwood	(0)	(0)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	0	0	0	0	0	0	(0)	(0)	(0)	(0)
NY City	(1)	(4)	(4)	1	(1)	(0)	0	(1)	(1)	(1)
Long Island	(0)	(1)	(0)	1	(0)	0	(0)	(0)	(0)	0
NYCA Total	(2)	(6)	(4)	8	(1)	0	(1)	(1)	(1)	(0)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(1)	(0)	1	(0)	0	0	0	1	(0)
Genesee	(0)	(0)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Central	(0)	(0)	(0)	1	(0)	(0)	(0)	(0)	0	(0)
North	(0)	(0)	(0)	0	(0)	0	0	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(0)	(1)	(0)	1	(0)	(0)	(0)	(0)	0	(0)
Hudson Valley	(0)	(1)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(3)	(9)	(8)	2	(4)	(2)	(1)	(3)	(3)	(1)
Long Island	(1)	(1)	(1)	2	(0)	0	(0)	0	(0)	0
NYCA Total	(6)	(13)	(10)	10	(5)	(2)	(2)	(4)	(2)	(2)

PROJECTED LBMPS CHANGE ($/MWh) | Study 2: Central East | Generic Demand Response Solution

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	(0.0)	(0.0)	0.1	(0.0)	0.0	0.0	0.0	0.0	(0.0)
Genesee	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)
Central	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	0.0	(0.0)	0.0	(0.0)
North	(0.0)	(0.0)	(0.0)	0.1	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)
Mohawk Valley	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Capital	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	0.0	(0.0)	0.0	(0.0)
Hudson Valley	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Millwood	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)
Dunwoodie	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
NY City	(0.0)	(0.1)	(0.1)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	(0.0)	(0.0)	0.1	(0.0)	0.0	(0.0)	0.0	0.0	0.0

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Demand Response Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	0	(19)	(5)	(12)	70	(18)	5
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(0)	0	(0)	(0)	0	(0)	0	(0)	(0)	0
North	0	0	0	(0)	(0)	(0)	0	(0)	0	0
Mohawk Valley	0	0	0	0	0	0	0	0	0	0
Capital	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	0	(0)
Hudson Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(1)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Long Island	(0)	(0)	0	(0)	(0)	0	0	(0)	0	(0)
NYCA Total	(1)	(2)	(1)	(0)	(19)	(6)	(13)	70	(18)	5

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	1	(0)	(2)	1	5	45	(6)	1
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	(0)	(0)	(1)	(1)	(0)	(0)	0	(0)	(1)	1
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(0)	0	(0)	(1)	(0)	(1)	(0)	1	(1)
Hudson Valley	(1)	(4)	(1)	(2)	(0)	(0)	(2)	(0)	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(11)	(17)	(18)	(13)	(11)	(14)	(12)	(14)	(11)	(12)
Long Island	(1)	(2)	0	(1)	3	4	4	(0)	(0)	0
NYCA Total	(14)	(24)	(20)	(18)	(11)	(11)	(7)	29	(18)	(11)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 2: Central East | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	(0)	0	(0)	(8)	(2)	(6)	29	(8)	2
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	0	(1)	(3)	(8)	1	(1)	(1)	(4)	(6)	8
North	(1)	(1)	(1)	(2)	(2)	(2)	(1)	(2)	(1)	(0)
Mohawk Valley	(1)	(1)	(0)	(1)	(0)	(0)	(1)	(0)	(1)	(0)
Capital	(0)	(1)	4	(1)	(6)	(4)	(8)	(3)	2	(9)
Hudson Valley	(3)	(10)	(7)	(13)	(2)	(6)	(15)	(4)	(4)	(10)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(8)	(8)	(24)	(10)	(5)	(4)	(4)	(7)	(6)	(18)
Long Island	0	(0)	1	(1)	(1)	(0)	2	(2)	(0)	(1)
NYCA Total	(11)	(23)	(29)	(36)	(22)	(19)	(34)	7	(24)	(28)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.2	(0.1)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	(0.1)	0.1
North	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.0
Capital	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	0.0	(0.1)
Hudson Valley	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.2)
Long Island	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)
NYCA Total	(0.0)	(0.1)	(0.1)	(0.2)	(0.1)	(0.1)	(0.2)	0.1	(0.2)	(0.2)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 2: Central East | Generic Demand Response Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.0	0.0	0.1	0.0	0.0	0.0	(0.0)	0.0	(0.0)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)
Hudson Valley	(0.0)	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	0.0
Millwood	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	0.0
Dunwoodie	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
NY City	(0.2)	(0.3)	(0.1)	0.2	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	0.1
Long Island	(0.1)	(0.1)	(0.1)	0.1	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	0.1
NYCA Total	(0.2)	(0.6)	(0.3)	0.5	(0.3)	(0.3)	(0.4)	(0.5)	(0.4)	0.1

Generic Energy Efficiency Solution (Study 2: Central East)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(2)	(4)	(2)	(1)	(1)	(3)	(2)	(4)	(4)
Genesee	(0)	(1)	(1)	(1)	0	(0)	(1)	(0)	(1)	(1)
Central	0	(1)	(1)	(1)	0	0	(1)	(0)	(1)	(2)
North	(0)	(0)	0	(0)	0	0	0	(0)	(0)	0
Mohawk Valley	(0)	(0)	0	0	(0)	0	0	(0)	(0)	(0)
Capital	(5)	(9)	(9)	(6)	(11)	(9)	(4)	(11)	(10)	(5)
Hudson Valley	(5)	(8)	(8)	(7)	(9)	(7)	(5)	(8)	(8)	(5)
Millwood	(0)	(1)	(1)	(0)	(1)	(1)	(0)	(1)	(1)	(0)
Dunwoodie	(1)	(2)	(2)	(1)	(2)	(1)	(1)	(3)	(3)	(1)
NY City	(16)	(30)	(30)	(15)	(26)	(24)	(14)	(30)	(30)	(13)
Long Island	4	8	(1)	3	(3)	(1)	2	3	6	6
NYCA Total	(24)	(45)	(57)	(30)	(52)	(44)	(27)	(53)	(51)	(25)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	2	1	(0)	(0)	(2)	(0)	(0)	(1)	1
Genesee	0	0	0	(0)	0	(0)	(0)	1	(0)	(0)
Central	(4)	1	(4)	(1)	(2)	(6)	(3)	(4)	(4)	(4)
North	0	(0)	0	0	(0)	0	(0)	1	(0)	0
Mohawk Valley	0	0	0	0	0	(0)	0	0	(0)	(0)
Capital	(17)	(17)	(27)	(16)	(21)	(27)	(22)	(13)	(21)	(30)
Hudson Valley	(1)	(3)	(8)	(15)	(14)	(19)	(17)	(16)	(15)	(23)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(25)	(30)	(26)	(27)	(29)	(29)	(25)	(30)	(37)	(30)
Long Island	(5)	(7)	(3)	(1)	(2)	(2)	(2)	(0)	(6)	(6)
NYCA Total	(52)	(54)	(66)	(61)	(69)	(86)	(68)	(61)	(85)	(91)
NYCA Imports	(19)	(19)	(18)	(25)	(21)	(18)	(29)	(29)	(28)	(26)
NYCA Exports	16	17	17	22	20	16	19	25	19	18
NYCA + Imports - Exports	(87)	(90)	(101)	(108)	(111)	(119)	(117)	(116)	(131)	(135)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 2: Central East | Generic Energy Efficiency Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	43	5	0	(14)	(29)	(15)	(8)	(26)	5
Genesee	3	2	0	(1)	(0)	(2)	(4)	7	(2)	(2)
Central	(140)	(96)	(169)	(92)	(42)	(159)	(81)	(130)	(96)	(117)
North	(0)	(6)	(1)	3	(5)	2	(6)	9	(9)	1
Mohawk Valley	0	2	0	(1)	0	(2)	3	5	(2)	(1)
Capital	(529)	(472)	(681)	(395)	(562)	(669)	(491)	(332)	(486)	(595)
Hudson Valley	(68)	(103)	(196)	(399)	(347)	(401)	(395)	(401)	(322)	(448)
Millwood	0	(0)	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(728)	(977)	(673)	(568)	(655)	(564)	(500)	(568)	(673)	(519)
Long Island	(128)	22	(56)	(36)	(36)	(41)	(39)	(10)	(2)	6
NYCA Total	(1,594)	(1,586)	(1,770)	(1,490)	(1,662)	(1,865)	(1,529)	(1,428)	(1,617)	(1,669)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 2: Central East | Generic Energy Efficiency Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(299)	(324)	(277)	(350)	(341)	(227)	(332)	(442)	(345)	(335)
LINDEN VFT	(34)	(8)	(7)	(16)	(20)	(25)	(37)	(17)	(24)	(30)
NEPTUNE	(91)	(93)	(35)	(25)	(3)	(38)	(64)	(57)	(65)	(86)
HTP	(160)	(201)	(162)	(135)	(139)	(110)	(130)	(186)	(163)	(85)
ISONE - NYISO	(416)	(469)	(381)	(509)	(396)	(327)	(390)	(481)	(354)	(379)
CROSS SOUND CABLE	13	38	(24)	(29)	(26)	3	(19)	14	(2)	3
NORTHPORT NORWALK	(4)	36	(31)	(34)	(26)	(20)	(25)	(13)	0	(7)
IESO - NYISO	(135)	(102)	(10)	(102)	(58)	(54)	(128)	(38)	(70)	(47)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,127)	(1,122)	(927)	(1,199)	(1,010)	(798)	(1,125)	(1,220)	(1,022)	(967)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	2	0	(2)	(2)	(1)	(2)	(3)	(0)	(1)
Genesee	(1)	(0)	(0)	(1)	(1)	(0)	(1)	(1)	(0)	(1)
Central	(14)	(5)	(5)	(8)	(4)	(1)	(8)	(11)	(5)	(10)
North	(2)	(1)	(1)	(2)	(1)	(0)	(2)	(1)	(1)	(3)
Mohawk Valley	(1)	(0)	(0)	(1)	(0)	(0)	(1)	(1)	(0)	(1)
Capital	(25)	(24)	(32)	(21)	(29)	(31)	(29)	(24)	(30)	(37)
Hudson Valley	(4)	(6)	(10)	(18)	(17)	(18)	(20)	(21)	(20)	(27)
Millwood	(7)	(8)	(7)	(6)	(7)	(5)	(7)	(11)	(9)	(8)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(38)	(47)	(39)	(37)	(41)	(37)	(36)	(46)	(50)	(38)
Long Island	(6)	(4)	(5)	(3)	(3)	(3)	(4)	(3)	(5)	(3)
NYCA Total	(100)	(93)	(99)	(99)	(105)	(96)	(110)	(121)	(120)	(129)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(3)	0	2	(1)	(1)	1	(1)	(1)	3	(0)
Genesee	(2)	(1)	(0)	(2)	(1)	(0)	(2)	(2)	(0)	(2)
Central	(4)	(2)	(1)	(3)	(2)	(1)	(3)	(3)	(1)	(3)
North	(1)	(1)	(0)	(1)	(0)	(0)	(1)	(1)	(0)	(1)
Mohawk Valley	(2)	(1)	(1)	(2)	(1)	(1)	(2)	(2)	(1)	(2)
Capital	(38)	(41)	(43)	(45)	(48)	(47)	(50)	(56)	(57)	(56)
Hudson Valley	(32)	(34)	(36)	(38)	(40)	(39)	(42)	(45)	(46)	(47)
Millwood	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(1)
Dunwoodie	(3)	(3)	(3)	(2)	(3)	(2)	(3)	(4)	(3)	(3)
NY City	(57)	(66)	(67)	(63)	(64)	(61)	(66)	(79)	(76)	(69)
Long Island	(2)	4	(4)	(3)	(6)	(3)	(5)	(3)	3	(0)
NYCA Total	(144)	(145)	(155)	(163)	(166)	(154)	(176)	(199)	(181)	(184)

PROJECTED LBMPS CHANGE ($/MWh) | Study 2: Central East | Generic Energy Efficiency Solution

Average LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.2)	0.0	0.1	(0.1)	(0.0)	0.0	(0.1)	(0.1)	0.2	(0.0)
Genesee	(0.2)	(0.0)	(0.0)	(0.2)	(0.1)	(0.0)	(0.2)	(0.2)	(0.0)	(0.2)
Central	(0.2)	(0.1)	(0.0)	(0.2)	(0.1)	(0.0)	(0.2)	(0.2)	(0.0)	(0.2)
North	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.0)	(0.2)	(0.2)	(0.1)	(0.3)
Mohawk Valley	(0.3)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)	(0.3)	(0.2)	(0.1)	(0.3)
Capital	(0.5)	(0.6)	(0.4)	(0.4)	(0.6)	(0.4)	(0.5)	(0.8)	(0.7)	(0.5)
Hudson Valley	(0.4)	(0.5)	(0.4)	(0.4)	(0.4)	(0.3)	(0.5)	(0.7)	(0.5)	(0.5)
Millwood	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.6)	(0.5)	(0.4)
Dunwoodie	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.6)	(0.5)	(0.4)
NY City	(0.4)	(0.5)	(0.5)	(0.4)	(0.4)	(0.4)	(0.5)	(0.6)	(0.6)	(0.4)
Long Island	(0.1)	0.2	(0.2)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	0.1	(0.1)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Energy Efficiency Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(10)	62	(0)	(5)	(29)	(75)	(2)	(51)	(63)	14
Genesee	0	0	0	(0)	0	(0)	(0)	0	(0)	0
Central	(70)	204	58	7	(35)	(10)	5	(3)	(0)	(0)
North	(0)	(0)	0	0	(0)	0	(0)	0	(0)	(0)
Mohawk Valley	(0)	0	0	(0)	0	(0)	0	0	(0)	0
Capital	(1)	(1)	(1)	(0)	(2)	(1)	(0)	(0)	(1)	(1)
Hudson Valley	(1)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	(0)	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(4)	(3)	(2)	(2)	(1)	(1)	(2)	(2)	(1)
Long Island	(0)	(0)	0	0	(0)	(0)	(0)	(0)	0	(0)
NYCA Total	(84)	261	54	(1)	(69)	(89)	1	(57)	(67)	10

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 2: Central East | Generic Energy Efficiency Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	37	4	(5)	(8)	(28)	(17)	(4)	(56)	22
Genesee	(1)	0	1	1	(2)	(1)	(1)	2	(1)	0
Central	(27)	18	17	12	4	(32)	9	(21)	(6)	(8)
North	(0)	(3)	2	0	(0)	0	(1)	3	(2)	2
Mohawk Valley	0	2	1	(0)	0	(0)	1	2	0	(1)
Capital	(13)	(14)	(13)	(1)	(13)	(18)	(11)	(4)	(11)	(10)
Hudson Valley	(26)	(30)	(17)	(22)	(12)	(20)	(16)	(53)	(16)	(3)
Millwood	0	0	0	0	(0)	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(177)	(291)	(234)	(138)	(178)	(80)	(80)	(82)	(104)	(132)
Long Island	(16)	(9)	(12)	2	20	(5)	(29)	(8)	(3)	(5)
NYCA Total	(263)	(290)	(253)	(151)	(188)	(184)	(145)	(164)	(198)	(136)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	0.0	(0.0)
Long Island	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.1)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 2: Central East | Generic Energy Efficiency Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(7)	35	5	(3)	(11)	(33)	(7)	(18)	(26)	10
Genesee	2	1	0	(1)	0	(1)	(2)	4	(1)	(1)
Central	(71)	(25)	(56)	(25)	(14)	(77)	(29)	(61)	(43)	(50)
North	0	(2)	(1)	2	(3)	2	(3)	5	(4)	(0)
Mohawk Valley	0	1	0	(0)	(0)	(2)	1	3	(1)	(0)
Capital	(212)	(188)	(280)	(155)	(225)	(263)	(199)	(108)	(194)	(234)
Hudson Valley	(40)	(54)	(96)	(173)	(144)	(186)	(169)	(189)	(129)	(180)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(407)	(515)	(376)	(298)	(356)	(294)	(242)	(311)	(346)	(266)
Long Island	(75)	(6)	(34)	(20)	(22)	(23)	(24)	(6)	(6)	1
NYCA Total	(809)	(753)	(836)	(674)	(774)	(878)	(675)	(682)	(750)	(721)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.2	0.0	(0.0)	(0.0)	(0.2)	(0.0)	(0.1)	(0.2)	0.1
Genesee	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.3)	(0.1)	(0.3)	(0.1)	(0.1)	(0.5)	(0.2)	(0.4)	(0.3)	(0.4)
North	0.0	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)	0.1	(0.0)	0.0
Mohawk Valley	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0	(0.0)	0.0
Capital	(0.7)	(0.8)	(1.4)	(0.8)	(1.4)	(1.8)	(1.4)	(0.8)	(1.6)	(2.1)
Hudson Valley	(0.1)	(0.2)	(0.5)	(1.0)	(0.9)	(1.3)	(1.2)	(1.4)	(1.1)	(1.6)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.0)	(1.6)	(1.3)	(1.0)	(1.6)	(1.4)	(1.0)	(1.7)	(1.9)	(1.6)
Long Island	(0.3)	(0.0)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)	(0.0)
NYCA Total	(2.4)	(2.6)	(3.6)	(3.0)	(4.1)	(5.4)	(4.0)	(4.3)	(5.3)	(5.7)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 2: Central East | Generic Energy Efficiency Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.5	0.4	0.2	0.7	0.4	0.5	0.7	0.5	0.4	0.5
Genesee	0.2	0.2	0.1	0.2	0.1	0.3	0.3	0.2	0.2	0.2
Central	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2
North	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.1
Mohawk Valley	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)
Capital	(2.9)	(3.0)	(3.1)	(3.7)	(3.6)	(3.5)	(4.1)	(4.2)	(4.3)	(4.6)
Hudson Valley	(2.1)	(1.9)	(2.1)	(2.3)	(2.2)	(2.3)	(2.4)	(2.4)	(2.3)	(2.6)
Millwood	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	0.0	(0.0)
Dunwoodie	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)
NY City	(3.2)	(2.6)	(3.3)	(4.0)	(2.8)	(3.5)	(4.1)	(3.3)	(2.6)	(4.0)
Long Island	(0.2)	(0.3)	(0.2)	(0.4)	0.0	(0.2)	(0.4)	(0.2)	0.2	(0.2)
NYCA Total	(7.8)	(7.2)	(8.5)	(9.6)	(7.9)	(8.7)	(10.1)	(9.3)	(8.2)	(10.7)

Study 3: Central East - New Scotland - Pleasant Valley

Generic Transmission Solution (Study 3: Central East - New Scotland - Pleasant Valley)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(10)	(9)	(7)	(1)	0	(1)	(3)	(2)	(0)	(3)
Genesee	(4)	(5)	(3)	1	1	(0)	(1)	0	1	(0)
Central	(5)	(6)	(4)	2	2	1	0	2	2	1
North	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	2	2	2	1	(0)	0	(1)	(1)	(1)	(0)
Capital	(11)	(16)	(26)	(32)	(32)	(26)	(14)	(27)	(22)	(19)
Hudson Valley	(6)	(10)	(15)	(19)	(19)	(15)	(9)	(16)	(13)	(12)
Millwood	(2)	(3)	(5)	(6)	(6)	(4)	(3)	(5)	(4)	(4)
Dunwoodie	(4)	(6)	(9)	(11)	(11)	(9)	(6)	(10)	(8)	(7)
NY City	(29)	(49)	(73)	(92)	(92)	(71)	(44)	(72)	(63)	(57)
Long Island	(10)	(18)	(26)	(34)	(35)	(26)	(16)	(26)	(24)	(21)
NYCA Total	(79)	(121)	(166)	(191)	(193)	(151)	(97)	(157)	(133)	(122)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	4	6	6	15	13	13	11	17	13	18
Genesee	0	0	0	0	0	0	0	0	(0)	(0)
Central	15	17	18	18	18	18	19	21	27	24
North	0	(0)	(0)	0	(0)	(0)	0	0	0	0
Mohawk Valley	0	0	0	0	(0)	(0)	0	0	(0)	(0)
Capital	(7)	(10)	(10)	(8)	(20)	(13)	(11)	(14)	(17)	(21)
Hudson Valley	(3)	(7)	(12)	(15)	(28)	(26)	(21)	(12)	(22)	(25)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(23)	(24)	(25)	(24)	(22)	(25)	(19)	(27)	(20)	(19)
Long Island	(4)	(1)	(4)	(3)	(2)	(1)	(2)	(3)	(2)	(1)
NYCA Total	(18)	(19)	(27)	(17)	(42)	(35)	(22)	(18)	(21)	(24)
NYCA Imports	4	3	12	11	21	19	12	13	9	16
NYCA Exports	5	7	15	16	14	10	5	17	10	17
NYCA + Imports - Exports	(19)	(24)	(29)	(22)	(35)	(26)	(15)	(21)	(21)	(25)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	80	122	115	278	230	227	228	279	292	354
Genesee	8	6	6	6	6	4	0	5	(1)	(3)
Central	583	621	614	501	539	489	470	494	628	500
North	1	(5)	(5)	0	(3)	(2)	2	2	6	2
Mohawk Valley	8	3	7	5	4	2	1	3	(4)	(5)
Capital	(88)	(93)	(80)	(35)	(247)	(141)	(160)	(177)	(195)	(266)
Hudson Valley	(73)	(142)	(283)	(348)	(552)	(524)	(375)	(275)	(375)	(401)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(660)	(639)	(585)	(525)	(470)	(545)	(398)	(506)	(376)	(338)
Long Island	(107)	(31)	(76)	(61)	(49)	(27)	(42)	(45)	(29)	(19)
NYCA Total	(248)	(158)	(287)	(179)	(541)	(516)	(273)	(220)	(53)	(175)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(52)	(12)	(62)	(103)	(25)	(6)	(60)	(178)	(181)	(122)
LINDEN VFT	3	(6)	(4)	7	(14)	(15)	(16)	(9)	0	(17)
NEPTUNE	(106)	(53)	(38)	(29)	(36)	(77)	(47)	(45)	6	(36)
HTP	(198)	(264)	(198)	(213)	(140)	(166)	(168)	(191)	(154)	(139)
ISONE - NYISO	(169)	(281)	(315)	(369)	(255)	(226)	(114)	(304)	(184)	(245)
CROSS SOUND CABLE	15	9	9	(0)	5	(5)	(15)	(5)	(34)	(4)
NORTHPORT NORWALK	13	(4)	(3)	(14)	1	5	(10)	(5)	(20)	(3)
IESO - NYISO	728	761	897	905	1,005	1,012	704	961	630	748
HQ - NYISO CHAT	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	223	138	275	173	530	511	263	214	52	172

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	24	22	26	28	22	22	26	29	33
Genesee	4	7	7	7	8	6	4	6	5	5
Central	41	55	62	61	65	54	44	54	56	55
North	6	10	12	15	15	11	8	12	11	10
Mohawk Valley	3	5	7	7	7	5	4	6	5	5
Capital	(8)	(9)	(13)	(12)	(21)	(16)	(13)	(17)	(17)	(19)
Hudson Valley	(4)	(6)	(13)	(17)	(25)	(25)	(19)	(15)	(21)	(22)
Millwood	(7)	(6)	(9)	(9)	(8)	(9)	(7)	(12)	(6)	(5)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(30)	(30)	(38)	(36)	(30)	(37)	(27)	(37)	(27)	(26)
Long Island	(6)	(3)	(7)	(5)	(4)	(4)	(4)	(5)	(3)	(2)
NYCA Total	16	48	29	38	36	8	11	18	33	33

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	17	22	23	23	22	17	13	17	16	16
Genesee	8	13	13	13	14	10	7	10	10	9
Central	14	21	23	23	24	18	12	18	16	16
North	3	5	7	8	8	6	4	6	6	5
Mohawk Valley	8	12	13	14	15	12	9	12	12	11
Capital	(4)	(4)	(11)	(11)	(10)	(10)	(4)	(11)	(6)	(5)
Hudson Valley	(3)	(2)	(5)	(4)	(4)	(4)	(3)	(6)	(3)	(3)
Millwood	(1)	(1)	(2)	(2)	(1)	(2)	(1)	(2)	(1)	(1)
Dunwoodie	(3)	(2)	(4)	(3)	(3)	(3)	(3)	(4)	(2)	(2)
NY City	(16)	(13)	(26)	(23)	(18)	(23)	(15)	(25)	(14)	(14)
Long Island	(5)	(4)	(7)	(5)	(4)	(6)	(4)	(6)	(3)	(3)
NYCA Total	19	46	24	31	42	16	15	9	29	30

PROJECTED LBMPS CHANGE ($/MWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1.1	1.4	1.4	1.5	1.4	1.1	0.8	1.1	1.0	1.0
Genesee	0.9	1.3	1.4	1.4	1.5	1.1	0.7	1.1	1.0	0.9
Central	0.9	1.3	1.4	1.4	1.5	1.1	0.8	1.1	1.0	0.9
North	0.8	1.2	1.5	1.7	1.8	1.4	0.9	1.3	1.2	1.1
Mohawk Valley	0.9	1.3	1.5	1.6	1.7	1.3	0.8	1.2	1.1	1.0
Capital	(0.4)	(0.4)	(0.8)	(0.9)	(0.8)	(0.8)	(0.3)	(0.8)	(0.4)	(0.4)
Hudson Valley	(0.4)	(0.3)	(0.5)	(0.5)	(0.4)	(0.5)	(0.3)	(0.6)	(0.3)	(0.3)
Millwood	(0.4)	(0.4)	(0.6)	(0.6)	(0.5)	(0.5)	(0.4)	(0.7)	(0.4)	(0.4)
Dunwoodie	(0.4)	(0.4)	(0.6)	(0.5)	(0.5)	(0.5)	(0.4)	(0.7)	(0.4)	(0.4)
NY City	(0.3)	(0.3)	(0.4)	(0.4)	(0.4)	(0.5)	(0.3)	(0.5)	(0.3)	(0.3)
Long Island	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.2)	(0.3)	(0.2)	(0.2)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	70	132	144	495	397	365	411	488	529	630
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(12)	(43)	(83)	11	(45)	(3)	12	2	10	83
North	0	(0)	(0)	0	(0)	0	0	0	0	0
Mohawk Valley	0	0	0	0	0	0	0	0	(0)	(0)
Capital	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(1)
Hudson Valley	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(2)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Long Island	0	1	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	56	88	58	503	349	359	421	488	536	711

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	70	134	107	313	255	243	126	269	39	86
Genesee	8	13	12	9	9	5	0	3	(0)	(0)
Central	43	40	53	73	37	24	60	39	49	98
North	0	(1)	(0)	(1)	(1)	(1)	(2)	(1)	(0)	(3)
Mohawk Valley	1	2	4	2	2	2	0	1	(1)	(1)
Capital	(3)	(1)	1	6	(9)	1	4	(2)	(0)	(4)
Hudson Valley	(32)	(34)	(31)	(16)	(18)	(18)	(21)	(14)	(21)	(8)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(130)	(88)	(98)	(91)	(62)	(56)	(50)	(35)	(38)	(44)
Long Island	(21)	10	(14)	2	(0)	1	(5)	(15)	(6)	(6)
NYCA Total	(63)	75	34	298	213	201	113	245	21	117

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	60	95	96	271	227	224	221	279	286	339
Genesee	2	0	0	1	0	0	0	2	(0)	(1)
Central	244	242	239	206	199	191	215	209	277	246
North	0	(2)	(3)	1	(1)	(1)	1	1	3	2
Mohawk Valley	2	1	1	1	(1)	(1)	0	1	(2)	(3)
Capital	(30)	(34)	(31)	(14)	(107)	(55)	(68)	(70)	(87)	(110)
Hudson Valley	(50)	(85)	(139)	(146)	(248)	(222)	(169)	(117)	(164)	(179)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(367)	(346)	(303)	(256)	(239)	(266)	(202)	(249)	(186)	(163)
Long Island	(61)	(12)	(41)	(30)	(25)	(13)	(20)	(23)	(13)	(9)
NYCA Total	(199)	(141)	(180)	34	(196)	(142)	(20)	34	114	121

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.2	0.4	0.5	1.6	1.5	1.6	1.6	2.2	2.3	3.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)
Central	0.9	1.0	1.2	1.2	1.3	1.3	1.5	1.6	2.3	2.2
North	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)
Capital	(0.1)	(0.2)	(0.2)	(0.0)	(0.7)	(0.4)	(0.4)	(0.5)	(0.8)	(1.1)
Hudson Valley	(0.2)	(0.4)	(0.7)	(0.8)	(1.6)	(1.6)	(1.3)	(0.9)	(1.4)	(1.7)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.1)	(1.1)	(1.0)	(0.9)	(0.9)	(1.0)	(0.8)	(1.1)	(0.9)	(0.8)
Long Island	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.1)
NYCA Total	(0.4)	(0.2)	(0.3)	0.9	(0.6)	(0.2)	0.6	1.1	1.4	1.6

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Transmission Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2.8)	(3.4)	(3.9)	(4.3)	(4.5)	(4.3)	(3.8)	(4.8)	(4.4)	(5.0)
Genesee	(1.3)	(1.5)	(1.7)	(1.9)	(1.9)	(1.8)	(1.7)	(2.1)	(2.0)	(2.3)
Central	(1.4)	(1.4)	(1.6)	(1.6)	(1.6)	(1.7)	(1.7)	(1.8)	(1.9)	(2.1)
North	(0.2)	(0.3)	(0.4)	(0.5)	(0.5)	(0.4)	(0.3)	(0.4)	(0.3)	(0.4)
Mohawk Valley	(0.1)	0.0	(0.0)	0.0	0.1	0.0	(0.0)	0.0	0.1	(0.0)
Capital	(1.5)	(1.1)	(1.1)	(1.0)	(0.8)	(1.4)	(1.8)	(1.5)	(1.3)	(1.7)
Hudson Valley	(2.5)	(2.2)	(2.2)	(2.1)	(2.0)	(2.4)	(2.7)	(2.7)	(2.4)	(2.9)
Millwood	(0.8)	(0.6)	(0.6)	(0.6)	(0.6)	(0.7)	(0.8)	(0.8)	(0.7)	(0.9)
Dunwoodie	(1.6)	(1.4)	(1.4)	(1.4)	(1.3)	(1.5)	(1.7)	(1.7)	(1.5)	(1.8)
NY City	(13.5)	(11.7)	(12.0)	(11.1)	(10.8)	(13.1)	(14.3)	(14.4)	(12.9)	(15.6)
Long Island	(5.6)	(4.8)	(4.7)	(4.3)	(4.2)	(5.2)	(5.8)	(5.7)	(5.1)	(6.1)
NYCA Total	(31.2)	(28.4)	(29.7)	(28.8)	(28.1)	(32.5)	(34.6)	(35.9)	(32.5)	(38.7)

Generic Generation Solution (Study 3: Central East - New Scotland - Pleasant Valley)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(5)	(4)	(2)	(1)	(2)	(3)	(5)	(5)	(6)
Genesee	(0)	(2)	(1)	(1)	(0)	(1)	(2)	(1)	(1)	(2)
Central	0	(2)	(1)	(1)	(0)	(1)	(1)	(2)	(2)	(2)
North	(0)	0	0	(0)	(0)	0	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	0	0	0	0	(0)	(0)	0	0	0
Capital	(4)	1	1	2	(3)	(2)	(1)	1	(1)	2
Hudson Valley	(4)	(1)	(1)	(0)	(3)	(3)	(2)	(2)	(3)	(2)
Millwood	(1)	(0)	(0)	(0)	(1)	(1)	(1)	(0)	(1)	(0)
Dunwoodie	(2)	(1)	(1)	(0)	(2)	(2)	(2)	(1)	(2)	(1)
NY City	(15)	(3)	(1)	4	0	(2)	6	12	4	12
Long Island	1	5	5	7	5	2	5	10	7	6
NYCA Total	(27)	(9)	(3)	10	(5)	(10)	(1)	12	(3)	7

PROJECTED PRODUCTION COST CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(0)	0	0	(8)	(5)	(10)	(2)	(4)	(3)
Genesee	(0)	(0)	(0)	(0)	(0)	(1)	(0)	0	(1)	(0)
Central	(6)	(3)	(5)	(10)	(8)	(8)	(6)	(2)	(6)	(5)
North	(1)	(1)	(0)	(1)	(0)	(0)	(0)	(1)	(1)	(0)
Mohawk Valley	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Capital	(12)	(21)	(24)	(8)	(19)	(23)	(31)	(23)	(25)	(30)
Hudson Valley	69	51	56	50	58	53	81	77	77	90
Millwood	0	(0)	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(30)	(14)	(12)	(21)	(12)	(15)	(13)	(21)	(24)	(26)
Long Island	(7)	(2)	(1)	(1)	(2)	(2)	(2)	(3)	(0)	(2)
NYCA Total	11	9	13	9	8	(1)	18	24	14	22
NYCA Imports	(25)	(20)	(18)	(19)	(15)	(13)	(27)	(28)	(28)	(32)
NYCA Exports	15	6	10	4	9	8	10	14	11	13
NYCA + Imports - Exports	(29)	(16)	(15)	(13)	(16)	(22)	(19)	(18)	(25)	(23)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	21	69	46	24	(116)	(38)	(155)	(7)	(30)	(26)
Genesee	(4)	(2)	(1)	(5)	(6)	(12)	(8)	1	(7)	(5)
Central	(97)	(90)	(74)	(289)	(139)	(168)	(126)	(56)	(162)	(121)
North	(22)	(17)	(12)	(16)	(11)	(11)	(8)	(12)	(23)	(9)
Mohawk Valley	(5)	(11)	(6)	(12)	(8)	(10)	(10)	(11)	(17)	(14)
Capital	(377)	(595)	(585)	(215)	(469)	(592)	(730)	(567)	(534)	(613)
Hudson Valley	2,812	1,838	1,788	1,580	1,627	1,623	2,145	1,977	2,142	2,196
Millwood	0	(0)	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(840)	(383)	(327)	(418)	(275)	(281)	(205)	(338)	(455)	(403)
Long Island	(175)	(50)	(31)	(19)	(22)	(29)	(38)	(38)	(14)	(32)
NYCA Total	1,313	759	798	629	580	482	865	948	900	973

PROJECTED NET IMPORTS CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(270)	(197)	(265)	(212)	(275)	(178)	(376)	(369)	(403)	(456)
LINDEN VFT	(87)	(45)	(21)	(39)	(24)	(20)	(39)	(29)	(51)	(44)
NEPTUNE	(151)	(64)	(33)	(19)	(10)	12	(50)	(30)	(39)	(45)
HTP	(177)	(144)	(81)	(55)	(16)	(62)	(92)	(78)	(66)	(61)
ISONE - NYISO	(457)	(209)	(281)	(195)	(206)	(178)	(235)	(282)	(259)	(295)
CROSS SOUND CABLE	4	14	(8)	6	19	5	9	(4)	(8)	(7)
NORTHPORT NORWALK	(10)	(3)	(9)	(10)	(5)	(7)	(15)	(5)	(4)	(9)
IESO - NYISO	(172)	(121)	(108)	(111)	(71)	(60)	(75)	(157)	(71)	(61)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,321)	(768)	(806)	(636)	(589)	(487)	(873)	(956)	(902)	(979)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	5	1	1	(3)	(0)	(5)	(4)	(1)	(2)
Genesee	(1)	(0)	(1)	(0)	0	(1)	(0)	(1)	(1)	(1)
Central	(10)	(4)	(4)	(8)	(2)	(6)	(8)	(8)	(6)	(9)
North	(2)	(2)	(2)	(2)	(1)	(1)	(2)	(3)	(2)	(3)
Mohawk Valley	(1)	(1)	(1)	(1)	(0)	(1)	(1)	(2)	(1)	(2)
Capital	(21)	(23)	(26)	(10)	(22)	(26)	(36)	(30)	(29)	(35)
Hudson Valley	88	63	65	59	66	64	88	83	90	99
Millwood	(9)	(6)	(5)	(3)	(6)	(6)	(8)	(9)	(7)	(10)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(46)	(22)	(22)	(24)	(17)	(18)	(16)	(25)	(30)	(31)
Long Island	(9)	(3)	(3)	(0)	(1)	(3)	(3)	(3)	(2)	(3)
NYCA Total	(11)	7	1	11	14	2	8	(4)	11	3

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	3	1	0	1	0	(0)	(0)	3	1
Genesee	(2)	0	(1)	(1)	0	0	(0)	(3)	(1)	(2)
Central	(3)	(0)	(2)	(2)	(0)	(1)	(2)	(5)	(2)	(4)
North	(1)	(1)	(1)	(1)	0	(0)	(1)	(1)	(1)	(1)
Mohawk Valley	(2)	(1)	(2)	(1)	(0)	(1)	(2)	(3)	(2)	(3)
Capital	(7)	(1)	(2)	(1)	(3)	(3)	(4)	(4)	(4)	(4)
Hudson Valley	(6)	(4)	(4)	(3)	(4)	(5)	(6)	(7)	(6)	(7)
Millwood	(2)	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)
Dunwoodie	(4)	(2)	(2)	(2)	(3)	(3)	(4)	(4)	(4)	(4)
NY City	(29)	(15)	(18)	(10)	(7)	(13)	(14)	(16)	(14)	(15)
Long Island	(5)	(1)	(2)	2	2	(3)	(4)	(2)	(1)	(6)
NYCA Total	(61)	(23)	(35)	(18)	(15)	(31)	(38)	(47)	(32)	(47)

PROJECTED LBMPS CHANGE ($/MWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	0.1	0.0	0.0	0.1	(0.0)	(0.0)	(0.0)	0.1	(0.0)
Genesee	(0.2)	(0.0)	(0.1)	(0.1)	0.0	(0.0)	(0.1)	(0.2)	(0.0)	(0.2)
Central	(0.2)	(0.0)	(0.2)	(0.1)	(0.0)	(0.0)	(0.1)	(0.2)	(0.1)	(0.2)
North	(0.2)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)	(0.2)	(0.3)	(0.1)	(0.3)
Mohawk Valley	(0.3)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)	(0.2)	(0.3)	(0.2)	(0.3)
Capital	(0.4)	(0.1)	(0.1)	(0.0)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.2)
Hudson Valley	(0.5)	(0.3)	(0.3)	(0.2)	(0.3)	(0.3)	(0.5)	(0.5)	(0.4)	(0.5)
Millwood	(0.5)	(0.3)	(0.3)	(0.2)	(0.3)	(0.4)	(0.5)	(0.5)	(0.5)	(0.5)
Dunwoodie	(0.5)	(0.3)	(0.3)	(0.2)	(0.3)	(0.4)	(0.5)	(0.5)	(0.5)	(0.5)
NY City	(0.4)	(0.2)	(0.3)	(0.1)	(0.1)	(0.2)	(0.2)	(0.3)	(0.2)	(0.2)
Long Island	(0.2)	(0.0)	(0.1)	0.1	0.1	(0.1)	(0.2)	(0.1)	(0.0)	(0.2)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(69)	(0)	(0)	44	(299)	(182)	(394)	(80)	(116)	(120)
Genesee	(0)	0	0	(0)	(0)	(0)	(0)	0	(0)	(0)
Central	(149)	(46)	(141)	(6)	(62)	(15)	(0)	0	(0)	(0)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(1)	(1)	0	(1)	(1)	(1)	(1)	(1)	(1)
Hudson Valley	165	112	104	102	107	105	133	125	138	140
Millwood	0	0	(0)	0	0	0	0	(0)	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Long Island	(1)	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(58)	62	(40)	139	(255)	(93)	(263)	43	19	18

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(43)	(7)	(5)	25	(107)	(98)	(164)	(10)	(50)	(29)
Genesee	(0)	(1)	(1)	(3)	(1)	(3)	(1)	0	(2)	(1)
Central	(86)	(28)	(56)	(29)	(63)	(47)	(12)	(3)	(13)	(10)
North	(3)	(3)	(1)	(1)	(0)	(1)	(1)	(1)	(4)	(1)
Mohawk Valley	(2)	(2)	0	(2)	(2)	(3)	(2)	(2)	(4)	(3)
Capital	(18)	(31)	(24)	(10)	(14)	(25)	(31)	(19)	(26)	(24)
Hudson Valley	495	343	315	318	338	327	423	389	428	440
Millwood	0	0	(1)	0	0	0	0	(1)	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(227)	29	(72)	(73)	(52)	(48)	(24)	(37)	(53)	(16)
Long Island	(29)	(15)	(6)	(2)	18	(2)	(6)	(12)	(0)	(3)
NYCA Total	87	284	149	221	117	99	182	305	276	350

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0	(0.0)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.0)	0.0	(0.0)	0.0	0.0	(0.0)	0.0	0.0	0.0
Long Island	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(40)	(1)	0	16	(139)	(92)	(193)	(43)	(56)	(61)
Genesee	(2)	(1)	(1)	(2)	(3)	(6)	(4)	0	(4)	(2)
Central	(84)	(49)	(57)	(128)	(91)	(89)	(59)	(28)	(74)	(55)
North	(11)	(8)	(6)	(8)	(5)	(5)	(4)	(6)	(12)	(4)
Mohawk Valley	(3)	(5)	(3)	(6)	(5)	(5)	(5)	(6)	(9)	(7)
Capital	(173)	(260)	(254)	(101)	(205)	(249)	(306)	(233)	(235)	(263)
Hudson Valley	1,100	726	704	621	633	626	849	782	854	856
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(472)	(212)	(170)	(232)	(148)	(161)	(111)	(188)	(259)	(220)
Long Island	(105)	(33)	(20)	(14)	(15)	(17)	(26)	(20)	(6)	(16)
NYCA Total	209	158	193	146	22	1	142	258	200	228

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	(0.0)	(0.0)	0.1	(0.9)	(0.6)	(1.4)	(0.3)	(0.5)	(0.5)
Genesee	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.3)	(0.2)	(0.3)	(0.7)	(0.6)	(0.6)	(0.4)	(0.2)	(0.6)	(0.5)
North	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.1)
Capital	(0.6)	(1.1)	(1.2)	(0.5)	(1.3)	(1.6)	(2.2)	(1.7)	(1.9)	(2.3)
Hudson Valley	4.0	3.2	3.6	3.7	4.3	4.4	6.6	6.4	7.3	8.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.3)	(0.6)	(0.5)	(1.1)	(0.8)	(0.8)	(0.5)	(1.1)	(1.8)	(1.5)
Long Island	(0.4)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)
NYCA Total	1.3	1.1	1.5	1.3	0.4	0.6	1.8	2.8	2.2	3.0

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Generation Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.4	0.3	0.2	0.4	0.5	0.4	0.7	0.5	0.4	0.5
Genesee	0.2	0.1	0.1	0.2	0.4	0.3	0.5	0.2	0.2	0.3
Central	0.1	(0.0)	(0.0)	0.1	0.2	0.1	0.1	0.0	0.0	0.0
North	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1
Mohawk Valley	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)
Capital	(0.1)	0.1	0.1	(0.2)	0.0	0.1	0.1	(0.1)	0.1	(0.1)
Hudson Valley	(0.5)	(0.6)	(0.6)	(0.7)	(0.7)	(0.8)	(1.0)	(0.9)	(0.9)	(1.0)
Millwood	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Dunwoodie	(0.3)	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)	(0.7)	(0.6)	(0.5)	(0.6)
NY City	(1.7)	(2.9)	(3.2)	(3.4)	(3.2)	(3.9)	(5.2)	(4.6)	(4.0)	(4.9)
Long Island	(0.8)	(1.3)	(1.4)	(1.6)	(1.5)	(1.8)	(2.3)	(2.0)	(1.9)	(2.2)
NYCA Total	(3.0)	(4.8)	(5.5)	(5.8)	(4.9)	(6.3)	(8.1)	(7.8)	(6.7)	(8.5)

Generic Demand Response Solution (Study 3: Central East - New Scotland - Pleasant Valley)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	0	(0)	(0)	(0)	(0)	(1)	(1)	(1)	(0)
Genesee	0	(0)	0	0	0	0	0	0	(0)	(0)
Central	1	(0)	0	0	(0)	0	(0)	(0)	(0)	(0)
North	(0)	0	0	0	0	0	0	0	0	0
Mohawk Valley	(0)	0	0	0	(0)	0	(0)	0	0	0
Capital	(1)	0	(0)	(0)	0	(0)	0	0	1	(0)
Hudson Valley	(1)	(0)	(0)	(0)	0	(0)	(0)	0	(0)	(0)
Millwood	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	0
Dunwoodie	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0
NY City	(6)	(13)	(12)	(2)	(7)	(3)	(2)	(4)	(5)	(4)
Long Island	(1)	(0)	(0)	0	(0)	(0)	0	1	0	0
NYCA Total	(7)	(14)	(13)	(3)	(7)	(4)	(3)	(3)	(6)	(4)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	(0)	(0)	(0)	(0)	2	(0)	0
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	(0)	(0)	(0)	(1)	0	(0)	(0)	(1)	(1)	1
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	0	(0)	(0)	(0)	(1)	(0)	(1)	(0)	1	(1)
Hudson Valley	(1)	(1)	(1)	(2)	(1)	(1)	(2)	(1)	(1)	(2)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1)	(3)	(3)	(2)	(1)	(2)	(2)	(3)	(3)	(5)
Long Island	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(3)	(5)	(5)	(5)	(4)	(4)	(6)	(4)	(4)	(7)
NYCA Imports	(2)	(1)	(1)	(2)	(2)	(3)	(2)	(4)	(3)	(2)
NYCA Exports	2	1	0	0	0	0	(0)	(0)	0	0
NYCA + Imports - Exports	(6)	(6)	(7)	(7)	(7)	(7)	(8)	(7)	(8)	(9)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(1)	1	(6)	(7)	(5)	(9)	26	(7)	5
Genesee	(1)	(0)	(0)	(0)	0	0	(0)	(1)	(1)	(0)
Central	(1)	(3)	(8)	(15)	1	(1)	(0)	(11)	(19)	20
North	(1)	(1)	(1)	(5)	(5)	(6)	(2)	(4)	(2)	0
Mohawk Valley	(1)	(2)	(1)	(5)	(1)	(2)	(3)	(0)	(3)	(1)
Capital	39	25	27	17	5	20	3	22	34	(1)
Hudson Valley	(2)	(9)	(2)	(12)	10	8	(3)	5	12	(8)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	53	26	24	50	59	50	52	39	46	14
Long Island	(2)	(1)	(5)	(2)	(12)	(0)	(4)	(4)	(2)	(2)
NYCA Total	82	36	34	24	49	63	32	71	59	27

PROJECTED NET IMPORTS CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(34)	(7)	(14)	(8)	(32)	(26)	(25)	(41)	(18)	(6)
LINDEN VFT	(5)	(6)	(4)	(3)	(4)	(9)	(6)	(9)	(4)	3
NEPTUNE	(6)	(4)	(4)	(3)	9	(1)	3	1	(2)	(0)
HTP	1	1	2	1	(7)	(3)	(5)	(5)	(10)	(6)
ISONE - NYISO	(26)	(10)	(7)	(10)	(22)	(12)	(2)	(7)	(19)	(20)
CROSS SOUND CABLE	1	(0)	1	1	(1)	(0)	1	(3)	(2)	(3)
NORTHPORT NORWALK	(0)	(3)	(1)	(2)	(1)	(2)	(1)	(1)	(0)	(1)
IESO - NYISO	(13)	(8)	(7)	(2)	8	(13)	2	(6)	(3)	5
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(82)	(37)	(34)	(25)	(51)	(65)	(33)	(71)	(58)	(28)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	(0)	0	(1)	(1)	(1)	0	(1)	0
Genesee	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Central	(2)	(0)	(0)	1	(0)	(0)	(0)	(1)	(1)	0
North	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(0)	0	0	1	0	0	(0)	0	1	(1)
Hudson Valley	(1)	(1)	(0)	0	0	0	(0)	0	0	(0)
Millwood	(1)	(1)	(0)	1	(0)	(0)	(0)	(0)	(1)	(0)
Dunwoodie	(0)	0	0	0	0	(0)	(0)	(0)	(0)	(0)
NY City	(1)	(5)	(4)	2	(1)	0	0	(1)	(1)	(1)
Long Island	(1)	(1)	(1)	0	(1)	(0)	(1)	(1)	(1)	(0)
NYCA Total	(6)	(9)	(6)	6	(3)	(1)	(3)	(2)	(3)	(3)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(1)	0	1	0	0	0	0	1	(0)
Genesee	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Central	(1)	(1)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
North	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(1)	(0)	1	(0)	(0)	(0)	(0)	(0)	(0)
Hudson Valley	(1)	(1)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(1)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(6)	(16)	(13)	(2)	(9)	(4)	(5)	(7)	(7)	(6)
Long Island	(1)	(1)	(1)	1	(1)	(0)	(1)	(0)	(1)	(0)
NYCA Total	(13)	(21)	(16)	4	(10)	(6)	(7)	(9)	(8)	(8)

PROJECTED LBMPS CHANGE ($/MWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	(0.0)	0.0	0.1	(0.0)	0.0	0.0	0.0	0.1	(0.0)
Genesee	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)
Central	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)
North	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Mohawk Valley	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Capital	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)
Hudson Valley	(0.1)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Millwood	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Dunwoodie	(0.1)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
NY City	(0.1)	(0.2)	(0.1)	0.0	(0.1)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)
Long Island	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	0	(20)	(8)	(21)	69	(18)	4
Genesee	0	0	0	0	0	0	0	0	0	0
Central	34	0	(0)	(0)	0	(0)	0	(0)	(0)	0
North	0	0	0	(0)	(0)	(0)	(0)	(0)	0	0
Mohawk Valley	0	0	0	(0)	0	0	(0)	0	(0)	0
Capital	0	0	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)
Hudson Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(2)	(1)	(1)	(1)	(0)	(0)	(0)	(0)	(0)
Long Island	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)
NYCA Total	34	(2)	(2)	(1)	(20)	(8)	(21)	68	(19)	3

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	1	(0)	(1)	1	9	46	(6)	1
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	8	0	(1)	(1)	(1)	(0)	0	(1)	(1)	1
North	(0)	(0)	(0)	(1)	(1)	(1)	(0)	(1)	(0)	0
Mohawk Valley	(0)	(1)	(0)	(1)	(0)	(0)	(1)	(0)	(1)	(0)
Capital	(0)	(0)	(0)	(1)	(1)	(0)	(1)	(0)	1	(1)
Hudson Valley	(4)	(11)	(4)	(0)	(0)	(0)	(2)	(0)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(37)	(46)	(48)	(35)	(34)	(39)	(39)	(41)	(43)	(42)
Long Island	(3)	(2)	(5)	(1)	(3)	4	2	(1)	(2)	(1)
NYCA Total	(37)	(60)	(58)	(40)	(41)	(37)	(32)	2	(53)	(43)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	1	(0)	(8)	(4)	(9)	28	(8)	1
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Central	5	(2)	(3)	(7)	0	(1)	(0)	(5)	(8)	9
North	(1)	(0)	(1)	(2)	(2)	(3)	(1)	(2)	(1)	0
Mohawk Valley	(1)	(1)	(0)	(2)	(1)	(1)	(2)	(0)	(1)	(0)
Capital	2	(0)	(3)	(3)	(8)	(2)	(9)	(3)	4	(11)
Hudson Valley	(15)	(18)	(14)	(19)	(7)	(10)	(12)	(5)	(4)	(18)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(20)	(36)	(38)	(22)	(16)	(23)	(21)	(28)	(23)	(42)
Long Island	(2)	(1)	(3)	(2)	(8)	(0)	(3)	(3)	(2)	(1)
NYCA Total	(31)	(58)	(61)	(57)	(50)	(43)	(58)	(19)	(44)	(63)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.1)	0.2	(0.1)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	(0.1)	0.1
North	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	(0.0)	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0
Capital	0.0	0.0	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.0)	0.0	(0.1)
Hudson Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)	(0.2)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.1)	(0.2)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.3)
Long Island	0.0	0.0	(0.0)	(0.0)	(0.1)	0.0	(0.0)	(0.0)	(0.0)	(0.0)
NYCA Total	(0.1)	(0.2)	(0.3)	(0.3)	(0.2)	(0.2)	(0.4)	(0.0)	(0.3)	(0.5)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Demand Response Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	(0.0)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
Central	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	(0.0)	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0
Capital	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)
Hudson Valley	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)
Millwood	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
Dunwoodie	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
NY City	(0.3)	(0.5)	(0.3)	(0.0)	(0.4)	(0.4)	(0.5)	(0.4)	(0.5)	(0.1)
Long Island	(0.1)	(0.2)	(0.1)	0.0	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	0.0
NYCA Total	(0.3)	(0.9)	(0.6)	0.1	(0.7)	(0.6)	(0.8)	(0.8)	(0.9)	(0.3)

Generic Energy Efficiency Solution (Study 3: Central East - New Scotland - Pleasant Valley)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(5)	(7)	(7)	(7)	(4)	(5)	(7)	(6)	(9)	(8)
Genesee	(1)	(2)	(1)	(2)	(1)	(2)	(2)	(1)	(2)	(2)
Central	(1)	(3)	(2)	(2)	(1)	(1)	(3)	(1)	(3)	(3)
North	(0)	0	(0)	(0)	(0)	(0)	0	(0)	(0)	(0)
Mohawk Valley	(0)	0	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(7)	(5)	(11)	(9)	(15)	(10)	(6)	(14)	(10)	(8)
Hudson Valley	(7)	(7)	(10)	(10)	(11)	(9)	(7)	(11)	(9)	(8)
Millwood	(1)	(1)	(1)	(1)	(2)	(1)	(1)	(2)	(2)	(1)
Dunwoodie	(2)	(1)	(3)	(3)	(4)	(3)	(2)	(5)	(3)	(3)
NY City	(42)	(54)	(72)	(64)	(77)	(65)	(52)	(77)	(68)	(68)
Long Island	4	8	1	2	(4)	(2)	(0)	4	7	4
NYCA Total	(64)	(73)	(106)	(96)	(117)	(98)	(80)	(114)	(98)	(96)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	2	1	0	(2)	(4)	1	3	(2)	(1)
Genesee	(0)	0	0	0	0	(0)	(0)	0	(0)	(0)
Central	(10)	2	(2)	(5)	(0)	(8)	(3)	(1)	(8)	(8)
North	(1)	(0)	0	0	(0)	0	(0)	2	(0)	(0)
Mohawk Valley	(0)	0	0	1	0	0	1	1	0	0
Capital	(25)	(36)	(38)	(22)	(30)	(37)	(46)	(18)	(38)	(42)
Hudson Valley	(8)	(8)	(20)	(25)	(31)	(34)	(25)	(31)	(25)	(38)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(66)	(73)	(71)	(79)	(80)	(78)	(79)	(89)	(88)	(87)
Long Island	(6)	(4)	(4)	(3)	(4)	(4)	(3)	(4)	(6)	(6)
NYCA Total	(116)	(118)	(134)	(133)	(148)	(165)	(155)	(137)	(167)	(182)
NYCA Imports	(35)	(35)	(36)	(46)	(38)	(38)	(48)	(52)	(54)	(52)
NYCA Exports	28	34	35	39	38	27	31	43	32	33
NYCA + Imports - Exports	(179)	(186)	(204)	(219)	(224)	(230)	(234)	(233)	(253)	(267)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	8	51	14	(2)	(53)	(51)	4	46	(30)	(39)
Genesee	(2)	1	2	1	2	(4)	(3)	3	(1)	(1)
Central	(290)	(67)	(140)	(188)	(47)	(227)	(90)	(117)	(202)	(195)
North	(19)	(4)	0	(3)	(7)	(4)	(5)	16	(6)	(3)
Mohawk Valley	(5)	0	1	5	2	5	9	15	2	4
Capital	(802)	(1,071)	(1,064)	(601)	(820)	(962)	(1,038)	(576)	(850)	(933)
Hudson Valley	(193)	(248)	(492)	(667)	(778)	(787)	(606)	(821)	(556)	(727)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1,920)	(1,909)	(1,635)	(1,581)	(1,597)	(1,576)	(1,526)	(1,552)	(1,565)	(1,406)
Long Island	(177)	(86)	(106)	(74)	(76)	(70)	(75)	8	(22)	(29)
NYCA Total	(3,400)	(3,334)	(3,420)	(3,110)	(3,375)	(3,677)	(3,330)	(2,978)	(3,229)	(3,329)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(440)	(500)	(600)	(666)	(570)	(418)	(529)	(652)	(600)	(588)
LINDEN VFT	(74)	(64)	(29)	(43)	(60)	(65)	(76)	(64)	(54)	(61)
NEPTUNE	(196)	(87)	(68)	(62)	(31)	(80)	(96)	(124)	(121)	(109)
HTP	(336)	(349)	(342)	(333)	(308)	(264)	(276)	(321)	(327)	(313)
ISONE - NYISO	(709)	(839)	(744)	(874)	(749)	(603)	(633)	(813)	(628)	(619)
CROSS SOUND CABLE	(37)	(11)	(68)	(52)	(47)	(25)	(52)	(26)	(29)	(27)
NORTHPORT NORWALK	(27)	(46)	(62)	(54)	(40)	(39)	(43)	(16)	(20)	(34)
IESO - NYISO	(192)	(156)	(19)	(126)	(72)	(53)	(158)	(175)	(136)	(47)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(2,011)	(2,052)	(1,931)	(2,209)	(1,877)	(1,546)	(1,863)	(2,191)	(1,916)	(1,798)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	0	(0)	(1)	(3)	(0)	(2)	(2)	(3)	(2)
Genesee	(1)	(1)	(1)	(1)	(1)	(0)	(1)	(1)	(1)	(1)
Central	(18)	(9)	(10)	(12)	(6)	(5)	(12)	(15)	(15)	(14)
North	(3)	(4)	(3)	(3)	(2)	(2)	(4)	(3)	(3)	(3)
Mohawk Valley	(1)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Capital	(36)	(45)	(49)	(32)	(42)	(46)	(56)	(38)	(50)	(55)
Hudson Valley	(9)	(13)	(23)	(32)	(36)	(36)	(31)	(41)	(34)	(42)
Millwood	(12)	(12)	(14)	(14)	(14)	(12)	(14)	(20)	(17)	(16)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(88)	(96)	(96)	(98)	(101)	(98)	(100)	(116)	(114)	(112)
Long Island	(8)	(5)	(8)	(6)	(7)	(6)	(8)	(7)	(9)	(6)
NYCA Total	(175)	(185)	(204)	(201)	(211)	(206)	(228)	(244)	(247)	(253)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	1	2	2	1	3	1	0	3	2
Genesee	(2)	(2)	(2)	(2)	(1)	(0)	(2)	(3)	(2)	(2)
Central	(3)	(4)	(3)	(4)	(3)	(2)	(4)	(5)	(4)	(4)
North	(1)	(2)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)
Mohawk Valley	(3)	(3)	(2)	(3)	(2)	(2)	(3)	(4)	(3)	(3)
Capital	(40)	(41)	(47)	(49)	(53)	(50)	(53)	(62)	(60)	(60)
Hudson Valley	(35)	(37)	(40)	(43)	(43)	(43)	(46)	(50)	(51)	(51)
Millwood	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(4)	(3)	(3)
Dunwoodie	(5)	(5)	(5)	(6)	(5)	(5)	(5)	(8)	(6)	(6)
NY City	(168)	(190)	(209)	(212)	(217)	(211)	(221)	(246)	(247)	(252)
Long Island	(4)	(3)	(8)	(8)	(9)	(7)	(11)	(7)	(3)	(7)
NYCA Total	(261)	(287)	(318)	(329)	(335)	(320)	(350)	(389)	(377)	(387)

PROJECTED LBMPS CHANGE ($/MWh) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.2	0.1
Genesee	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)	(0.0)	(0.2)	(0.2)	(0.2)	(0.2)
Central	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.2)	(0.3)	(0.2)	(0.2)
North	(0.3)	(0.4)	(0.3)	(0.3)	(0.2)	(0.2)	(0.4)	(0.4)	(0.3)	(0.4)
Mohawk Valley	(0.3)	(0.4)	(0.3)	(0.4)	(0.3)	(0.2)	(0.4)	(0.4)	(0.4)	(0.4)
Capital	(0.6)	(0.6)	(0.8)	(0.7)	(0.9)	(0.6)	(0.7)	(1.2)	(1.0)	(0.9)
Hudson Valley	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(0.7)	(0.8)	(1.1)	(1.0)	(0.9)
Millwood	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(0.7)	(0.8)	(1.1)	(1.0)	(0.9)
Dunwoodie	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(0.7)	(0.8)	(1.2)	(1.0)	(0.9)
NY City	(0.8)	(0.9)	(1.1)	(1.1)	(1.1)	(1.0)	(1.1)	(1.4)	(1.3)	(1.3)
Long Island	(0.2)	(0.2)	(0.4)	(0.4)	(0.4)	(0.3)	(0.5)	(0.3)	(0.2)	(0.3)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(9)	58	0	5	(135)	(172)	42	59	(75)	(86)
Genesee	(0)	0	0	0	0	0	(0)	0	0	0
Central	(99)	148	78	5	25	(15)	5	81	(0)	(1)
North	(0)	(0)	0	0	(0)	0	(0)	0	(0)	(0)
Mohawk Valley	(0)	0	0	(0)	0	0	0	0	0	0
Capital	(1)	(2)	(2)	(1)	(2)	(1)	(1)	(1)	(2)	(2)
Hudson Valley	(1)	(1)	(1)	(1)	(2)	(2)	(1)	(2)	(1)	(2)
Millwood	0	0	0	0	0	0	0	0	(0)	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(6)	(7)	(6)	(5)	(5)	(4)	(4)	(4)	(4)	(4)
Long Island	(1)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)
NYCA Total	(117)	196	70	3	(118)	(194)	40	133	(83)	(95)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	37	12	2	(32)	(72)	45	54	(21)	5
Genesee	2	0	(1)	(2)	1	(2)	(0)	2	(1)	(0)
Central	(51)	13	(2)	5	8	(44)	6	(5)	(12)	(12)
North	(2)	(0)	0	1	1	(1)	(0)	3	0	1
Mohawk Valley	(2)	0	2	0	(1)	1	1	5	1	1
Capital	(20)	(30)	(21)	(2)	(13)	(19)	(25)	(6)	(19)	(15)
Hudson Valley	(57)	(48)	(53)	(45)	(29)	(30)	(26)	(60)	(19)	(18)
Millwood	0	0	0	0	0	0	0	0	(1)	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(522)	(395)	(477)	(414)	(399)	(389)	(381)	(235)	(370)	(339)
Long Island	(36)	(18)	(14)	(5)	12	(17)	(32)	4	5	(3)
NYCA Total	(687)	(439)	(554)	(459)	(453)	(573)	(413)	(238)	(437)	(380)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.2)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(7)	35	6	5	(54)	(71)	16	34	(28)	(42)
Genesee	(2)	1	1	1	1	(2)	(2)	2	(1)	(1)
Central	(144)	(7)	(44)	(70)	(14)	(110)	(33)	(44)	(88)	(83)
North	(10)	(2)	1	(1)	(4)	(2)	(2)	9	(3)	(2)
Mohawk Valley	(2)	1	0	3	1	2	4	8	1	2
Capital	(326)	(434)	(433)	(229)	(318)	(379)	(412)	(202)	(338)	(366)
Hudson Valley	(129)	(123)	(236)	(296)	(328)	(335)	(253)	(358)	(214)	(311)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1,048)	(1,045)	(881)	(844)	(844)	(833)	(809)	(828)	(830)	(738)
Long Island	(100)	(57)	(58)	(38)	(43)	(41)	(37)	(1)	(14)	(12)
NYCA Total	(1,767)	(1,630)	(1,646)	(1,468)	(1,603)	(1,770)	(1,528)	(1,381)	(1,515)	(1,554)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.2	0.0	0.0	(0.3)	(0.5)	0.1	0.3	(0.2)	(0.3)
Genesee	(0.0)	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0
Central	(0.5)	0.0	(0.2)	(0.3)	(0.0)	(0.7)	(0.2)	(0.3)	(0.7)	(0.8)
North	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)
Mohawk Valley	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Capital	(1.1)	(1.8)	(2.1)	(1.2)	(2.0)	(2.5)	(3.0)	(1.4)	(2.8)	(3.2)
Hudson Valley	(0.4)	(0.5)	(1.1)	(1.6)	(2.0)	(2.3)	(1.8)	(2.6)	(1.7)	(2.8)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(2.8)	(3.2)	(2.9)	(3.2)	(3.9)	(4.1)	(4.1)	(4.5)	(5.0)	(4.5)
Long Island	(0.3)	(0.3)	(0.3)	(0.2)	(0.3)	(0.3)	(0.2)	(0.0)	(0.2)	(0.1)
NYCA Total	(5.3)	(5.6)	(6.6)	(6.5)	(8.5)	(10.4)	(9.2)	(8.4)	(10.6)	(11.6)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 3: Central East-New Scotland-Pleasant Valley | Generic Energy Efficiency Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.6	0.6	0.3	0.9	0.6	0.5	0.5	0.8	0.6	0.7
Genesee	0.3	0.2	0.1	0.3	0.3	0.3	0.2	0.2	0.3	0.3
Central	0.1	(0.0)	(0.0)	0.1	0.1	0.2	0.0	0.1	0.2	0.2
North	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mohawk Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Capital	(2.9)	(2.9)	(3.1)	(3.8)	(3.5)	(3.5)	(3.8)	(4.3)	(4.3)	(4.6)
Hudson Valley	(2.4)	(2.4)	(2.5)	(2.6)	(2.5)	(2.7)	(2.8)	(2.8)	(2.8)	(3.0)
Millwood	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Dunwoodie	(0.4)	(0.5)	(0.4)	(0.5)	(0.3)	(0.4)	(0.5)	(0.4)	(0.5)	(0.5)
NY City	(13.1)	(13.7)	(14.1)	(15.3)	(13.9)	(14.9)	(15.6)	(15.1)	(15.8)	(17.1)
Long Island	(1.1)	(1.5)	(1.3)	(1.4)	(0.8)	(1.3)	(1.5)	(1.2)	(1.5)	(1.5)
NYCA Total	(19.1)	(20.4)	(21.1)	(22.5)	(20.1)	(22.0)	(23.7)	(22.8)	(24.1)	(25.8)

Study 4: Central East - New Scotland - Pleasant Valley with Edic - Marcy Relaxed

Generic Transmission Solution (Study 4: Central East - New Scotland - Pleasant Valley with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	2	4	4	6	2	(0)	3	1	1
Genesee	0	2	3	5	5	4	2	3	1	2
Central	2	4	7	8	9	6	4	6	3	5
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(1)	(2)	(1)	(2)	(1)	(1)	(2)	(1)	(1)
Capital	(20)	(32)	(46)	(50)	(52)	(42)	(28)	(42)	(28)	(32)
Hudson Valley	(13)	(20)	(28)	(30)	(29)	(24)	(16)	(24)	(17)	(19)
Millwood	(4)	(6)	(8)	(9)	(9)	(7)	(5)	(7)	(5)	(6)
Dunwoodie	(8)	(12)	(16)	(18)	(17)	(14)	(10)	(14)	(10)	(12)
NY City	(63)	(103)	(140)	(147)	(143)	(115)	(76)	(112)	(83)	(89)
Long Island	(25)	(41)	(55)	(59)	(55)	(45)	(28)	(45)	(33)	(34)
NYCA Total	(131)	(207)	(281)	(297)	(287)	(236)	(158)	(232)	(173)	(185)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	2	2	5	2	11	9	8	10	13	13
Genesee	0	0	0	0	0	0	0	0	0	0
Central	17	18	16	20	23	24	21	25	26	30
North	1	0	0	0	0	(0)	0	0	0	0
Mohawk Valley	0	0	0	(0)	0	0	0	0	0	0
Capital	(4)	(11)	(2)	(13)	(11)	(9)	(3)	(13)	(22)	(13)
Hudson Valley	(3)	(7)	(6)	(21)	(24)	(17)	(12)	(20)	(13)	(15)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(20)	(20)	(27)	(22)	(24)	(30)	(24)	(22)	(19)	(23)
Long Island	(5)	(3)	(3)	(3)	(4)	(3)	(3)	(3)	(2)	(2)
NYCA Total	(12)	(21)	(17)	(36)	(29)	(26)	(11)	(21)	(17)	(9)
NYCA Imports	4	7	7	19	19	18	14	15	14	11
NYCA Exports	11	10	19	18	22	20	20	21	15	22
NYCA + Imports - Exports	(19)	(25)	(29)	(35)	(33)	(27)	(17)	(26)	(18)	(20)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	71	56	95	62	188	138	198	173	251	247
Genesee	9	7	7	6	8	7	4	3	0	3
Central	635	611	578	564	614	626	509	592	570	612
North	17	4	7	6	5	(0)	2	2	2	6
Mohawk Valley	6	2	7	2	10	6	6	4	1	4
Capital	(18)	(116)	102	(119)	(60)	(62)	(2)	(141)	(287)	(148)
Hudson Valley	(71)	(143)	(170)	(452)	(517)	(356)	(244)	(387)	(243)	(286)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(572)	(523)	(642)	(467)	(542)	(633)	(491)	(409)	(361)	(401)
Long Island	(132)	(62)	(64)	(51)	(62)	(51)	(41)	(37)	(43)	(24)
NYCA Total	(56)	(165)	(80)	(450)	(356)	(326)	(59)	(201)	(108)	13

PROJECTED NET IMPORTS CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax |

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(189)	(76)	(65)	54	(38)	(44)	(40)	(74)	(102)	(164)
LINDEN VFT	6	(15)	(15)	2	(6)	(14)	(10)	(7)	(5)	(20)
NEPTUNE	(89)	(54)	(41)	(48)	(42)	(63)	(27)	(49)	9	(46)
HTP	(208)	(278)	(302)	(290)	(227)	(221)	(232)	(244)	(202)	(208)
ISONE - NYISO	(304)	(304)	(463)	(424)	(445)	(441)	(391)	(399)	(263)	(378)
CROSS SOUND CABLE	9	9	(7)	9	7	4	(25)	(9)	(17)	(5)
NORTHPORT NORWALK	2	(5)	(4)	(2)	(0)	3	(3)	(6)	(4)	6
IESO - NYISO	819	881	976	1,147	1,107	1,104	787	992	698	808
HQ - NYISO CHAT	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	36	147	68	438	347	316	49	194	102	(17)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax |

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	25	29	28	30	23	22	27	30	30
Genesee	5	8	9	10	10	8	5	8	6	6
Central	45	63	76	81	81	72	56	70	63	68
North	10	16	20	22	21	16	11	17	13	14
Mohawk Valley	4	7	9	10	9	8	5	8	6	6
Capital	(8)	(12)	(10)	(18)	(19)	(15)	(10)	(18)	(24)	(18)
Hudson Valley	(4)	(7)	(8)	(21)	(24)	(18)	(13)	(21)	(14)	(16)
Millwood	(8)	(6)	(10)	(9)	(11)	(11)	(10)	(11)	(8)	(10)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(29)	(25)	(39)	(32)	(37)	(42)	(34)	(32)	(28)	(33)
Long Island	(7)	(3)	(5)	(5)	(5)	(5)	(4)	(5)	(4)	(3)
NYCA Total	21	68	72	65	55	36	29	43	40	44

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax |

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	24	29	32	27	24	17	23	19	19
Genesee	9	15	18	19	17	14	9	14	12	11
Central	14	25	30	32	30	24	17	24	20	19
North	5	8	11	11	11	9	6	9	7	7
Mohawk Valley	9	14	17	19	18	15	11	15	13	13
Capital	(7)	(7)	(15)	(15)	(18)	(16)	(11)	(15)	(8)	(11)
Hudson Valley	(4)	(2)	(5)	(4)	(5)	(5)	(5)	(5)	(4)	(5)
Millwood	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	(2)
Dunwoodie	(3)	(2)	(3)	(3)	(4)	(4)	(3)	(4)	(3)	(4)
NY City	(18)	(10)	(23)	(21)	(25)	(25)	(22)	(24)	(19)	(22)
Long Island	(6)	(2)	(6)	(6)	(6)	(7)	(5)	(8)	(5)	(5)
NYCA Total	13	63	51	61	43	27	12	27	30	21

PROJECTED LBMPS CHANGE ($/MWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1.0	1.5	1.8	2.0	1.8	1.6	1.1	1.5	1.2	1.2
Genesee	0.9	1.5	1.9	1.9	1.8	1.5	1.0	1.5	1.2	1.1
Central	0.9	1.5	1.9	2.0	1.9	1.5	1.0	1.5	1.2	1.2
North	1.0	1.7	2.3	2.5	2.4	1.9	1.3	1.9	1.5	1.5
Mohawk Valley	0.9	1.6	2.0	2.2	2.1	1.7	1.1	1.7	1.3	1.3
Capital	(0.5)	(0.6)	(1.1)	(1.1)	(1.4)	(1.2)	(0.7)	(1.1)	(0.6)	(0.8)
Hudson Valley	(0.4)	(0.3)	(0.5)	(0.5)	(0.6)	(0.6)	(0.5)	(0.6)	(0.4)	(0.6)
Millwood	(0.5)	(0.4)	(0.6)	(0.6)	(0.7)	(0.7)	(0.6)	(0.7)	(0.5)	(0.6)
Dunwoodie	(0.4)	(0.3)	(0.6)	(0.5)	(0.6)	(0.6)	(0.6)	(0.7)	(0.5)	(0.6)
NY City	(0.3)	(0.2)	(0.4)	(0.4)	(0.5)	(0.5)	(0.4)	(0.5)	(0.4)	(0.5)
Long Island	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.4)	(0.3)	(0.4)	(0.3)	(0.3)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	1	85	(15)	359	199	315	263	404	387
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(5)	5	(84)	8	25	0	3	5	74	56
North	0	0	0	0	0	0	0	0	0	0
Mohawk Valley	0	(0)	0	(0)	0	0	0	0	0	0
Capital	(0)	(0)	0	(0)	(0)	(0)	0	(0)	(1)	(0)
Hudson Valley	(0)	0	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(1)	(2)	(1)	(1)	(2)	(1)	(1)	(1)	(1)
Long Island	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	6	5	(1)	(9)	382	197	316	266	476	441

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	44	55	89	41	214	150	44	123	(9)	(25)
Genesee	7	13	14	9	10	7	1	2	0	1
Central	37	62	53	78	64	40	31	53	80	114
North	3	1	3	2	4	1	0	1	0	1
Mohawk Valley	1	2	4	2	4	3	2	2	0	1
Capital	2	(3)	2	(0)	(1)	2	9	1	(2)	2
Hudson Valley	(22)	(29)	(27)	(30)	(28)	(16)	(17)	(16)	(11)	(6)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(83)	(93)	(93)	(44)	(57)	(73)	(53)	(33)	(41)	(58)
Long Island	(28)	(7)	(5)	1	(4)	(4)	(2)	2	(3)	(4)
NYCA Total	(39)	0	40	59	205	109	15	135	14	26

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	35	22	71	19	181	127	175	167	218	217
Genesee	3	1	1	1	1	2	2	1	0	2
Central	263	249	210	224	238	248	218	256	268	297
North	8	2	3	3	2	(0)	1	0	1	3
Mohawk Valley	2	0	1	(2)	2	1	3	2	1	2
Capital	(4)	(48)	43	(55)	(23)	(29)	2	(62)	(115)	(63)
Hudson Valley	(47)	(79)	(84)	(207)	(230)	(157)	(111)	(164)	(106)	(124)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(305)	(273)	(328)	(216)	(257)	(300)	(238)	(194)	(170)	(185)
Long Island	(76)	(33)	(33)	(25)	(31)	(25)	(21)	(17)	(20)	(12)
NYCA Total	(120)	(160)	(114)	(260)	(118)	(132)	31	(12)	77	136

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.1	0.4	0.1	1.2	0.9	1.3	1.3	1.8	1.9
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.9	1.0	1.0	1.2	1.5	1.7	1.6	1.9	2.2	2.6
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	(0.2)	0.2	(0.3)	(0.2)	(0.2)	0.0	(0.6)	(1.0)	(0.6)
Hudson Valley	(0.2)	(0.3)	(0.4)	(1.2)	(1.5)	(1.1)	(0.8)	(1.3)	(0.9)	(1.1)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.8)	(0.9)	(1.1)	(0.7)	(1.0)	(1.3)	(1.0)	(0.8)	(0.8)	(0.9)
Long Island	(0.3)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)
NYCA Total	(0.2)	(0.5)	(0.1)	(1.1)	(0.2)	(0.2)	0.9	0.3	1.2	1.9

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Transmission Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2.9)	(3.9)	(4.3)	(5.0)	(5.1)	(4.6)	(4.2)	(5.1)	(4.6)	(5.0)
Genesee	(1.3)	(1.6)	(1.7)	(1.9)	(2.2)	(1.9)	(1.8)	(2.1)	(2.0)	(2.2)
Central	(1.3)	(1.1)	(1.2)	(1.4)	(1.5)	(1.5)	(1.7)	(1.7)	(1.9)	(2.1)
North	(0.3)	(0.5)	(0.6)	(0.7)	(0.6)	(0.5)	(0.3)	(0.5)	(0.4)	(0.4)
Mohawk Valley	0.0	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Capital	(1.1)	(0.2)	(0.1)	0.2	(0.1)	(0.6)	(1.4)	(0.8)	(1.0)	(1.3)
Hudson Valley	(2.0)	(1.4)	(1.3)	(1.4)	(1.4)	(1.9)	(2.4)	(2.3)	(2.4)	(2.6)
Millwood	(0.6)	(0.4)	(0.4)	(0.4)	(0.4)	(0.6)	(0.7)	(0.6)	(0.7)	(0.8)
Dunwoodie	(1.3)	(0.9)	(0.8)	(0.9)	(0.9)	(1.2)	(1.5)	(1.4)	(1.5)	(1.6)
NY City	(10.8)	(6.4)	(5.6)	(7.1)	(6.4)	(9.5)	(12.5)	(11.8)	(13.0)	(13.7)
Long Island	(4.3)	(2.5)	(2.1)	(2.5)	(2.4)	(3.6)	(4.9)	(4.5)	(5.0)	(5.3)
NYCA Total	(25.8)	(18.6)	(17.8)	(20.9)	(20.8)	(25.8)	(31.4)	(30.6)	(32.5)	(35.0)

Generic Generation Solution (Study 4: Central East - New Scotland - Pleasant Valley with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(3)	(5)	(3)	(5)	(1)	(3)	(4)	(4)	(4)	(6)
Genesee	(1)	(2)	(1)	(2)	0	(1)	(1)	(1)	(1)	(1)
Central	(1)	(2)	(1)	(2)	0	(1)	(1)	(2)	(2)	(2)
North	(0)	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	0	0	0	(0)	(0)	(0)	0	0	0
Capital	(2)	4	2	4	(4)	(4)	(2)	1	2	3
Hudson Valley	(2)	1	(0)	0	(3)	(3)	(2)	(1)	(1)	(0)
Millwood	(1)	0	(0)	0	(1)	(1)	(1)	(0)	(0)	(0)
Dunwoodie	(1)	1	(0)	0	(2)	(2)	(1)	(1)	(1)	(0)
NY City	(9)	10	2	6	(1)	(0)	10	12	13	19
Long Island	3	9	6	8	5	5	8	9	9	9
NYCA Total	(18)	17	6	9	(6)	(9)	7	12	15	20

PROJECTED PRODUCTION COST CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(0)	0	(1)	(1)	(5)	(6)	(2)	(6)	(6)
Genesee	(0)	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(1)	(0)
Central	(7)	(10)	(7)	(10)	(8)	(3)	(8)	(3)	(5)	(6)
North	(1)	(1)	(1)	(1)	(0)	(0)	(1)	(1)	(1)	(1)
Mohawk Valley	(0)	(1)	(1)	(1)	(0)	(0)	(1)	(1)	(1)	(1)
Capital	(11)	(31)	(22)	(16)	(19)	(22)	(31)	(28)	(36)	(26)
Hudson Valley	67	54	56	41	55	57	71	73	79	81
Millwood	0	(0)	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(28)	(8)	(12)	(11)	(10)	(13)	(11)	(17)	(22)	(23)
Long Island	(7)	(2)	(2)	1	(2)	(3)	(3)	(1)	0	(1)
NYCA Total	10	2	13	2	15	10	10	19	7	15
NYCA Imports	(22)	(16)	(20)	(15)	(17)	(17)	(21)	(29)	(23)	(30)
NYCA Exports	19	5	9	3	9	10	12	10	11	10
NYCA + Imports - Exports	(32)	(19)	(16)	(16)	(10)	(18)	(22)	(20)	(27)	(26)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	44	16	4	(0)	(59)	(80)	(3)	(87)	(65)
Genesee	(6)	(4)	(2)	(7)	(5)	(9)	(5)	(1)	(7)	(6)
Central	(103)	(216)	(105)	(262)	(156)	(77)	(173)	(71)	(107)	(129)
North	(22)	(22)	(14)	(15)	(9)	(8)	(14)	(14)	(22)	(20)
Mohawk Valley	(9)	(17)	(10)	(16)	(6)	(4)	(14)	(10)	(16)	(15)
Capital	(328)	(781)	(512)	(354)	(448)	(516)	(715)	(622)	(690)	(516)
Hudson Valley	2,761	1,918	1,802	1,361	1,504	1,608	1,956	1,900	2,182	2,064
Millwood	0	(0)	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(754)	(239)	(315)	(248)	(260)	(247)	(153)	(265)	(434)	(352)
Long Island	(185)	(35)	(40)	16	(17)	(43)	(37)	(18)	(11)	(28)
NYCA Total	1,353	648	820	480	601	646	765	898	809	933

PROJECTED NET IMPORTS CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(226)	(207)	(303)	(130)	(266)	(245)	(381)	(404)	(352)	(480)
LINDEN VFT	(90)	(53)	(35)	(45)	(20)	(36)	(38)	(46)	(55)	(57)
NEPTUNE	(162)	(54)	(48)	(36)	(11)	(21)	(38)	(41)	(44)	(36)
HTP	(138)	(90)	(62)	(34)	(10)	(67)	(29)	(19)	(39)	(13)
ISONE - NYISO	(552)	(148)	(242)	(152)	(225)	(197)	(232)	(212)	(260)	(272)
CROSS SOUND CABLE	5	10	(19)	0	6	3	13	(0)	(4)	11
NORTHPORT NORWALK	(18)	(18)	(1)	(13)	(4)	(2)	(3)	(4)	(2)	(6)
IESO - NYISO	(183)	(99)	(120)	(79)	(78)	(88)	(63)	(176)	(57)	(84)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,363)	(659)	(830)	(488)	(609)	(653)	(771)	(902)	(812)	(937)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	2	(0)	2	(1)	(3)	(5)	(2)	(5)	(5)
Genesee	(1)	(1)	(1)	(0)	(0)	(1)	(1)	(1)	(1)	(1)
Central	(9)	(11)	(4)	(7)	(2)	(3)	(11)	(8)	(5)	(10)
North	(3)	(3)	(2)	(2)	(1)	(1)	(2)	(3)	(3)	(4)
Mohawk Valley	(1)	(2)	(1)	(1)	(0)	(1)	(1)	(1)	(1)	(2)
Capital	(19)	(31)	(24)	(16)	(23)	(27)	(36)	(32)	(38)	(29)
Hudson Valley	86	67	67	51	61	63	80	81	93	93
Millwood	(9)	(4)	(4)	(2)	(6)	(8)	(8)	(8)	(7)	(8)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(43)	(15)	(19)	(15)	(17)	(17)	(12)	(19)	(26)	(25)
Long Island	(9)	(2)	(2)	1	(1)	(2)	(2)	(2)	(2)	(2)
NYCA Total	(6)	(0)	9	13	11	(0)	4	4	4	7

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	1	0	3	1	1	1	0	(0)	1
Genesee	(1)	(1)	(1)	0	(0)	(1)	(1)	(2)	(2)	(2)
Central	(3)	(2)	(2)	(0)	(1)	(2)	(2)	(4)	(3)	(4)
North	(1)	(1)	(1)	(1)	(0)	(0)	(1)	(1)	(1)	(1)
Mohawk Valley	(2)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(2)	(2)
Capital	(6)	0	(1)	1	(4)	(6)	(4)	(3)	(2)	(3)
Hudson Valley	(6)	(3)	(3)	(2)	(4)	(6)	(6)	(6)	(6)	(6)
Millwood	(2)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)	(2)
Dunwoodie	(4)	(2)	(2)	(1)	(3)	(3)	(4)	(4)	(3)	(3)
NY City	(28)	(12)	(14)	(8)	(8)	(15)	(10)	(13)	(12)	(9)
Long Island	(5)	0	(0)	2	2	(2)	(0)	(2)	(1)	(3)
NYCA Total	(57)	(23)	(26)	(8)	(20)	(37)	(31)	(38)	(34)	(33)

PROJECTED LBMPS CHANGE ($/MWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	(0.0)	(0.0)	0.2	0.0	0.0	0.0	(0.0)	(0.0)	0.0
Genesee	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)
Central	(0.2)	(0.2)	(0.2)	(0.0)	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)
North	(0.2)	(0.3)	(0.2)	(0.1)	(0.0)	(0.1)	(0.2)	(0.3)	(0.2)	(0.3)
Mohawk Valley	(0.2)	(0.3)	(0.2)	(0.1)	(0.1)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)
Capital	(0.4)	0.0	(0.1)	0.1	(0.3)	(0.4)	(0.3)	(0.2)	(0.1)	(0.2)
Hudson Valley	(0.5)	(0.2)	(0.2)	(0.1)	(0.3)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
Millwood	(0.5)	(0.2)	(0.2)	(0.1)	(0.3)	(0.5)	(0.4)	(0.5)	(0.4)	(0.4)
Dunwoodie	(0.5)	(0.2)	(0.2)	(0.1)	(0.3)	(0.5)	(0.4)	(0.5)	(0.4)	(0.4)
NY City	(0.4)	(0.1)	(0.2)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
Long Island	(0.2)	0.0	(0.0)	0.1	0.1	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(63)	0	(0)	(5)	(40)	(184)	(189)	(67)	(206)	(180)
Genesee	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Central	(209)	(216)	(140)	(6)	(68)	(14)	(4)	(0)	45	(46)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Capital	(1)	(2)	(1)	0	(1)	(1)	(1)	(1)	(2)	(1)
Hudson Valley	162	116	104	102	97	103	126	122	143	133
Millwood	0	0	(0)	0	0	0	0	(0)	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(3)	(1)	(1)	(1)	(1)	(1)	(0)	(1)	(1)	(1)
Long Island	(2)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(115)	(103)	(39)	90	(12)	(97)	(68)	52	(21)	(95)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(47)	(1)	(5)	(12)	10	(63)	(75)	(13)	(49)	(82)
Genesee	(1)	(2)	(1)	(4)	(1)	(2)	(1)	(0)	(2)	(2)
Central	(93)	(43)	(57)	(30)	(73)	(38)	(21)	(8)	3	(26)
North	(2)	(3)	(2)	(2)	(0)	(1)	(2)	(2)	(3)	(2)
Mohawk Valley	(3)	(3)	(0)	(3)	(1)	(2)	(3)	(2)	(3)	(4)
Capital	(19)	(39)	(25)	(16)	(12)	(18)	(29)	(22)	(31)	(18)
Hudson Valley	490	352	311	315	314	333	394	374	441	417
Millwood	0	0	(1)	0	0	0	0	(1)	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(193)	14	(41)	(31)	(47)	(46)	(27)	(58)	(60)	(17)
Long Island	(34)	(31)	1	5	14	(4)	(15)	(7)	(0)	(5)
NYCA Total	97	245	181	222	204	158	222	262	295	261

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.2	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.1	0.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.0)	0.0	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)	0.0
Long Island	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(44)	(0)	1	(14)	(25)	(98)	(102)	(39)	(115)	(87)
Genesee	(3)	(2)	(1)	(3)	(2)	(5)	(3)	(1)	(4)	(3)
Central	(93)	(115)	(69)	(121)	(97)	(50)	(82)	(34)	(45)	(66)
North	(11)	(11)	(7)	(8)	(4)	(4)	(7)	(7)	(11)	(10)
Mohawk Valley	(5)	(8)	(5)	(9)	(2)	(2)	(7)	(5)	(8)	(7)
Capital	(157)	(340)	(232)	(158)	(195)	(224)	(307)	(265)	(299)	(231)
Hudson Valley	1,077	753	703	525	590	634	762	749	858	809
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(418)	(132)	(164)	(137)	(132)	(135)	(87)	(154)	(245)	(187)
Long Island	(109)	(26)	(25)	7	(14)	(25)	(28)	(8)	(5)	(14)
NYCA Total	236	119	201	82	119	91	141	235	127	204

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.2)	(0.0)	0.0	(0.1)	(0.2)	(0.7)	(0.7)	(0.3)	(0.9)	(0.8)
Genesee	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.3)	(0.5)	(0.3)	(0.7)	(0.6)	(0.3)	(0.6)	(0.3)	(0.4)	(0.6)
North	(0.0)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.1)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.1)
Capital	(0.5)	(1.4)	(1.1)	(0.9)	(1.2)	(1.5)	(2.2)	(2.0)	(2.4)	(2.0)
Hudson Valley	3.9	3.3	3.6	3.1	4.0	4.5	5.9	6.1	7.4	7.5
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.1)	(0.4)	(0.6)	(0.8)	(0.8)	(0.7)	(0.4)	(1.0)	(1.8)	(1.4)
Long Island	(0.4)	(0.1)	(0.1)	0.0	(0.1)	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)
NYCA Total	1.2	0.8	1.4	0.6	1.0	1.1	1.5	2.4	1.5	2.4

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Generation Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.3	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.4	0.7
Genesee	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.3
Central	0.0	(0.0)	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1
North	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Mohawk Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Capital	(0.1)	0.0	0.1	(0.1)	0.1	0.1	0.2	0.0	0.1	(0.2)
Hudson Valley	(0.6)	(0.8)	(0.6)	(0.7)	(0.6)	(0.7)	(1.0)	(0.9)	(1.0)	(1.0)
Millwood	(0.2)	(0.3)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)
Dunwoodie	(0.4)	(0.6)	(0.4)	(0.5)	(0.3)	(0.5)	(0.7)	(0.6)	(0.6)	(0.6)
NY City	(2.8)	(4.7)	(3.3)	(3.9)	(2.6)	(3.7)	(5.4)	(4.8)	(4.9)	(5.1)
Long Island	(1.1)	(2.0)	(1.4)	(1.8)	(1.3)	(1.7)	(2.4)	(2.2)	(2.2)	(2.3)
NYCA Total	(4.6)	(8.0)	(5.4)	(6.7)	(4.3)	(6.0)	(8.8)	(8.0)	(8.2)	(8.4)

Generic Demand Response Solution (Study 4: Central East - New Scotland - Pleasant Valley with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	(0)	(0)	(0)	(0)	(1)	(1)	(0)	(1)	(0)
Genesee	(0)	(0)	0	0	0	(0)	0	0	(0)	0
Central	0	(0)	0	0	(0)	(0)	(0)	(0)	(0)	(0)
North	0	0	0	(0)	0	0	0	0	0	0
Mohawk Valley	0	0	(0)	0	0	0	(0)	(0)	0	(0)
Capital	0	0	(0)	0	0	0	0	(0)	0	0
Hudson Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0
Millwood	0	0	(0)	(0)	(0)	0	(0)	(0)	(0)	0
Dunwoodie	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0
NY City	(2)	(12)	(12)	(4)	(7)	(2)	(3)	(6)	(4)	(2)
Long Island	1	0	(0)	0	(0)	0	(0)	(0)	0	2
NYCA Total	0	(12)	(13)	(4)	(7)	(3)	(3)	(6)	(4)	(1)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	(0)	(0)	0	(0)	(0)	1	(0)
Genesee	(0)	0	(0)	0	0	0	0	0	0	0
Central	(0)	(0)	(0)	0	(0)	(0)	(0)	0	0	0
North	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Capital	0	(0)	(1)	(0)	(0)	(1)	(0)	(0)	0	(0)
Hudson Valley	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(0)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(3)	(3)	(5)
Long Island	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)
NYCA Total	(4)	(4)	(5)	(4)	(5)	(5)	(4)	(3)	(3)	(6)
NYCA Imports	(2)	(1)	(2)	(2)	(2)	(2)	(3)	(4)	(4)	(2)
NYCA Exports	1	1	0	1	(0)	(0)	0	0	0	0
NYCA + Imports - Exports	(6)	(6)	(7)	(7)	(7)	(7)	(7)	(8)	(7)	(8)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(3)	1	(2)	(7)	(8)	0	(5)	(8)	(1)	(7)
Genesee	(1)	0	(0)	0	(0)	0	0	(0)	(0)	(0)
Central	(1)	(5)	(8)	5	(8)	(6)	(2)	6	(1)	9
North	3	(2)	(1)	(2)	(3)	(6)	(2)	(4)	(4)	(4)
Mohawk Valley	(0)	(2)	(2)	(4)	(1)	(0)	(1)	0	(1)	(1)
Capital	41	19	1	23	16	8	17	26	34	23
Hudson Valley	(1)	(8)	5	(6)	(5)	(1)	5	16	9	11
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	11	38	46	54	48	37	41	42	46	19
Long Island	3	1	(4)	(4)	(6)	(1)	(1)	(3)	(9)	(9)
NYCA Total	51	42	34	59	35	30	53	75	73	40

PROJECTED NET IMPORTS CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(22)	6	(21)	(27)	(28)	(17)	(30)	(39)	(41)	(25)
LINDEN VFT	(2)	(8)	(3)	(1)	(5)	(6)	(5)	(7)	(4)	3
NEPTUNE	(6)	1	(2)	(6)	2	(2)	(2)	(5)	5	8
HTP	1	2	2	0	(5)	(5)	(5)	(8)	(7)	(5)
ISONE - NYISO	(15)	(17)	(4)	(23)	9	3	(10)	(15)	(20)	(16)
CROSS SOUND CABLE	(2)	(2)	1	0	(1)	2	0	1	(1)	(2)
NORTHPORT NORWALK	(1)	(7)	(1)	(1)	(0)	(0)	0	(1)	(0)	(0)
IESO - NYISO	(4)	(17)	(5)	(3)	(6)	(5)	(2)	(3)	(9)	(3)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	(1)	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(51)	(42)	(34)	(61)	(34)	(31)	(53)	(76)	(79)	(41)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(0)	(0)	(1)	(1)	(0)	(1)	(1)	(1)	(1)
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Central	(1)	(1)	(0)	0	(0)	(1)	(1)	(0)	0	(0)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Capital	(0)	0	(0)	0	0	0	0	1	1	0
Hudson Valley	(1)	(1)	0	(1)	(0)	(0)	0	1	0	1
Millwood	(1)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(1)	(0)
Dunwoodie	0	0	0	(0)	0	(0)	(0)	(0)	(0)	(0)
NY City	(3)	(4)	(2)	(0)	(1)	(0)	0	(1)	(1)	(1)
Long Island	(1)	(0)	(0)	(1)	(1)	(0)	(0)	(0)	(1)	(0)
NYCA Total	(8)	(5)	(3)	(3)	(3)	(3)	(1)	(1)	(3)	(3)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(0)	0	(0)	0	0	0	0	0	(0)
Genesee	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Central	(1)	(0)	0	(1)	(0)	(0)	(0)	(0)	(1)	(0)
North	(0)	(0)	0	(0)	(0)	(0)	(0)	0	(0)	(0)
Mohawk Valley	(1)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(1)
Hudson Valley	(1)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(1)	(0)
Millwood	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(7)	(14)	(13)	(6)	(8)	(4)	(4)	(7)	(7)	(5)
Long Island	(1)	(0)	(0)	(1)	(1)	(1)	(1)	(0)	(1)	1
NYCA Total	(15)	(16)	(13)	(10)	(9)	(6)	(5)	(8)	(10)	(7)

PROJECTED LBMPS CHANGE ($/MWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)
Genesee	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Central	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
North	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Mohawk Valley	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)
Capital	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Hudson Valley	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Millwood	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Dunwoodie	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
NY City	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)
Long Island	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	0.0

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	0	0	1	(13)	4	(7)	(14)	1	(11)
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(8)	(0)	(0)	0	(0)	(0)	(0)	0	0	0
North	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	0	0	0	(0)	0	0	0	0	0	0
Capital	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)
Hudson Valley	(1)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1)	(2)	(1)	(1)	(1)	(0)	(0)	(0)	(0)	(0)
Long Island	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(11)	(2)	(1)	0	(14)	3	(7)	(14)	1	(11)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	2	0	0	8	11	4	(4)	8	7
Genesee	(1)	0	(0)	(0)	(0)	0	0	(0)	(0)	(0)
Central	(1)	(0)	(1)	(0)	(0)	(1)	(1)	(0)	(0)	0
North	0	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(1)	(0)	(1)	(0)	(0)	(0)	0	(0)	(0)
Capital	(0)	0	(2)	(0)	(1)	(1)	(0)	(0)	0	(0)
Hudson Valley	(4)	(12)	(3)	(2)	(1)	(1)	(1)	0	(1)	(0)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(32)	(49)	(41)	(31)	(39)	(38)	(40)	(40)	(45)	(45)
Long Island	(1)	(2)	0	(2)	(3)	(1)	(4)	(1)	(4)	(2)
NYCA Total	(41)	(62)	(47)	(36)	(35)	(31)	(43)	(45)	(43)	(42)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	0	(0)	(0)	(6)	2	(3)	(6)	1	(5)
Genesee	(1)	0	(0)	0	0	0	0	(0)	(0)	(0)
Central	(1)	(2)	(4)	2	(3)	(2)	(1)	2	0	4
North	1	(1)	(1)	(1)	(1)	(3)	(1)	(2)	(2)	(2)
Mohawk Valley	(0)	(1)	(1)	(2)	(0)	(0)	(0)	0	(0)	(0)
Capital	5	(3)	(13)	(0)	(4)	(6)	(2)	(2)	3	(2)
Hudson Valley	(14)	(18)	(10)	(16)	(16)	(13)	(10)	(0)	(7)	(5)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(45)	(30)	(26)	(19)	(23)	(30)	(27)	(28)	(24)	(41)
Long Island	2	0	(2)	(2)	(4)	(1)	(1)	(2)	(6)	(6)
NYCA Total	(51)	(54)	(57)	(39)	(57)	(53)	(46)	(37)	(36)	(58)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	(0.0)	0.0	(0.0)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0
North	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Mohawk Valley	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	(0.0)	(0.0)
Capital	0.0	(0.0)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)
Hudson Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	0.0	(0.1)	(0.0)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.2)	(0.1)	(0.1)	(0.1)	(0.3)
Long Island	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)
NYCA Total	(0.2)	(0.2)	(0.3)	(0.2)	(0.3)	(0.3)	(0.3)	(0.2)	(0.2)	(0.5)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Demand Response Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.0	(0.0)
Capital	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Hudson Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Millwood	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Dunwoodie	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
NY City	(0.7)	(0.4)	(0.4)	(0.5)	(0.3)	(0.4)	(0.3)	(0.3)	(0.5)	(0.4)
Long Island	(0.3)	(0.1)	(0.1)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
NYCA Total	(1.2)	(0.7)	(0.5)	(0.9)	(0.5)	(0.7)	(0.5)	(0.5)	(0.9)	(0.7)

Generic Energy Efficiency Solution (Study 4: Central East - New Scotland - Pleasant Valley with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	(8)	(4)	(6)	(3)	(5)	(6)	(2)	(8)	(7)
Genesee	(1)	(2)	(1)	(1)	(0)	(1)	(1)	(0)	(2)	(2)
Central	(2)	(3)	(1)	(2)	(0)	(1)	(2)	0	(3)	(2)
North	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	0	(0)	(0)	(0)	(0)	(0)	(1)	(0)	(0)
Capital	(6)	(6)	(13)	(14)	(15)	(14)	(10)	(17)	(8)	(10)
Hudson Valley	(6)	(7)	(11)	(11)	(11)	(10)	(8)	(12)	(8)	(9)
Millwood	(1)	(1)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(1)
Dunwoodie	(1)	(2)	(3)	(3)	(3)	(3)	(3)	(5)	(2)	(3)
NY City	(35)	(56)	(75)	(72)	(74)	(68)	(58)	(81)	(62)	(70)
Long Island	5	7	(3)	(3)	(1)	(4)	(1)	(1)	9	5
NYCA Total	(52)	(76)	(112)	(114)	(109)	(109)	(91)	(121)	(84)	(98)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	2	(0)	(2)	2	(5)	(5)	1	(3)	(5)
Genesee	(0)	(0)	0	0	0	(0)	0	0	(0)	(0)
Central	(8)	(5)	(5)	(5)	(3)	(8)	(2)	(1)	(5)	(4)
North	(1)	(0)	0	(0)	(0)	(0)	(0)	1	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	0	(0)	1	1	0	0
Capital	(22)	(38)	(39)	(26)	(32)	(43)	(39)	(22)	(49)	(41)
Hudson Valley	(9)	(11)	(20)	(31)	(37)	(39)	(23)	(43)	(31)	(38)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(73)	(70)	(70)	(77)	(77)	(79)	(85)	(84)	(80)	(88)
Long Island	(9)	(6)	(3)	(2)	(5)	(5)	(4)	(5)	(6)	(8)
NYCA Total	(123)	(129)	(138)	(143)	(152)	(178)	(158)	(152)	(174)	(183)
NYCA Imports	(32)	(33)	(35)	(43)	(38)	(29)	(46)	(53)	(48)	(55)
NYCA Exports	28	30	35	35	33	27	34	38	37	32
NYCA + Imports - Exports	(183)	(192)	(208)	(221)	(223)	(235)	(238)	(243)	(259)	(270)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	13	46	2	(20)	35	(68)	(68)	27	(38)	(67)
Genesee	(4)	(2)	1	(1)	2	(1)	(1)	0	(2)	(1)
Central	(237)	(141)	(199)	(181)	(131)	(216)	(62)	(99)	(140)	(105)
North	(16)	(10)	(3)	(4)	(6)	(8)	(7)	9	(9)	(9)
Mohawk Valley	(6)	(10)	(6)	2	4	0	6	7	0	3
Capital	(691)	(1,035)	(1,086)	(687)	(822)	(1,044)	(936)	(543)	(979)	(911)
Hudson Valley	(196)	(307)	(464)	(803)	(919)	(902)	(600)	(1,013)	(644)	(690)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2,085)	(1,845)	(1,615)	(1,555)	(1,577)	(1,565)	(1,622)	(1,466)	(1,425)	(1,429)
Long Island	(228)	(122)	(95)	(52)	(86)	(81)	(80)	11	(21)	(44)
NYCA Total	(3,450)	(3,426)	(3,465)	(3,301)	(3,500)	(3,884)	(3,370)	(3,066)	(3,257)	(3,254)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(435)	(527)	(623)	(651)	(543)	(368)	(559)	(687)	(581)	(692)
LINDEN VFT	(54)	(85)	(43)	(48)	(56)	(72)	(79)	(71)	(65)	(75)
NEPTUNE	(194)	(98)	(66)	(66)	(29)	(91)	(78)	(125)	(108)	(95)
HTP	(285)	(333)	(293)	(320)	(276)	(198)	(270)	(269)	(280)	(271)
ISONE - NYISO	(754)	(714)	(720)	(736)	(647)	(544)	(659)	(714)	(664)	(648)
CROSS SOUND CABLE	(21)	10	(81)	(30)	(55)	(20)	(42)	(29)	(36)	(9)
NORTHPORT NORWALK	(21)	(35)	(42)	(44)	(27)	(24)	(44)	(11)	(13)	(19)
IESO - NYISO	(200)	(184)	(22)	(124)	(119)	(23)	(92)	(202)	(141)	(60)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,965)	(1,965)	(1,888)	(2,018)	(1,751)	(1,339)	(1,822)	(2,107)	(1,888)	(1,868)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	2	1	1	(1)	0	(4)	(1)	(2)	(4)
Genesee	(1)	(1)	(0)	(0)	(1)	0	(1)	(1)	(1)	(1)
Central	(17)	(9)	(6)	(9)	(7)	(1)	(9)	(9)	(12)	(10)
North	(3)	(3)	(1)	(2)	(2)	(1)	(3)	(2)	(4)	(3)
Mohawk Valley	(1)	(1)	(0)	(1)	(1)	0	(1)	(1)	(1)	(1)
Capital	(32)	(45)	(49)	(37)	(45)	(51)	(51)	(38)	(59)	(55)
Hudson Valley	(9)	(15)	(22)	(37)	(42)	(42)	(31)	(49)	(39)	(42)
Millwood	(11)	(11)	(11)	(14)	(13)	(11)	(15)	(17)	(13)	(17)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(93)	(93)	(90)	(95)	(99)	(97)	(105)	(108)	(102)	(113)
Long Island	(11)	(6)	(6)	(6)	(6)	(6)	(7)	(7)	(8)	(7)
NYCA Total	(180)	(183)	(184)	(199)	(216)	(208)	(226)	(231)	(241)	(253)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	3	3	3	0	4	1	(0)	2	2
Genesee	(2)	(1)	(0)	(1)	(2)	1	(2)	(2)	(2)	(2)
Central	(4)	(3)	(1)	(2)	(3)	0	(4)	(4)	(4)	(4)
North	(1)	(1)	(0)	(1)	(1)	(0)	(1)	(1)	(2)	(2)
Mohawk Valley	(3)	(3)	(1)	(2)	(2)	(1)	(3)	(2)	(3)	(3)
Capital	(40)	(41)	(46)	(51)	(53)	(52)	(55)	(61)	(58)	(62)
Hudson Valley	(35)	(36)	(39)	(43)	(43)	(43)	(46)	(49)	(49)	(51)
Millwood	(2)	(2)	(2)	(2)	(2)	(2)	(3)	(3)	(2)	(3)
Dunwoodie	(4)	(4)	(4)	(5)	(5)	(4)	(5)	(7)	(5)	(6)
NY City	(167)	(188)	(199)	(211)	(213)	(206)	(221)	(238)	(240)	(253)
Long Island	(5)	(2)	(7)	(10)	(7)	(7)	(10)	(8)	(2)	(5)
NYCA Total	(264)	(279)	(296)	(325)	(330)	(310)	(348)	(374)	(364)	(388)

PROJECTED LBMPS CHANGE ($/MWh) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	0.1	0.1	0.1	(0.0)	0.2	0.1	(0.0)	0.1	0.1
Genesee	(0.2)	(0.2)	(0.0)	(0.1)	(0.1)	0.1	(0.2)	(0.2)	(0.2)	(0.2)
Central	(0.3)	(0.2)	(0.1)	(0.1)	(0.2)	0.0	(0.2)	(0.2)	(0.2)	(0.2)
North	(0.3)	(0.3)	(0.1)	(0.2)	(0.2)	(0.0)	(0.3)	(0.2)	(0.3)	(0.3)
Mohawk Valley	(0.4)	(0.4)	(0.2)	(0.2)	(0.3)	(0.1)	(0.3)	(0.3)	(0.4)	(0.4)
Capital	(0.6)	(0.6)	(0.7)	(0.8)	(0.8)	(0.7)	(0.9)	(1.2)	(0.8)	(0.9)
Hudson Valley	(0.7)	(0.6)	(0.6)	(0.8)	(0.7)	(0.7)	(0.8)	(1.0)	(0.8)	(0.9)
Millwood	(0.6)	(0.6)	(0.6)	(0.8)	(0.7)	(0.6)	(0.8)	(1.0)	(0.8)	(0.9)
Dunwoodie	(0.6)	(0.6)	(0.6)	(0.8)	(0.7)	(0.7)	(0.8)	(1.0)	(0.8)	(0.9)
NY City	(0.8)	(0.9)	(0.9)	(1.0)	(1.0)	(0.9)	(1.1)	(1.3)	(1.2)	(1.3)
Long Island	(0.2)	(0.1)	(0.3)	(0.4)	(0.3)	(0.3)	(0.5)	(0.4)	(0.1)	(0.3)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	60	0	(69)	52	(180)	(138)	1	(122)	(164)
Genesee	(0)	0	0	0	0	0	0	0	0	0
Central	(154)	(85)	89	5	15	(15)	3	59	46	(2)
North	(0)	(0)	0	0	0	(0)	(0)	0	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	0	0	0	0	0	0	0
Capital	(1)	(2)	(2)	(1)	(2)	(2)	(1)	(1)	(2)	(2)
Hudson Valley	(1)	(1)	(1)	(2)	(2)	(2)	(1)	(2)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	(0)	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(6)	(7)	(6)	(5)	(5)	(4)	(4)	(4)	(4)	(4)
Long Island	(1)	(1)	0	(0)	(0)	(0)	(0)	(0)	0	(1)
NYCA Total	(164)	(35)	80	(72)	58	(203)	(141)	52	(83)	(174)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	45	(2)	(40)	56	(65)	(54)	31	(45)	(32)
Genesee	0	(1)	(2)	(2)	1	(1)	0	0	(1)	0
Central	(52)	(6)	(6)	2	(17)	(41)	3	19	6	9
North	(2)	(1)	(0)	0	0	(1)	(1)	1	(1)	(1)
Mohawk Valley	(2)	(2)	1	(1)	(0)	0	2	2	1	0
Capital	(20)	(31)	(27)	(8)	(14)	(24)	(20)	(11)	(22)	(13)
Hudson Valley	(45)	(54)	(55)	(56)	(47)	(33)	(30)	(70)	(24)	(21)
Millwood	0	0	0	0	0	0	0	0	(1)	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(529)	(430)	(453)	(375)	(402)	(374)	(391)	(222)	(350)	(346)
Long Island	(41)	(39)	(9)	(8)	(11)	(15)	(29)	4	1	(9)
NYCA Total	(692)	(518)	(555)	(487)	(434)	(554)	(520)	(246)	(436)	(412)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)	(0.0)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.2)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	34	(1)	(29)	25	(84)	(79)	23	(54)	(77)
Genesee	(3)	(1)	1	0	1	(0)	(0)	0	(1)	(1)
Central	(123)	(62)	(78)	(71)	(57)	(105)	(23)	(30)	(55)	(40)
North	(8)	(5)	(1)	(2)	(3)	(4)	(3)	5	(5)	(5)
Mohawk Valley	(3)	(3)	(3)	1	2	(0)	4	3	0	2
Capital	(284)	(432)	(451)	(270)	(319)	(425)	(375)	(202)	(392)	(368)
Hudson Valley	(130)	(152)	(227)	(355)	(393)	(384)	(251)	(451)	(260)	(293)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1,135)	(1,009)	(869)	(822)	(827)	(817)	(850)	(788)	(760)	(742)
Long Island	(132)	(81)	(51)	(27)	(51)	(48)	(43)	2	(14)	(25)
NYCA Total	(1,821)	(1,712)	(1,680)	(1,576)	(1,620)	(1,867)	(1,620)	(1,437)	(1,540)	(1,548)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.2	0.0	(0.2)	0.2	(0.6)	(0.6)	0.2	(0.5)	(0.7)
Genesee	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0
Central	(0.4)	(0.3)	(0.4)	(0.4)	(0.3)	(0.7)	(0.1)	(0.2)	(0.4)	(0.3)
North	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.1	(0.0)	(0.0)
Mohawk Valley	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(1.0)	(1.8)	(2.2)	(1.5)	(2.0)	(2.9)	(2.8)	(1.5)	(3.3)	(3.2)
Hudson Valley	(0.5)	(0.6)	(1.1)	(2.0)	(2.5)	(2.6)	(1.7)	(3.4)	(2.2)	(2.6)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(3.1)	(3.0)	(3.0)	(3.1)	(3.8)	(4.1)	(4.5)	(4.4)	(4.4)	(4.6)
Long Island	(0.5)	(0.3)	(0.3)	(0.1)	(0.4)	(0.3)	(0.3)	(0.1)	(0.2)	(0.2)
NYCA Total	(5.5)	(5.9)	(7.0)	(7.2)	(8.7)	(11.3)	(10.0)	(9.3)	(11.0)	(11.6)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 4: Central East-New Scotland-Pleasant Valley with EM Relax | Generic Energy Efficiency Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.7	0.6	0.4	0.8	0.5	0.4	0.8	0.9	0.7	1.0
Genesee	0.2	0.2	0.1	0.3	0.2	0.3	0.3	0.3	0.3	0.4
Central	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.2	0.1	0.2
North	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1
Mohawk Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Capital	(3.0)	(2.9)	(2.9)	(3.5)	(3.6)	(3.4)	(3.8)	(4.1)	(4.2)	(4.6)
Hudson Valley	(2.5)	(2.4)	(2.4)	(2.6)	(2.5)	(2.6)	(2.7)	(2.7)	(2.9)	(3.0)
Millwood	(0.2)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)
Dunwoodie	(0.4)	(0.4)	(0.4)	(0.4)	(0.3)	(0.4)	(0.4)	(0.3)	(0.5)	(0.5)
NY City	(13.7)	(13.7)	(13.5)	(14.7)	(13.7)	(14.6)	(15.1)	(14.9)	(16.5)	(17.1)
Long Island	(1.1)	(1.4)	(1.0)	(1.2)	(0.8)	(1.0)	(1.3)	(1.0)	(1.5)	(1.5)
NYCA Total	(19.8)	(20.1)	(19.7)	(21.4)	(20.2)	(21.3)	(22.4)	(21.7)	(25.0)	(25.4)

Study 5: Central East - New Scotland - Pleasant Valley under System Resource Shift Case

Generic Transmission Solution (Study 5: Central East - New Scotland - Pleasant Valley under System Resource Shift Case)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(9)	(8)	(3)	7	8	7	2	9	9	23
Genesee	(4)	(4)	(2)	3	2	3	1	3	3	8
Central	(5)	(5)	(1)	6	6	6	4	8	8	16
North	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	2	1	0	(1)	(1)	(0)	(1)	(1)	(0)	(1)
Capital	(10)	(17)	(39)	(47)	(46)	(47)	(36)	(55)	(56)	(86)
Hudson Valley	(6)	(10)	(22)	(28)	(27)	(28)	(25)	(35)	(37)	(54)
Millwood	(2)	(3)	(7)	(8)	(8)	(8)	(7)	(10)	(11)	(15)
Dunwoodie	(4)	(6)	(14)	(17)	(16)	(17)	(15)	(20)	(22)	(32)
NY City	(27)	(53)	(112)	(138)	(131)	(138)	(122)	(168)	(181)	(268)
Long Island	(9)	(18)	(43)	(53)	(54)	(54)	(47)	(67)	(72)	(106)
NYCA Total	(74)	(124)	(241)	(277)	(267)	(277)	(246)	(336)	(359)	(516)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	4	3	4	2	1	1	1	1	1	1
Genesee	0	0	0	0	0	0	0	0	0	1
Central	15	18	10	16	19	16	20	16	17	17
North	0	(0)	(0)	0	(0)	(0)	0	(0)	1	1
Mohawk Valley	0	0	(0)	0	(0)	(0)	0	(0)	0	0
Capital	(5)	(11)	(10)	(10)	(22)	(17)	(7)	(13)	(11)	(21)
Hudson Valley	(5)	(10)	(15)	(26)	(30)	(28)	(22)	(31)	(23)	(25)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(23)	(21)	(27)	(25)	(22)	(29)	(32)	(24)	(29)	(31)
Long Island	(4)	(4)	(3)	(4)	(4)	(4)	(6)	(5)	(5)	(5)
NYCA Total	(17)	(24)	(41)	(47)	(57)	(61)	(45)	(57)	(49)	(62)
NYCA Imports	5	7	14	21	22	25	19	22	6	11
NYCA Exports	7	9	11	12	13	12	2	17	(3)	16
NYCA + Imports - Exports	(19)	(26)	(38)	(38)	(48)	(47)	(29)	(51)	(40)	(67)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	91	79	79	70	65	41	68	71	107	204
Genesee	7	6	9	14	20	22	6	38	23	117
Central	605	636	468	489	600	497	517	457	485	704
North	6	(4)	(4)	3	(2)	(3)	1	(1)	15	14
Mohawk Valley	4	4	5	8	8	4	5	7	12	22
Capital	(38)	(131)	(14)	(15)	(259)	(153)	(29)	(52)	9	(203)
Hudson Valley	(93)	(199)	(324)	(644)	(611)	(535)	(446)	(570)	(437)	(485)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(653)	(551)	(636)	(556)	(497)	(607)	(664)	(496)	(578)	(591)
Long Island	(105)	(95)	(70)	(75)	(65)	(88)	(95)	(83)	(88)	(97)
NYCA Total	(175)	(255)	(487)	(706)	(742)	(821)	(637)	(629)	(452)	(315)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(94)	(10)	120	4	20	155	151	151	139	129
LINDEN VFT	3	(11)	(22)	1	4	(8)	(3)	(4)	(12)	(6)
NEPTUNE	(105)	(50)	(49)	(24)	(37)	(22)	(47)	(65)	(77)	(81)
HTP	(174)	(244)	(223)	(170)	(143)	(234)	(227)	(200)	(249)	(196)
ISONE - NYISO	(194)	(254)	(337)	(301)	(269)	(365)	(256)	(526)	(446)	(829)
CROSS SOUND CABLE	10	31	10	9	(11)	(9)	(22)	(25)	(49)	(27)
NORTHPORT NORWALK	17	(1)	(0)	10	(8)	22	(4)	(10)	(13)	7
IESO - NYISO	700	793	982	1,180	1,186	1,283	1,047	1,301	1,149	1,302
HQ - NYISO CHAT	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	151	241	470	698	730	811	628	611	431	288

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	23	33	32	34	36	39	47	54	64
Genesee	4	7	9	10	11	11	9	14	13	19
Central	42	56	71	77	83	85	75	91	98	133
North	6	11	18	22	22	23	18	27	28	41
Mohawk Valley	3	6	9	10	12	12	11	21	24	38
Capital	(6)	(9)	(14)	(15)	(25)	(23)	(15)	(20)	(21)	(44)
Hudson Valley	(4)	(8)	(15)	(29)	(29)	(28)	(27)	(33)	(28)	(31)
Millwood	(7)	(5)	(10)	(8)	(1)	(0)	(0)	(0)	(0)	(1)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(30)	(25)	(40)	(37)	(34)	(40)	(50)	(39)	(46)	(51)
Long Island	(5)	(3)	(6)	(6)	(6)	(7)	(9)	(8)	(11)	(12)
NYCA Total	18	52	55	55	68	70	52	101	112	156

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	16	22	29	25	25	27	25	31	32	36
Genesee	8	13	18	18	19	19	17	22	23	30
Central	13	22	30	31	31	33	27	38	38	49
North	3	6	9	11	12	12	10	14	14	20
Mohawk Valley	8	12	17	18	18	19	15	21	20	27
Capital	(4)	(4)	(14)	(16)	(13)	(13)	(10)	(16)	(16)	(28)
Hudson Valley	(3)	(2)	(5)	(5)	(5)	(5)	(7)	(7)	(8)	(11)
Millwood	(1)	(1)	(2)	(2)	(1)	(1)	(2)	(2)	(2)	(3)
Dunwoodie	(2)	(2)	(4)	(4)	(3)	(3)	(4)	(4)	(5)	(5)
NY City	(15)	(9)	(26)	(26)	(19)	(20)	(30)	(26)	(33)	(38)
Long Island	(5)	(1)	(8)	(7)	(8)	(6)	(9)	(8)	(12)	(14)
NYCA Total	18	57	45	43	56	62	31	63	51	64

PROJECTED LBMPS CHANGE ($/MWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1.0	1.4	1.9	1.7	1.7	1.8	1.6	2.1	2.2	2.5
Genesee	0.9	1.3	1.9	1.9	2.1	2.1	1.8	2.5	2.6	3.3
Central	0.8	1.3	1.9	2.0	2.1	2.2	1.8	2.5	2.5	3.3
North	0.8	1.3	2.1	2.6	2.6	2.7	2.1	3.2	3.2	4.6
Mohawk Valley	0.8	1.4	2.0	2.3	2.3	2.4	1.8	2.7	2.7	3.7
Capital	(0.3)	(0.4)	(1.1)	(1.3)	(1.2)	(1.2)	(0.8)	(1.4)	(1.5)	(2.5)
Hudson Valley	(0.4)	(0.3)	(0.6)	(0.6)	(0.5)	(0.5)	(0.7)	(0.7)	(0.8)	(1.1)
Millwood	(0.4)	(0.3)	(0.7)	(0.7)	(0.5)	(0.5)	(0.7)	(0.7)	(0.8)	(1.0)
Dunwoodie	(0.4)	(0.3)	(0.6)	(0.6)	(0.5)	(0.5)	(0.6)	(0.6)	(0.8)	(0.9)
NY City	(0.3)	(0.2)	(0.5)	(0.5)	(0.4)	(0.4)	(0.6)	(0.5)	(0.7)	(0.8)
Long Island	(0.2)	(0.1)	(0.4)	(0.4)	(0.4)	(0.3)	(0.5)	(0.5)	(0.6)	(0.8)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	74	71	65	1	2	1	0	1	1	2
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(13)	(7)	(147)	1	1	1	1	1	1	1
North	0	(0)	(0)	0	(0)	(0)	0	(0)	0	0
Mohawk Valley	0	0	0	0	0	0	0	0	0	0
Capital	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	0	(0)
Hudson Valley	0	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(1)	(2)	(1)	(1)	(2)	(2)	(1)	(1)	(1)
Long Island	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	59	62	(84)	(1)	(0)	(2)	(2)	(1)	(1)	1

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	86	92	114	53	57	40	34	43	47	61
Genesee	8	12	21	18	17	16	10	23	19	29
Central	45	64	59	75	79	71	46	77	87	133
North	1	(1)	1	1	1	0	(0)	2	5	10
Mohawk Valley	1	2	4	6	5	4	2	7	6	10
Capital	0	(3)	(4)	0	(11)	(3)	6	(1)	2	(2)
Hudson Valley	(32)	(46)	(40)	(25)	(49)	(39)	(33)	(49)	(33)	(41)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(138)	(47)	(125)	(39)	(38)	(61)	(106)	(62)	(45)	(73)
Long Island	(16)	(17)	(10)	(17)	(7)	(13)	(13)	(15)	(10)	(15)
NYCA Total	(45)	56	18	72	53	17	(53)	24	78	113

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	63	55	52	14	9	6	8	5	8	4
Genesee	2	0	(0)	1	(0)	0	0	(0)	0	(0)
Central	255	259	146	167	201	169	206	134	138	102
North	3	(2)	(2)	2	(2)	(2)	1	(1)	7	5
Mohawk Valley	1	1	(0)	(0)	(1)	(1)	0	(0)	0	(0)
Capital	(10)	(45)	(10)	(12)	(110)	(67)	(10)	(25)	4	(86)
Hudson Valley	(66)	(114)	(167)	(275)	(286)	(244)	(199)	(255)	(196)	(222)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(359)	(289)	(323)	(282)	(256)	(318)	(344)	(255)	(293)	(290)
Long Island	(57)	(53)	(36)	(40)	(32)	(46)	(50)	(43)	(43)	(47)
NYCA Total	(168)	(189)	(342)	(426)	(476)	(503)	(388)	(441)	(376)	(534)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.2	0.2	0.3	0.1	0.1	0.0	0.1	0.0	0.1	0.0
Genesee	0.0	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Central	0.9	1.1	0.7	1.0	1.3	1.2	1.5	1.1	1.2	0.9
North	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)	0.0	(0.0)	0.1	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0	(0.0)
Capital	(0.0)	(0.2)	(0.0)	(0.0)	(0.7)	(0.4)	0.0	(0.2)	(0.0)	(0.7)
Hudson Valley	(0.2)	(0.5)	(0.8)	(1.5)	(1.8)	(1.7)	(1.4)	(2.1)	(1.6)	(1.9)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.0)	(0.9)	(1.0)	(1.1)	(1.0)	(1.4)	(1.3)	(1.0)	(1.3)	(1.6)
Long Island	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.4)	(0.3)	(0.4)	(0.4)
NYCA Total	(0.3)	(0.5)	(1.1)	(1.9)	(2.4)	(2.6)	(1.6)	(2.4)	(1.9)	(3.6)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Transmission Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2.7)	(3.4)	(4.2)	(4.9)	(4.9)	(5.2)	(4.3)	(5.4)	(4.5)	(5.6)
Genesee	(1.3)	(1.5)	(1.9)	(2.1)	(2.2)	(2.3)	(1.8)	(2.3)	(1.9)	(2.4)
Central	(1.4)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)	(1.8)	(1.8)	(1.7)	(2.3)
North	(0.2)	(0.4)	(0.5)	(0.6)	(0.6)	(0.6)	(0.4)	(0.7)	(0.5)	(0.8)
Mohawk Valley	(0.1)	0.1	0.1	0.1	0.0	0.0	(0.1)	(0.4)	(0.5)	(0.8)
Capital	(1.4)	(0.8)	(0.6)	(0.3)	(0.2)	(0.3)	(0.9)	(0.5)	(0.5)	0.6
Hudson Valley	(2.5)	(1.8)	(1.6)	(1.6)	(1.7)	(1.7)	(2.2)	(1.6)	(1.4)	0.1
Millwood	(0.8)	(0.5)	(0.5)	(0.4)	(0.5)	(0.5)	(0.6)	(0.4)	(0.4)	0.1
Dunwoodie	(1.6)	(1.2)	(1.1)	(1.0)	(1.1)	(1.1)	(1.4)	(1.0)	(0.9)	0.2
NY City	(13.6)	(9.8)	(8.4)	(7.8)	(8.9)	(8.7)	(11.4)	(7.8)	(6.5)	3.9
Long Island	(5.6)	(3.9)	(3.2)	(3.0)	(3.4)	(3.4)	(4.5)	(2.9)	(2.7)	1.2
NYCA Total	(31.1)	(24.5)	(23.2)	(23.0)	(24.8)	(25.5)	(29.5)	(24.7)	(21.5)	(5.8)

Generic Generation Solution (Study 5: Central East - New Scotland - Pleasant Valley under System Resource Shift Case)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	(4)	(5)	(5)	(6)	(9)	(7)	(10)	(8)	(9)
Genesee	(0)	(1)	(1)	(1)	(2)	(3)	(2)	(4)	(3)	(3)
Central	(0)	(2)	(2)	(2)	(2)	(4)	(3)	(5)	(3)	(4)
North	(0)	0	0	(0)	(0)	(0)	(0)	0	(0)	0
Mohawk Valley	(0)	0	0	0	0	0	(0)	0	(0)	0
Capital	(4)	3	(0)	1	3	1	(3)	4	(4)	(1)
Hudson Valley	(3)	0	(2)	(2)	(2)	(3)	(5)	(3)	(8)	(8)
Millwood	(1)	0	(0)	(0)	1	0	(0)	0	(0)	(1)
Dunwoodie	(2)	0	(1)	(0)	1	0	(1)	1	(1)	(1)
NY City	(15)	1	(1)	1	8	5	(5)	7	(2)	(8)
Long Island	0	4	5	4	7	6	3	7	1	0
NYCA Total	(29)	1	(8)	(4)	8	(6)	(25)	(3)	(29)	(34)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(2)	0	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)
Central	(7)	(4)	(7)	(5)	(7)	(6)	(10)	(12)	(7)	(7)
North	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)
Mohawk Valley	(0)	(0)	0	(1)	(1)	(0)	(1)	(2)	(2)	(2)
Capital	(11)	(22)	(21)	(23)	(33)	(30)	(31)	(38)	(50)	(55)
Hudson Valley	69	46	61	64	76	82	94	89	116	121
Millwood	0	0	0	0	0	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(29)	(14)	(17)	(23)	(22)	(24)	(34)	(24)	(33)	(31)
Long Island	(6)	(3)	(4)	(1)	(2)	(2)	(3)	(2)	(7)	(4)
NYCA Total	13	1	11	8	9	19	15	9	13	18
NYCA Imports	(24)	(16)	(20)	(21)	(26)	(33)	(30)	(18)	(26)	(24)
NYCA Exports	17	6	9	9	8	7	16	20	29	29
NYCA + Imports - Exports	(28)	(20)	(18)	(22)	(25)	(21)	(31)	(29)	(42)	(35)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	21	28	49	29	46	49	60	30	36	15
Genesee	(4)	(1)	(3)	(3)	(6)	(6)	(4)	(12)	(9)	(14)
Central	(95)	(22)	(111)	(136)	(100)	(149)	(201)	(182)	(118)	(138)
North	(22)	(19)	(17)	(20)	(19)	(20)	(11)	(24)	(20)	(12)
Mohawk Valley	(8)	(6)	(2)	(16)	(13)	(7)	(10)	(26)	(26)	(30)
Capital	(384)	(609)	(557)	(508)	(729)	(672)	(777)	(805)	(1,209)	(1,120)
Hudson Valley	2,781	1,735	1,950	1,980	2,218	2,363	2,716	2,438	3,077	3,161
Millwood	0	0	0	(0)	0	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(816)	(323)	(412)	(483)	(526)	(519)	(638)	(512)	(421)	(609)
Long Island	(150)	(81)	(81)	(43)	(37)	(37)	(56)	(29)	(103)	(65)
NYCA Total	1,323	702	816	799	833	1,004	1,079	878	1,207	1,189

PROJECTED NET IMPORTS CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(267)	(218)	(258)	(231)	(329)	(339)	(352)	(180)	(220)	(161)
LINDEN VFT	(73)	(53)	(33)	(13)	(3)	(28)	(19)	(16)	(22)	(19)
NEPTUNE	(150)	(58)	(13)	(38)	(46)	(46)	(40)	(36)	(82)	(73)
HTP	(172)	(102)	(135)	(122)	(91)	(172)	(187)	(114)	(238)	(237)
ISONE - NYISO	(457)	(188)	(289)	(255)	(205)	(237)	(340)	(387)	(532)	(542)
CROSS SOUND CABLE	(12)	24	(10)	(11)	(15)	(32)	(19)	(30)	(63)	(75)
NORTHPORT NORWALK	(11)	8	(24)	(12)	(29)	(29)	(31)	(36)	(47)	(55)
IESO - NYISO	(188)	(118)	(64)	(124)	(126)	(132)	(103)	(86)	(13)	(40)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,330)	(706)	(826)	(806)	(843)	(1,015)	(1,090)	(886)	(1,216)	(1,201)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	2	2	1	2	2	3	6	6	9	8
Genesee	(0)	(0)	(1)	(0)	(1)	(1)	(0)	(0)	0	(0)
Central	(8)	(3)	(7)	(7)	(8)	(13)	(11)	(11)	(5)	(7)
North	(2)	(2)	(3)	(2)	(3)	(4)	(3)	(4)	(1)	(2)
Mohawk Valley	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(3)	(1)	(2)
Capital	(19)	(22)	(26)	(22)	(32)	(36)	(40)	(39)	(54)	(53)
Hudson Valley	88	59	70	74	88	95	110	100	128	130
Millwood	(7)	(3)	(8)	(2)	(1)	(0)	(1)	(0)	(0)	(1)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(40)	(20)	(27)	(28)	(30)	(34)	(44)	(30)	(32)	(40)
Long Island	(7)	(3)	(4)	(3)	(3)	(4)	(5)	(2)	(7)	(6)
NYCA Total	6	6	(7)	11	10	5	11	16	37	27

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	2	2	1	2	1	4	4	5	6	6
Genesee	(0)	(0)	(1)	(0)	(1)	(1)	(0)	0	2	1
Central	(1)	(1)	(3)	(1)	(3)	(2)	(1)	(1)	1	0
North	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(0)	(1)
Mohawk Valley	(1)	(1)	(2)	(1)	(2)	(2)	(2)	(2)	(1)	(1)
Capital	(5)	0	(4)	(1)	(2)	(4)	(7)	(1)	(5)	(3)
Hudson Valley	(5)	(2)	(5)	(4)	(6)	(8)	(9)	(8)	(10)	(11)
Millwood	(1)	(1)	(2)	(1)	(1)	(1)	(2)	(1)	(1)	(1)
Dunwoodie	(3)	(2)	(3)	(2)	(2)	(3)	(3)	(2)	(3)	(4)
NY City	(22)	(11)	(21)	(14)	(16)	(20)	(28)	(18)	(14)	(26)
Long Island	(3)	(1)	(3)	(3)	(2)	(4)	(6)	(3)	(4)	(6)
NYCA Total	(40)	(18)	(45)	(27)	(34)	(43)	(55)	(33)	(29)	(46)

PROJECTED LBMPS CHANGE ($/MWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.1	0.0	0.1	0.0	0.2	0.2	0.3	0.4	0.3
Genesee	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.0)	(0.0)	0.1	0.0
Central	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.1)	(0.1)	(0.1)	0.1	(0.0)
North	(0.1)	(0.2)	(0.3)	(0.2)	(0.3)	(0.3)	(0.2)	(0.3)	(0.1)	(0.2)
Mohawk Valley	(0.1)	(0.2)	(0.3)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.1)	(0.2)
Capital	(0.4)	0.0	(0.3)	(0.1)	(0.1)	(0.3)	(0.5)	(0.1)	(0.3)	(0.2)
Hudson Valley	(0.4)	(0.2)	(0.5)	(0.3)	(0.5)	(0.7)	(0.8)	(0.6)	(0.8)	(0.9)
Millwood	(0.4)	(0.2)	(0.5)	(0.3)	(0.3)	(0.4)	(0.5)	(0.4)	(0.4)	(0.6)
Dunwoodie	(0.4)	(0.2)	(0.5)	(0.3)	(0.3)	(0.4)	(0.5)	(0.4)	(0.4)	(0.6)
NY City	(0.3)	(0.1)	(0.3)	(0.2)	(0.3)	(0.4)	(0.5)	(0.4)	(0.3)	(0.5)
Long Island	(0.1)	(0.1)	(0.2)	(0.1)	(0.1)	(0.2)	(0.3)	(0.2)	(0.2)	(0.4)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(60)	(57)	(0)	(1)	(0)	0	(0)	(1)	(0)	(1)
Genesee	0	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)
Central	(169)	(192)	(160)	(0)	(117)	(0)	(43)	(130)	(1)	(1)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)	(0)
Capital	(1)	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(3)	(2)
Hudson Valley	163	108	118	130	144	149	176	155	205	217
Millwood	0	(0)	0	0	0	0	0	0	(0)	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(1)	(1)	(1)	(2)	(1)	(2)	(1)	(1)	(2)
Long Island	(1)	(1)	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(70)	(144)	(46)	127	23	146	130	22	200	211

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(46)	(44)	(1)	(11)	(15)	(6)	(6)	(10)	(8)	(7)
Genesee	(4)	(3)	(0)	0	(5)	(4)	(2)	(4)	(5)	(7)
Central	(85)	(47)	(61)	(12)	(32)	(14)	(21)	(40)	(5)	(20)
North	(3)	(4)	(1)	(3)	(2)	(3)	(1)	(4)	(4)	2
Mohawk Valley	(2)	(1)	(2)	(3)	(3)	(2)	(3)	(5)	(6)	(9)
Capital	(18)	(29)	(12)	(26)	(42)	(27)	(27)	(35)	(50)	(43)
Hudson Valley	491	320	347	411	449	451	543	472	630	675
Millwood	0	(1)	0	1	0	0	0	0	(0)	1
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(170)	(1)	(141)	(25)	(87)	(91)	(86)	(63)	(94)	(111)
Long Island	(14)	(27)	(15)	(10)	(8)	(13)	1	(9)	(26)	0
NYCA Total	150	162	114	322	256	291	400	302	432	481

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	0.0	0.0
Long Island	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.1	0.1

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(37)	(33)	(0)	(5)	(6)	(7)	(7)	(5)	(9)	(4)
Genesee	(1)	(1)	(2)	(1)	(2)	(2)	(2)	(5)	(6)	(6)
Central	(83)	(30)	(69)	(58)	(54)	(65)	(94)	(86)	(65)	(63)
North	(11)	(9)	(9)	(11)	(10)	(10)	(5)	(12)	(10)	(8)
Mohawk Valley	(5)	(3)	(1)	(9)	(7)	(3)	(5)	(13)	(15)	(15)
Capital	(175)	(258)	(235)	(218)	(318)	(289)	(326)	(350)	(503)	(474)
Hudson Valley	1,087	671	759	772	858	916	1,042	931	1,164	1,208
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(459)	(179)	(251)	(263)	(294)	(291)	(352)	(279)	(245)	(352)
Long Island	(90)	(46)	(40)	(24)	(17)	(17)	(28)	(12)	(60)	(35)
NYCA Total	225	111	151	183	151	233	223	168	250	252

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	(0.2)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)
Genesee	0.0	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)
Central	(0.3)	(0.1)	(0.3)	(0.3)	(0.3)	(0.5)	(0.7)	(0.8)	(0.6)	(0.6)
North	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.2)	(0.2)
Capital	(0.6)	(1.0)	(1.1)	(1.2)	(2.0)	(1.9)	(2.3)	(2.7)	(4.2)	(4.3)
Hudson Valley	4.0	3.0	3.9	4.6	5.8	6.5	7.9	7.6	10.1	11.3
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.3)	(0.5)	(0.9)	(1.2)	(1.4)	(1.4)	(1.8)	(1.6)	(1.3)	(2.4)
Long Island	(0.3)	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.5)	(0.3)
NYCA Total	1.2	0.9	1.3	1.6	1.8	2.4	2.7	2.1	3.0	3.2

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Generation Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.4	0.3	0.3	0.5	0.5	0.4	0.4	0.3	0.0	0.2
Genesee	0.2	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.0	0.1
Central	0.1	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0
North	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Mohawk Valley	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)
Capital	0.1	0.3	(0.0)	(0.0)	0.1	0.1	0.2	0.2	0.8	0.7
Hudson Valley	(0.4)	(0.4)	(0.7)	(0.7)	(0.9)	(1.0)	(1.0)	(1.1)	(0.9)	(1.0)
Millwood	(0.1)	(0.1)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
Dunwoodie	(0.2)	(0.3)	(0.4)	(0.4)	(0.6)	(0.6)	(0.7)	(0.7)	(0.6)	(0.6)
NY City	(1.3)	(1.5)	(3.4)	(3.6)	(4.7)	(5.0)	(5.3)	(5.8)	(4.5)	(5.1)
Long Island	(0.6)	(0.7)	(1.4)	(1.6)	(2.1)	(2.2)	(2.2)	(2.4)	(1.7)	(1.9)
NYCA Total	(2.0)	(2.2)	(5.8)	(5.9)	(7.9)	(8.3)	(8.7)	(9.6)	(7.1)	(7.9)

Generic Demand Response Solution (Study 5: Central East - New Scotland - Pleasant Valley under System Resource Shift Case)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	(1)	(1)	(0)	0	0	(0)	(0)	0	0
Genesee	0	0	(0)	(0)	0	0	(0)	(0)	0	0
Central	1	(0)	(0)	(0)	0	0	(0)	0	0	0
North	(0)	0	0	0	0	0	0	0	0	0
Mohawk Valley	(0)	(0)	0	0	(0)	(0)	(0)	0	(0)	(0)
Capital	(0)	0	0	(0)	0	(0)	(0)	0	0	0
Hudson Valley	(1)	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)
Millwood	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(0)	(1)	(0)
NY City	(5)	(11)	(7)	(4)	(6)	(7)	(5)	(4)	(6)	(3)
Long Island	0	1	0	(1)	(2)	(3)	(2)	(1)	(2)	1
NYCA Total	(5)	(11)	(8)	(6)	(8)	(11)	(9)	(6)	(9)	(3)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)
Genesee	(0)	0	(0)	0	(0)	0	(0)	0	(0)	(0)
Central	(0)	0	(0)	(0)	0	0	(0)	0	(0)	1
North	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0
Mohawk Valley	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(0)	(0)	(0)	(0)	(0)	0	0	(0)	(1)
Hudson Valley	(1)	(1)	(2)	(1)	(1)	(1)	(0)	(0)	(1)	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1)	(2)	(2)	(2)	(2)	(2)	(3)	(5)	(2)	(4)
Long Island	(0)	0	(0)	(1)	(2)	(3)	(2)	(2)	(2)	(2)
NYCA Total	(3)	(3)	(4)	(5)	(5)	(6)	(5)	(6)	(5)	(6)
NYCA Imports	(1)	(2)	(2)	(3)	(2)	(2)	(3)	(1)	(2)	(1)
NYCA Exports	2	0	0	(0)	(0)	0	(0)	1	1	1
NYCA + Imports - Exports	(6)	(6)	(6)	(7)	(7)	(8)	(7)	(8)	(8)	(9)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(0)	(2)	1	(4)	(5)	3	0	(3)	(1)
Genesee	(1)	0	(1)	0	(0)	0	(0)	(0)	(1)	0
Central	(11)	4	(1)	(1)	1	2	(5)	6	(1)	14
North	0	(1)	(3)	(1)	(2)	(0)	(1)	(1)	0	1
Mohawk Valley	(1)	0	(2)	(2)	(1)	(1)	(1)	(0)	(0)	(1)
Capital	17	19	17	18	26	15	27	27	21	7
Hudson Valley	(5)	(11)	(12)	(4)	0	10	16	17	6	26
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	55	43	50	42	52	55	37	15	54	24
Long Island	(0)	7	(1)	(11)	(31)	(41)	(26)	(29)	(31)	(33)
NYCA Total	52	61	46	42	42	35	49	34	45	36

PROJECTED NET IMPORTS CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(8)	(24)	(9)	(14)	(17)	(7)	(24)	(15)	(14)	(14)
LINDEN VFT	(8)	(9)	(8)	1	(0)	(2)	(0)	2	(1)	1
NEPTUNE	(8)	(5)	(7)	(5)	(0)	4	(1)	10	(2)	3
HTP	(3)	(1)	(6)	(3)	(25)	(18)	(26)	(14)	(18)	(9)
ISONE - NYISO	(30)	(7)	(10)	(15)	0	(9)	(0)	(10)	(8)	(16)
CROSS SOUND CABLE	0	(2)	0	(1)	0	1	1	(0)	1	3
NORTHPORT NORWALK	(0)	(0)	(2)	0	2	4	2	1	1	2
IESO - NYISO	4	(11)	(6)	(5)	(2)	(7)	(1)	(8)	(5)	(5)
HQ - NYISO CHAT	0	0	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(53)	(59)	(46)	(42)	(42)	(35)	(50)	(34)	(46)	(36)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(0)	(0)	0	(0)	(0)	0	(0)	(1)	(0)
Genesee	(0)	0	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)
Central	(1)	0	(0)	(0)	(0)	0	0	(0)	(1)	(0)
North	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	1	(0)	0	1	0	1	1	0	0
Hudson Valley	(1)	(0)	(1)	(0)	0	0	1	1	0	2
Millwood	(1)	0	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(1)	(1)	(2)	0	0	(1)	(1)	(2)	(1)	(0)
Long Island	(1)	1	(0)	(1)	(2)	(3)	(2)	(3)	(3)	(2)
NYCA Total	(7)	1	(5)	(1)	(1)	(4)	(2)	(3)	(5)	(2)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	1	0	0	0	0	0	(0)	(0)	(0)
Genesee	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Central	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
North	(0)	0	(0)	(0)	0	0	(0)	(0)	(0)	(0)
Mohawk Valley	(1)	0	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)
Capital	(1)	0	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)
Hudson Valley	(1)	0	(1)	(1)	0	(0)	(1)	(1)	(0)	(0)
Millwood	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(1)	0	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(0)
NY City	(7)	(9)	(10)	(5)	(6)	(7)	(6)	(5)	(8)	(4)
Long Island	(1)	1	(1)	(1)	(2)	(3)	(2)	(2)	(2)	0
NYCA Total	(13)	(8)	(13)	(7)	(9)	(12)	(11)	(9)	(13)	(5)

PROJECTED LBMPS CHANGE ($/MWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)
Genesee	(0.0)	0.0	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Central	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
North	(0.0)	0.0	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)
Mohawk Valley	(0.1)	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Capital	(0.0)	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Hudson Valley	(0.1)	0.0	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Millwood	(0.1)	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)
Dunwoodie	(0.1)	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)
NY City	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)
Long Island	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	0.0

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	2	0	0	0	0	(0)	0	(0)	(0)
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(7)	0	0	0	0	0	(0)	0	(0)	(0)
North	0	0	(0)	0	(0)	0	0	0	0	0
Mohawk Valley	0	0	0	(0)	0	0	0	0	0	0
Capital	(0)	(0)	(0)	(0)	(0)	(0)	0	0	0	(0)
Hudson Valley	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(0)	(1)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Long Island	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(9)	1	(1)	(0)	(1)	(0)	(0)	(0)	(0)	(1)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	1	0	1	(1)	(2)	(1)	(0)	(3)	(0)
Genesee	(0)	0	(0)	0	(0)	0	0	0	(0)	(0)
Central	(1)	0	(1)	(0)	(0)	1	(1)	0	(0)	(1)
North	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0
Mohawk Valley	(0)	0	(0)	(0)	(0)	(0)	(0)	0	(0)	(0)
Capital	(1)	(1)	(1)	(0)	(0)	(0)	0	0	(0)	(1)
Hudson Valley	(7)	(11)	(3)	(2)	(1)	(1)	2	(1)	(3)	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(39)	(48)	(47)	(35)	(43)	(46)	(52)	(46)	(48)	(49)
Long Island	(3)	3	(0)	(7)	(20)	(28)	(12)	(18)	(15)	(10)
NYCA Total	(51)	(55)	(53)	(44)	(66)	(77)	(64)	(65)	(69)	(62)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)
Long Island	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	1	0	0	(1)	(1)	(1)	(0)	(1)	(0)
Genesee	(0)	0	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)
Central	(6)	2	(1)	(1)	1	1	(3)	2	(1)	6
North	0	(0)	(2)	(1)	(1)	(0)	(0)	(0)	0	0
Mohawk Valley	(1)	0	(1)	(1)	(1)	(0)	(0)	(0)	(0)	(0)
Capital	(6)	(3)	(4)	(2)	(1)	(4)	2	1	(1)	(6)
Hudson Valley	(16)	(20)	(20)	(16)	(11)	(8)	(2)	(3)	(9)	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(19)	(29)	(22)	(25)	(21)	(20)	(30)	(42)	(21)	(38)
Long Island	(1)	4	(1)	(7)	(19)	(27)	(17)	(20)	(20)	(20)
NYCA Total	(49)	(45)	(50)	(52)	(53)	(59)	(51)	(62)	(53)	(59)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.1
North	0.0	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0	(0.0)	(0.1)
Hudson Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.3)	(0.1)	(0.3)
Long Island	0.0	0.0	0.0	(0.0)	(0.1)	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)
NYCA Total	(0.1)	(0.2)	(0.2)	(0.2)	(0.3)	(0.4)	(0.3)	(0.5)	(0.4)	(0.5)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Demand Response Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.1)	0.1	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Hudson Valley	(0.1)	0.1	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.0)
Millwood	(0.0)	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0
Dunwoodie	(0.0)	0.1	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0
NY City	(0.4)	0.9	(0.5)	(0.3)	(0.2)	(0.2)	(0.3)	(0.2)	(0.3)	(0.1)
Long Island	(0.1)	0.4	(0.2)	(0.0)	0.1	0.1	0.1	0.1	0.1	0.1
NYCA Total	(0.7)	1.8	(0.8)	(0.4)	(0.1)	(0.1)	(0.3)	(0.2)	(0.3)	(0.0)

Generic Energy Efficiency Solution (Study 5: Central East - New Scotland - Pleasant Valley under System Resource Shift Case)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(6)	(7)	(7)	(6)	(7)	(10)	(8)	(9)	(7)	(4)
Genesee	(2)	(2)	(1)	(2)	(2)	(3)	(2)	(3)	(2)	(1)
Central	(2)	(3)	(2)	(2)	(2)	(4)	(3)	(4)	(3)	(1)
North	(0)	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	0	(0)	0	(1)	(0)
Capital	(5)	(7)	(13)	(14)	(12)	(11)	(14)	(13)	(17)	(28)
Hudson Valley	(6)	(8)	(11)	(13)	(12)	(12)	(14)	(14)	(16)	(23)
Millwood	(1)	(1)	(1)	(2)	(1)	(2)	(2)	(2)	(2)	(3)
Dunwoodie	(2)	(2)	(3)	(4)	(3)	(4)	(5)	(4)	(5)	(7)
NY City	(37)	(58)	(73)	(75)	(77)	(74)	(81)	(90)	(95)	(132)
Long Island	5	0	1	(0)	(7)	(4)	(1)	(5)	(6)	(12)
NYCA Total	(55)	(87)	(111)	(117)	(123)	(124)	(129)	(144)	(153)	(212)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	0	1	0	0	0	1	0	1	0
Genesee	(0)	0	0	(0)	0	0	0	(0)	0	(0)
Central	(8)	3	(2)	(2)	(6)	1	(2)	(6)	1	(1)
North	(1)	0	(0)	(0)	(0)	(0)	0	(0)	1	(0)
Mohawk Valley	(0)	0	1	0	0	0	1	0	0	0
Capital	(24)	(33)	(34)	(27)	(43)	(35)	(25)	(28)	(20)	(33)
Hudson Valley	(6)	(11)	(24)	(36)	(35)	(50)	(41)	(33)	(29)	(35)
Millwood	0	(0)	0	0	(0)	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(68)	(66)	(65)	(77)	(71)	(75)	(79)	(74)	(80)	(81)
Long Island	(6)	(3)	(5)	(4)	(5)	(9)	(11)	(6)	(10)	(7)
NYCA Total	(114)	(109)	(130)	(145)	(160)	(166)	(156)	(147)	(135)	(157)
NYCA Imports	(34)	(37)	(35)	(37)	(41)	(40)	(37)	(42)	(48)	(42)
NYCA Exports	29	37	37	38	31	25	44	49	63	54
NYCA + Imports - Exports	(176)	(183)	(202)	(220)	(232)	(231)	(237)	(238)	(245)	(253)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	9	24	20	17	20	27	50	26	5	10
Genesee	(1)	6	1	(2)	(2)	2	(1)	(0)	1	(4)
Central	(214)	(14)	(32)	(97)	(106)	(8)	(47)	(95)	15	(51)
North	(16)	(3)	(5)	(4)	(6)	(2)	(0)	(7)	9	0
Mohawk Valley	(3)	3	7	1	2	3	10	(1)	6	(0)
Capital	(782)	(1,062)	(1,003)	(708)	(1,024)	(842)	(756)	(656)	(591)	(767)
Hudson Valley	(166)	(310)	(606)	(853)	(820)	(1,172)	(921)	(668)	(522)	(690)
Millwood	0	(1)	0	(0)	(0)	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2,066)	(1,693)	(1,636)	(1,658)	(1,405)	(1,458)	(1,602)	(1,513)	(1,418)	(1,306)
Long Island	(161)	(177)	(114)	(66)	(157)	(149)	(63)	(105)	(170)	(128)
NYCA Total	(3,400)	(3,226)	(3,368)	(3,371)	(3,499)	(3,598)	(3,328)	(3,019)	(2,665)	(2,936)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(426)	(578)	(633)	(630)	(529)	(391)	(463)	(545)	(565)	(443)
LINDEN VFT	(60)	(56)	(38)	(17)	(11)	(22)	(18)	(31)	(29)	(21)
NEPTUNE	(165)	(89)	(61)	(44)	(46)	(45)	(48)	(54)	(110)	(107)
HTP	(365)	(341)	(294)	(284)	(290)	(344)	(334)	(381)	(434)	(422)
ISONE - NYISO	(755)	(825)	(773)	(780)	(599)	(519)	(779)	(798)	(942)	(799)
CROSS SOUND CABLE	(29)	(55)	(69)	(64)	(95)	(86)	(40)	(96)	(113)	(125)
NORTHPORT NORWALK	(23)	(77)	(56)	(41)	(86)	(57)	(28)	(87)	(93)	(99)
IESO - NYISO	(188)	(131)	(43)	(56)	(58)	(104)	(80)	(69)	(92)	(48)
HQ - NYISO CHAT	(0)	(0)	0	0	0	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(2,011)	(2,153)	(1,966)	(1,917)	(1,714)	(1,567)	(1,791)	(2,062)	(2,377)	(2,063)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	1	0	1	1	2	3	1	(2)	4
Genesee	(1)	(0)	(1)	(0)	(1)	(0)	(1)	(1)	(2)	(0)
Central	(16)	(5)	(5)	(6)	(8)	(7)	(9)	(13)	(12)	(4)
North	(3)	(3)	(2)	(2)	(3)	(3)	(3)	(5)	(4)	(1)
Mohawk Valley	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(3)	(3)	(1)
Capital	(35)	(41)	(46)	(38)	(54)	(49)	(46)	(46)	(49)	(56)
Hudson Valley	(8)	(15)	(27)	(41)	(40)	(58)	(51)	(43)	(38)	(41)
Millwood	(12)	(12)	(13)	(10)	(2)	(1)	(1)	(1)	(1)	(1)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(91)	(88)	(92)	(97)	(94)	(104)	(115)	(111)	(114)	(110)
Long Island	(8)	(7)	(6)	(5)	(11)	(14)	(12)	(12)	(18)	(15)
NYCA Total	(176)	(170)	(194)	(200)	(212)	(237)	(235)	(235)	(242)	(227)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	3	4	3	2	4	2	2	(0)	3
Genesee	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(3)	(0)
Central	(4)	(3)	(2)	(2)	(2)	(3)	(3)	(4)	(6)	(1)
North	(1)	(1)	(1)	(1)	(1)	(2)	(2)	(2)	(2)	(1)
Mohawk Valley	(3)	(2)	(2)	(2)	(2)	(3)	(3)	(4)	(4)	(2)
Capital	(39)	(41)	(46)	(49)	(49)	(51)	(55)	(53)	(58)	(59)
Hudson Valley	(35)	(36)	(39)	(43)	(43)	(46)	(49)	(49)	(51)	(50)
Millwood	(2)	(2)	(2)	(2)	(2)	(3)	(3)	(4)	(4)	(4)
Dunwoodie	(4)	(4)	(5)	(6)	(6)	(7)	(8)	(8)	(9)	(8)
NY City	(167)	(184)	(200)	(210)	(219)	(224)	(237)	(245)	(253)	(251)
Long Island	(4)	(8)	(6)	(7)	(14)	(15)	(11)	(18)	(19)	(16)
NYCA Total	(260)	(278)	(302)	(320)	(338)	(349)	(370)	(387)	(409)	(388)

PROJECTED LBMPS CHANGE ($/MWh) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.1	0.2	0.2	0.1	0.3	0.1	0.1	(0.0)	0.1
Genesee	(0.2)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.2)	(0.3)	(0.1)
Central	(0.2)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.2)	(0.3)	(0.3)	(0.1)
North	(0.3)	(0.3)	(0.2)	(0.2)	(0.3)	(0.4)	(0.3)	(0.5)	(0.5)	(0.1)
Mohawk Valley	(0.4)	(0.3)	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)	(0.5)	(0.5)	(0.2)
Capital	(0.6)	(0.6)	(0.8)	(0.8)	(0.7)	(0.7)	(1.0)	(0.9)	(1.2)	(1.2)
Hudson Valley	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(0.9)	(1.1)	(1.1)	(1.2)	(1.2)
Millwood	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(0.9)	(1.1)	(1.2)	(1.3)	(1.2)
Dunwoodie	(0.7)	(0.7)	(0.8)	(0.8)	(0.8)	(1.0)	(1.1)	(1.2)	(1.3)	(1.2)
NY City	(0.8)	(0.9)	(1.0)	(1.0)	(1.1)	(1.1)	(1.3)	(1.4)	(1.5)	(1.4)
Long Island	(0.2)	(0.4)	(0.3)	(0.3)	(0.6)	(0.6)	(0.5)	(0.8)	(0.9)	(0.8)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(2)	0	(1)	0	(0)	0	0	(0)	(1)
Genesee	0	0	0	0	0	0	0	(0)	0	(0)
Central	(121)	90	(74)	(0)	(117)	0	(43)	(90)	(0)	21
North	(0)	0	(0)	0	(0)	(0)	0	(0)	0	(0)
Mohawk Valley	(0)	0	(0)	(0)	(0)	(0)	0	(0)	0	(0)
Capital	(2)	(2)	(2)	(1)	(2)	(2)	(1)	(1)	(1)	(0)
Hudson Valley	(1)	(1)	(1)	(2)	(2)	(3)	(2)	(1)	(1)	(2)
Millwood	0	(0)	0	0	(0)	0	0	(0)	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(6)	(6)	(5)	(5)	(4)	(4)	(4)	(4)	(4)	(4)
Long Island	(1)	(1)	(0)	(0)	(1)	(1)	(1)	(0)	(0)	(0)
NYCA Total	(133)	78	(82)	(8)	(126)	(10)	(51)	(97)	(7)	15

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	5	2	12	(5)	1	5	4	6	1	(6)
Genesee	(3)	2	2	(0)	0	(1)	(0)	(1)	0	(3)
Central	(19)	21	3	(6)	(30)	(2)	(5)	(28)	3	(9)
North	(2)	0	(0)	(1)	(3)	1	1	(3)	1	4
Mohawk Valley	(0)	0	(0)	3	1	(1)	1	(0)	(2)	(2)
Capital	(19)	(25)	(24)	(6)	(29)	(20)	(6)	(22)	(2)	(16)
Hudson Valley	(53)	(48)	(59)	(49)	(73)	(108)	(46)	(49)	(48)	(50)
Millwood	0	(1)	(0)	1	(0)	0	0	(1)	0	1
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(512)	(287)	(525)	(271)	(382)	(410)	(391)	(314)	(372)	(339)
Long Island	(23)	(18)	(15)	(17)	(35)	(49)	(21)	(13)	(44)	(12)
NYCA Total	(628)	(353)	(606)	(352)	(549)	(585)	(463)	(426)	(462)	(431)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0
NYCA Total	(0.2)	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	3	6	3	4	3	5	3	3	2
Genesee	(0)	3	1	(1)	1	1	0	(1)	2	(2)
Central	(100)	16	(18)	(34)	(48)	(0)	(23)	(45)	6	(17)
North	(8)	(1)	(3)	(1)	(2)	(1)	0	(3)	5	(1)
Mohawk Valley	(2)	2	4	(0)	1	3	5	2	2	(0)
Capital	(312)	(419)	(390)	(276)	(417)	(326)	(285)	(254)	(209)	(301)
Hudson Valley	(110)	(155)	(285)	(367)	(365)	(540)	(398)	(268)	(230)	(302)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1,123)	(934)	(865)	(868)	(767)	(793)	(865)	(802)	(758)	(707)
Long Island	(93)	(90)	(59)	(37)	(84)	(90)	(44)	(52)	(90)	(61)
NYCA Total	(1,750)	(1,575)	(1,610)	(1,582)	(1,678)	(1,743)	(1,604)	(1,420)	(1,267)	(1,389)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)
Central	(0.3)	0.1	(0.0)	(0.2)	(0.3)	0.1	(0.1)	(0.3)	0.1	(0.2)
North	(0.0)	0.0	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	0.1	(0.0)
Mohawk Valley	(0.0)	0.0	0.0	(0.0)	0.0	0.0	0.1	0.0	0.0	(0.0)
Capital	(1.1)	(1.7)	(1.9)	(1.5)	(2.6)	(2.2)	(2.0)	(1.9)	(1.6)	(2.7)
Hudson Valley	(0.4)	(0.6)	(1.4)	(2.1)	(2.2)	(3.6)	(2.8)	(2.0)	(1.8)	(2.6)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(3.1)	(2.8)	(2.8)	(3.4)	(3.3)	(3.7)	(4.1)	(4.2)	(4.0)	(4.4)
Long Island	(0.3)	(0.4)	(0.3)	(0.2)	(0.5)	(0.6)	(0.3)	(0.4)	(0.7)	(0.5)
NYCA Total	(5.3)	(5.3)	(6.4)	(7.4)	(9.0)	(9.9)	(9.2)	(8.9)	(7.7)	(10.4)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 5: Central East-New Scotland-Pleasant Valley under SRS Case | Generic Energy Efficiency Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.7	0.6	0.4	0.6	0.6	0.5	0.5	0.8	0.6	0.3
Genesee	0.3	0.2	0.1	0.2	0.2	0.2	0.2	0.4	0.2	0.1
Central	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.1
North	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0
Mohawk Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)
Capital	(2.9)	(2.6)	(2.9)	(3.1)	(2.9)	(3.1)	(3.2)	(2.9)	(2.7)	(2.2)
Hudson Valley	(2.4)	(2.1)	(2.2)	(2.5)	(2.8)	(2.8)	(2.8)	(3.1)	(2.8)	(2.4)
Millwood	(0.2)	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.1)
Dunwoodie	(0.4)	(0.3)	(0.3)	(0.3)	(0.5)	(0.4)	(0.4)	(0.5)	(0.5)	(0.2)
NY City	(13.2)	(11.9)	(13.0)	(14.5)	(16.1)	(15.9)	(15.9)	(17.8)	(16.5)	(13.5)
Long Island	(1.2)	(0.6)	(0.9)	(1.1)	(1.0)	(0.8)	(1.0)	(1.5)	(1.1)	(0.3)
NYCA Total	(19.3)	(16.7)	(19.0)	(20.7)	(22.5)	(22.4)	(22.7)	(24.8)	(22.8)	(18.3)

Study 6: Central East - New Scotland - Pleasant Valley under System Resource Shift Case with Edic - Marcy Relaxed

Generic Transmission Solution (Study 6: Central East - New Scotland - Pleasant Valley under System Resource Shift Case with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	3	7	11	11	15	8	12	11	24
Genesee	0	2	4	6	5	7	3	5	4	9
Central	2	5	9	11	10	12	8	11	10	18
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(1)	(2)	(1)	(1)	(2)	(1)	(3)	(1)	(2)
Capital	(20)	(34)	(52)	(59)	(55)	(63)	(45)	(66)	(60)	(90)
Hudson Valley	(13)	(21)	(31)	(35)	(32)	(37)	(29)	(41)	(38)	(56)
Millwood	(4)	(6)	(9)	(10)	(9)	(11)	(8)	(12)	(11)	(16)
Dunwoodie	(8)	(13)	(19)	(21)	(19)	(21)	(17)	(24)	(22)	(33)
NY City	(63)	(108)	(159)	(176)	(157)	(180)	(141)	(196)	(186)	(280)
Long Island	(25)	(43)	(63)	(70)	(65)	(72)	(57)	(79)	(75)	(111)
NYCA Total	(132)	(216)	(316)	(345)	(312)	(352)	(279)	(392)	(370)	(538)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	2	2	2	1	1	1	1	1	1	1
Genesee	0	0	0	0	0	0	0	0	0	1
Central	16	19	16	14	15	16	22	12	14	16
North	0	0	0	0	(0)	0	0	(0)	0	0
Mohawk Valley	0	0	0	0	(1)	(0)	(0)	(0)	(0)	0
Capital	(8)	(11)	(7)	(12)	(28)	(18)	(12)	(17)	(16)	(27)
Hudson Valley	(4)	(8)	(13)	(23)	(36)	(25)	(28)	(28)	(24)	(22)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(20)	(23)	(26)	(22)	(24)	(27)	(31)	(25)	(23)	(29)
Long Island	(5)	(4)	(4)	(3)	(4)	(5)	(3)	(4)	(3)	(4)
NYCA Total	(18)	(25)	(31)	(45)	(77)	(58)	(52)	(61)	(52)	(64)
NYCA Imports	7	9	14	26	36	27	28	26	11	13
NYCA Exports	10	12	19	21	15	18	12	17	(0)	17
NYCA + Imports - Exports	(21)	(28)	(36)	(41)	(56)	(49)	(36)	(53)	(41)	(68)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	76	58	59	57	49	33	37	56	76	176
Genesee	9	9	11	13	20	23	6	40	22	115
Central	588	656	551	466	528	502	573	402	447	711
North	11	5	6	8	(1)	5	6	3	11	9
Mohawk Valley	4	6	7	11	1	4	3	8	10	22
Capital	(74)	(118)	58	(26)	(300)	(163)	(31)	(136)	(98)	(277)
Hudson Valley	(83)	(158)	(297)	(585)	(714)	(528)	(558)	(522)	(462)	(414)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(573)	(603)	(613)	(505)	(534)	(569)	(648)	(506)	(455)	(570)
Long Island	(137)	(101)	(80)	(75)	(84)	(100)	(71)	(70)	(63)	(94)
NYCA Total	(178)	(246)	(297)	(636)	(1,035)	(792)	(683)	(725)	(510)	(322)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(127)	(24)	122	109	345	170	236	237	173	177
LINDEN VFT	(10)	(7)	(19)	(1)	4	(2)	0	(1)	(9)	(9)
NEPTUNE	(79)	(31)	(58)	(35)	(30)	(46)	(45)	(63)	(76)	(101)
HTP	(167)	(255)	(262)	(295)	(198)	(273)	(243)	(245)	(248)	(245)
ISONE - NYISO	(288)	(348)	(558)	(517)	(410)	(504)	(474)	(635)	(577)	(890)
CROSS SOUND CABLE	1	15	6	(2)	(21)	(25)	(39)	(44)	(54)	(37)
NORTHPORT NORWALK	0	(7)	(1)	7	(8)	17	2	(19)	(18)	13
IESO - NYISO	839	900	1,062	1,371	1,361	1,453	1,250	1,489	1,314	1,403
HQ - NYISO CHAT	(11)	(11)	(11)	(11)	(10)	(11)	(11)	(11)	(11)	(11)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	159	231	281	626	1,033	779	675	709	494	299

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	17	26	33	35	37	39	38	52	56	67
Genesee	5	9	10	11	13	13	10	15	14	20
Central	46	65	78	85	90	94	86	98	104	138
North	10	17	23	26	26	29	22	32	31	42
Mohawk Valley	4	7	10	12	13	14	13	24	26	39
Capital	(9)	(12)	(15)	(20)	(31)	(30)	(19)	(29)	(25)	(51)
Hudson Valley	(4)	(7)	(13)	(27)	(34)	(27)	(29)	(30)	(28)	(27)
Millwood	(7)	(6)	(11)	(8)	(1)	(0)	(0)	(0)	(0)	(1)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(27)	(28)	(38)	(35)	(32)	(39)	(45)	(39)	(36)	(48)
Long Island	(6)	(5)	(7)	(7)	(6)	(8)	(7)	(7)	(7)	(11)
NYCA Total	29	65	70	72	74	85	70	116	135	168

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	17	24	30	29	29	29	25	35	34	38
Genesee	10	16	20	21	21	22	18	25	24	31
Central	16	26	33	36	36	38	31	43	41	52
North	5	8	12	14	14	15	12	16	16	21
Mohawk Valley	9	15	18	20	20	22	18	23	22	29
Capital	(6)	(8)	(17)	(19)	(15)	(19)	(12)	(20)	(16)	(29)
Hudson Valley	(3)	(2)	(5)	(6)	(4)	(5)	(5)	(7)	(6)	(10)
Millwood	(1)	(1)	(2)	(2)	(1)	(1)	(1)	(2)	(2)	(2)
Dunwoodie	(2)	(2)	(4)	(4)	(2)	(3)	(3)	(3)	(3)	(5)
NY City	(14)	(11)	(25)	(26)	(14)	(20)	(22)	(24)	(23)	(34)
Long Island	(4)	(3)	(8)	(9)	(6)	(7)	(8)	(8)	(8)	(13)
NYCA Total	25	62	51	54	77	70	54	78	78	77

PROJECTED LBMPS CHANGE ($/MWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1.1	1.5	1.9	1.9	1.9	2.0	1.7	2.4	2.3	2.6
Genesee	1.0	1.6	2.0	2.2	2.3	2.4	2.0	2.8	2.8	3.5
Central	1.0	1.6	2.1	2.3	2.3	2.5	2.0	2.8	2.8	3.5
North	1.1	1.9	2.6	3.0	3.0	3.3	2.6	3.6	3.5	4.8
Mohawk Valley	1.0	1.7	2.3	2.6	2.6	2.9	2.2	3.1	2.9	3.9
Capital	(0.5)	(0.6)	(1.3)	(1.6)	(1.3)	(1.6)	(1.0)	(1.7)	(1.4)	(2.6)
Hudson Valley	(0.4)	(0.3)	(0.6)	(0.7)	(0.5)	(0.6)	(0.5)	(0.7)	(0.7)	(1.1)
Millwood	(0.4)	(0.4)	(0.7)	(0.7)	(0.5)	(0.6)	(0.5)	(0.6)	(0.6)	(0.9)
Dunwoodie	(0.4)	(0.3)	(0.6)	(0.7)	(0.4)	(0.5)	(0.5)	(0.6)	(0.6)	(0.9)
NY City	(0.3)	(0.2)	(0.5)	(0.5)	(0.3)	(0.4)	(0.4)	(0.5)	(0.5)	(0.8)
Long Island	(0.2)	(0.2)	(0.4)	(0.5)	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(0.7)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	15	21	1	1	1	1	0	1	1	2
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(7)	4	2	1	1	1	(20)	0	1	1
North	0	0	0	0	(0)	0	0	0	0	0
Mohawk Valley	(0)	0	0	0	0	0	0	(0)	0	0
Capital	(0)	(0)	0	(0)	(1)	(0)	(0)	(0)	(0)	(1)
Hudson Valley	(0)	0	(1)	(1)	(2)	(1)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(2)	(2)	(1)	(1)	(1)	(2)	(1)	(1)	(1)
Long Island	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	6	23	1	(1)	(2)	(1)	(23)	(2)	(1)	(0)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	49	50	66	54	57	46	32	49	40	53
Genesee	9	15	20	18	17	17	11	23	19	29
Central	33	68	84	76	78	77	49	77	84	134
North	2	2	4	4	4	5	2	4	6	11
Mohawk Valley	1	3	4	7	4	5	2	7	6	11
Capital	(2)	(4)	2	1	(13)	(5)	(2)	(5)	(2)	(6)
Hudson Valley	(32)	(35)	(32)	(20)	(44)	(28)	(20)	(40)	(25)	(21)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(116)	(57)	(107)	(38)	(80)	(78)	(88)	(80)	(42)	(57)
Long Island	(29)	(11)	(7)	(4)	(8)	(14)	(12)	(7)	(6)	(11)
NYCA Total	(85)	30	36	99	14	24	(24)	29	79	143

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	(0.0)	0.0	(0.0)	(0.0)	0.0	0.0
Long Island	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	(0.0)	(0.0)	0.0	0.0

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	37	24	22	11	9	8	9	5	5	4
Genesee	2	1	0	0	(0)	1	1	(0)	(0)	(0)
Central	242	263	190	152	162	163	225	97	115	96
North	5	2	2	3	(2)	1	2	0	4	2
Mohawk Valley	0	1	1	0	(4)	(1)	(1)	(0)	(1)	(0)
Capital	(30)	(48)	22	(17)	(134)	(70)	(19)	(65)	(49)	(121)
Hudson Valley	(58)	(92)	(146)	(245)	(325)	(238)	(247)	(234)	(207)	(185)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(308)	(319)	(299)	(252)	(270)	(292)	(338)	(259)	(228)	(278)
Long Island	(80)	(58)	(40)	(39)	(44)	(53)	(36)	(36)	(30)	(44)
NYCA Total	(190)	(225)	(248)	(388)	(608)	(482)	(403)	(493)	(390)	(527)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)
Central	0.8	1.1	0.9	0.8	1.0	1.1	1.6	0.8	0.9	0.9
North	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0
Capital	(0.1)	(0.2)	0.1	(0.1)	(0.9)	(0.5)	(0.1)	(0.5)	(0.4)	(1.1)
Hudson Valley	(0.2)	(0.4)	(0.7)	(1.4)	(2.1)	(1.6)	(1.8)	(1.9)	(1.7)	(1.6)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.9)	(1.0)	(0.9)	(0.9)	(1.3)	(1.2)	(1.5)	(1.1)	(1.0)	(1.5)
Long Island	(0.3)	(0.3)	(0.2)	(0.2)	(0.3)	(0.3)	(0.2)	(0.3)	(0.3)	(0.4)
NYCA Total	(0.5)	(0.7)	(0.7)	(1.7)	(3.6)	(2.5)	(1.9)	(3.0)	(2.4)	(3.7)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Transmission Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(3.0)	(3.8)	(4.6)	(5.7)	(5.8)	(6.2)	(5.3)	(6.2)	(5.2)	(5.9)
Genesee	(1.3)	(1.6)	(2.0)	(2.3)	(2.5)	(2.7)	(2.2)	(2.6)	(2.2)	(2.5)
Central	(1.2)	(1.1)	(1.2)	(1.5)	(1.6)	(1.7)	(1.9)	(1.8)	(1.8)	(2.3)
North	(0.3)	(0.5)	(0.7)	(0.8)	(0.8)	(0.8)	(0.5)	(0.8)	(0.6)	(0.9)
Mohawk Valley	0.1	0.2	0.2	0.2	0.1	0.1	0.0	(0.4)	(0.5)	(0.8)
Capital	(1.0)	(0.1)	0.3	0.4	0.3	0.4	(0.4)	0.1	(0.1)	0.9
Hudson Valley	(2.0)	(1.2)	(0.9)	(1.0)	(1.2)	(1.0)	(1.7)	(1.1)	(1.1)	0.3
Millwood	(0.6)	(0.4)	(0.3)	(0.3)	(0.3)	(0.3)	(0.5)	(0.3)	(0.3)	0.2
Dunwoodie	(1.3)	(0.8)	(0.6)	(0.6)	(0.8)	(0.7)	(1.1)	(0.7)	(0.7)	0.3
NY City	(10.6)	(5.6)	(3.6)	(4.3)	(5.8)	(4.3)	(8.6)	(4.8)	(5.0)	5.4
Long Island	(4.3)	(2.0)	(1.3)	(1.4)	(2.1)	(1.6)	(3.3)	(1.8)	(2.1)	1.8
NYCA Total	(25.5)	(16.9)	(14.6)	(17.2)	(20.5)	(18.6)	(25.6)	(20.3)	(19.6)	(3.4)

Generic Generation Solution (Study 6: Central East - New Scotland - Pleasant Valley under System Resource Shift Case with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	(4)	(5)	(6)	(7)	(8)	(8)	(9)	(6)	(7)
Genesee	(1)	(1)	(1)	(2)	(2)	(2)	(3)	(3)	(2)	(3)
Central	(1)	(2)	(2)	(3)	(3)	(4)	(3)	(4)	(3)	(3)
North	(0)	0	0	(0)	(0)	(0)	0	(0)	(0)	0
Mohawk Valley	(0)	0	0	0	0	0	(0)	0	(0)	0
Capital	(1)	1	0	3	2	3	0	4	(4)	(2)
Hudson Valley	(2)	(1)	(1)	(1)	(2)	(2)	(3)	(3)	(7)	(8)
Millwood	(0)	(0)	(0)	(0)	0	0	0	0	(0)	(1)
Dunwoodie	(1)	(1)	(1)	(0)	1	1	(0)	1	(1)	(2)
NY City	(6)	(3)	0	3	7	12	1	8	1	(11)
Long Island	2	1	4	5	6	7	5	6	1	(0)
NYCA Total	(14)	(11)	(5)	(1)	4	7	(11)	1	(22)	(38)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(1)	(1)	(1)
Central	(8)	(6)	(6)	(4)	(11)	(7)	(14)	(13)	(8)	(7)
North	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(2)
Mohawk Valley	(1)	(0)	(0)	(1)	(1)	(1)	(1)	(2)	(2)	(3)
Capital	(16)	(30)	(18)	(25)	(34)	(28)	(34)	(43)	(58)	(55)
Hudson Valley	64	52	54	66	65	72	82	82	117	120
Millwood	0	0	0	0	0	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(29)	(14)	(15)	(22)	(16)	(24)	(24)	(20)	(26)	(32)
Long Island	(6)	(2)	(4)	(2)	(1)	(2)	(2)	(2)	(6)	(4)
NYCA Total	2	(3)	10	10	(1)	8	4	(2)	11	16
NYCA Imports	(17)	(13)	(18)	(22)	(20)	(26)	(26)	(20)	(25)	(23)
NYCA Exports	16	4	8	8	5	9	13	9	29	27
NYCA + Imports - Exports	(31)	(20)	(16)	(20)	(26)	(26)	(34)	(30)	(43)	(34)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(12)	5	27	18	25	26	57	26	28	14
Genesee	(5)	(2)	(5)	(3)	(6)	(6)	(5)	(11)	(7)	(11)
Central	(142)	(121)	(143)	(116)	(208)	(183)	(278)	(192)	(137)	(134)
North	(28)	(17)	(15)	(22)	(25)	(21)	(20)	(23)	(18)	(16)
Mohawk Valley	(13)	(8)	(8)	(13)	(19)	(9)	(13)	(28)	(27)	(32)
Capital	(449)	(727)	(450)	(554)	(698)	(612)	(780)	(922)	(1,373)	(1,136)
Hudson Valley	2,663	1,874	1,772	1,992	2,024	2,214	2,441	2,381	3,106	3,167
Millwood	0	0	0	(0)	0	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(789)	(339)	(363)	(458)	(406)	(508)	(474)	(448)	(315)	(630)
Long Island	(156)	(47)	(80)	(47)	(30)	(39)	(34)	(28)	(91)	(63)
NYCA Total	1,070	619	736	798	657	861	894	755	1,166	1,158

PROJECTED NET IMPORTS CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(194)	(145)	(273)	(257)	(195)	(254)	(218)	(171)	(226)	(180)
LINDEN VFT	(81)	(54)	(34)	(24)	(5)	(26)	(32)	(25)	(22)	(20)
NEPTUNE	(131)	(55)	(20)	(40)	(49)	(49)	(56)	(52)	(69)	(88)
HTP	(93)	(97)	(73)	(144)	(86)	(138)	(172)	(123)	(222)	(227)
ISONE - NYISO	(412)	(186)	(238)	(213)	(202)	(229)	(303)	(200)	(526)	(490)
CROSS SOUND CABLE	(5)	13	2	(12)	(15)	(28)	(13)	(17)	(53)	(66)
NORTHPORT NORWALK	(16)	(2)	(17)	(19)	(6)	(22)	(19)	(31)	(47)	(42)
IESO - NYISO	(147)	(96)	(94)	(91)	(101)	(129)	(94)	(147)	(10)	(58)
HQ - NYISO CHAT	0	0	0	0	1	0	0	0	0	(0)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,079)	(623)	(748)	(802)	(658)	(874)	(906)	(768)	(1,174)	(1,170)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	3	1	3	4	2	8	6	8	7
Genesee	(0)	0	(1)	(0)	(0)	(1)	(0)	(0)	0	(0)
Central	(9)	(1)	(7)	(6)	(9)	(16)	(14)	(10)	(5)	(7)
North	(2)	(2)	(3)	(2)	(3)	(4)	(3)	(3)	(1)	(2)
Mohawk Valley	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)	(1)	(2)
Capital	(20)	(30)	(22)	(25)	(32)	(32)	(37)	(40)	(61)	(55)
Hudson Valley	84	65	65	76	79	89	101	96	131	131
Millwood	(6)	(4)	(6)	(3)	(0)	(0)	(1)	(0)	0	(1)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(39)	(21)	(23)	(26)	(20)	(31)	(32)	(25)	(24)	(42)
Long Island	(8)	(3)	(4)	(3)	(2)	(3)	(2)	(2)	(6)	(6)
NYCA Total	(0)	6	(0)	12	17	3	19	18	42	24

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	1	3	2	3	4	3	5	5	5	5
Genesee	(1)	0	(1)	(0)	0	(1)	0	1	1	1
Central	(1)	0	(2)	(1)	(1)	(2)	(1)	0	1	1
North	(1)	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(0)	(1)
Mohawk Valley	(1)	(1)	(2)	(1)	(1)	(2)	(2)	(1)	(1)	(1)
Capital	(4)	(0)	(3)	(0)	(0)	(2)	(3)	1	(4)	(3)
Hudson Valley	(4)	(3)	(4)	(4)	(5)	(7)	(7)	(7)	(9)	(11)
Millwood	(1)	(1)	(1)	(1)	(0)	(1)	(1)	(1)	(1)	(2)
Dunwoodie	(3)	(2)	(3)	(2)	(1)	(2)	(2)	(2)	(2)	(4)
NY City	(19)	(13)	(17)	(15)	(10)	(14)	(20)	(13)	(10)	(26)
Long Island	(3)	(3)	(2)	(2)	(1)	(3)	(3)	(3)	(3)	(6)
NYCA Total	(37)	(19)	(35)	(26)	(17)	(33)	(34)	(21)	(23)	(46)

PROJECTED LBMPS CHANGE ($/MWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.1	0.0	0.1	0.2	0.1	0.2	0.2	0.3	0.3
Genesee	(0.1)	0.0	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	0.0	0.1	0.1
Central	(0.1)	(0.0)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	0.1	0.0
North	(0.1)	(0.1)	(0.2)	(0.2)	(0.2)	(0.3)	(0.2)	(0.2)	(0.1)	(0.2)
Mohawk Valley	(0.2)	(0.1)	(0.2)	(0.2)	(0.2)	(0.3)	(0.2)	(0.2)	(0.1)	(0.2)
Capital	(0.3)	(0.0)	(0.2)	(0.0)	(0.1)	(0.2)	(0.2)	0.1	(0.3)	(0.3)
Hudson Valley	(0.3)	(0.2)	(0.4)	(0.3)	(0.4)	(0.6)	(0.6)	(0.5)	(0.7)	(0.9)
Millwood	(0.4)	(0.2)	(0.4)	(0.3)	(0.2)	(0.3)	(0.4)	(0.2)	(0.4)	(0.6)
Dunwoodie	(0.3)	(0.2)	(0.4)	(0.3)	(0.2)	(0.3)	(0.4)	(0.3)	(0.4)	(0.6)
NY City	(0.3)	(0.2)	(0.3)	(0.2)	(0.2)	(0.2)	(0.3)	(0.2)	(0.2)	(0.5)
Long Island	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.3)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(64)	(60)	(0)	(0)	(0)	0	(0)	(0)	(1)	(1)
Genesee	(0)	0	0	0	(0)	(0)	(0)	(0)	(0)	(0)
Central	(227)	(144)	(54)	(0)	(85)	(0)	(43)	(130)	(1)	(1)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(2)	(1)	(2)	(2)	(1)	(1)	(1)	(3)	(2)
Hudson Valley	158	114	108	128	136	148	164	151	206	213
Millwood	0	(0)	0	0	0	0	0	0	(0)	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(2)
Long Island	(1)	(0)	(1)	0	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(138)	(94)	51	125	48	145	119	18	200	207

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(52)	(51)	(11)	(13)	(16)	(15)	(13)	(12)	(20)	(6)
Genesee	(4)	(2)	(2)	(0)	(3)	(5)	(1)	(3)	(6)	(6)
Central	(98)	(73)	(48)	(12)	(30)	(18)	(27)	(40)	(6)	(20)
North	(4)	(3)	(1)	(3)	(3)	(3)	(2)	(4)	(3)	1
Mohawk Valley	(3)	(2)	(3)	(2)	(4)	(3)	(3)	(7)	(6)	(9)
Capital	(23)	(33)	(9)	(24)	(41)	(25)	(35)	(38)	(56)	(43)
Hudson Valley	471	347	314	402	406	439	510	460	635	663
Millwood	0	(1)	0	1	0	0	0	0	(0)	1
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(178)	(20)	(109)	(16)	(80)	(89)	(41)	(54)	(85)	(105)
Long Island	(16)	(15)	(16)	(12)	0	(10)	3	(7)	(21)	(1)
NYCA Total	94	148	115	320	229	271	392	295	433	476

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.1)	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	0.0
Long Island	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(44)	(37)	(5)	(8)	(10)	(12)	(11)	(9)	(12)	(4)
Genesee	(2)	(1)	(2)	(1)	(2)	(2)	(3)	(6)	(6)	(5)
Central	(112)	(80)	(73)	(49)	(104)	(82)	(128)	(94)	(74)	(68)
North	(14)	(8)	(8)	(12)	(13)	(11)	(10)	(12)	(10)	(10)
Mohawk Valley	(7)	(4)	(3)	(7)	(10)	(4)	(7)	(15)	(15)	(16)
Capital	(209)	(317)	(200)	(239)	(318)	(269)	(336)	(400)	(577)	(483)
Hudson Valley	1,033	725	682	776	769	837	931	910	1,173	1,213
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(448)	(190)	(217)	(252)	(224)	(287)	(258)	(240)	(188)	(362)
Long Island	(96)	(27)	(41)	(27)	(14)	(18)	(16)	(14)	(55)	(34)
NYCA Total	101	61	133	181	73	151	163	120	237	231

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.2)	(0.2)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)
Genesee	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)
Central	(0.4)	(0.3)	(0.4)	(0.3)	(0.7)	(0.6)	(1.0)	(0.8)	(0.7)	(0.7)
North	(0.1)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.0)	(0.1)	(0.2)	(0.2)	(0.2)
Capital	(0.7)	(1.3)	(1.0)	(1.4)	(2.0)	(1.8)	(2.4)	(3.1)	(4.8)	(4.4)
Hudson Valley	3.8	3.2	3.5	4.6	5.1	6.0	7.0	7.4	10.2	11.3
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(1.3)	(0.6)	(0.8)	(1.0)	(1.2)	(1.4)	(1.2)	(1.4)	(1.0)	(2.5)
Long Island	(0.4)	(0.1)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.5)	(0.3)
NYCA Total	0.7	0.6	1.1	1.6	0.8	1.9	2.0	1.5	2.7	3.0

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Generation Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.3	0.1	0.3	0.4	0.2	0.4	0.2	0.4	0.0	0.2
Genesee	0.1	0.1	0.2	0.2	0.1	0.2	0.2	0.2	0.0	0.1
Central	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.1	0.1	(0.0)	0.1
North	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0
Mohawk Valley	(0.1)	(0.0)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.0)
Capital	0.1	0.3	(0.0)	0.1	0.2	0.1	0.2	0.4	1.0	0.6
Hudson Valley	(0.6)	(0.6)	(0.7)	(0.8)	(0.9)	(1.0)	(1.1)	(1.1)	(0.9)	(0.9)
Millwood	(0.2)	(0.2)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)	(0.3)
Dunwoodie	(0.3)	(0.4)	(0.4)	(0.5)	(0.6)	(0.6)	(0.7)	(0.7)	(0.6)	(0.6)
NY City	(2.4)	(2.9)	(3.2)	(3.7)	(4.9)	(4.9)	(5.6)	(5.8)	(4.9)	(4.9)
Long Island	(1.1)	(1.3)	(1.4)	(1.6)	(2.1)	(2.2)	(2.3)	(2.4)	(1.9)	(1.9)
NYCA Total	(4.1)	(4.8)	(5.3)	(6.1)	(8.2)	(8.3)	(9.3)	(9.1)	(7.8)	(7.6)

Generic Demand Response Solution (Study 6: Central East - New Scotland - Pleasant Valley under System Resource Shift Case with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	(1)	(0)	(0)	(0)	(0)	(0)	0	0
Genesee	(0)	(0)	(0)	(0)	0	0	(0)	(0)	0	0
Central	(0)	(0)	(0)	(0)	0	(0)	(0)	(0)	0	0
North	0	0	0	0	0	0	0	0	0	0
Mohawk Valley	0	0	(0)	0	(0)	(0)	0	0	0	(0)
Capital	(0)	0	0	0	(0)	0	0	0	0	(0)
Hudson Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Millwood	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(0)	(0)	(0)	(0)	(1)	(1)	(0)	(0)	(1)	(0)
NY City	(2)	(9)	(7)	(3)	(7)	(7)	(3)	(4)	(7)	(2)
Long Island	1	(0)	1	0	(2)	(2)	(1)	(2)	(2)	1
NYCA Total	(2)	(9)	(8)	(4)	(11)	(10)	(5)	(7)	(9)	(2)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	0	0	(0)	0	(0)	(0)	(0)	(0)	0
Genesee	(0)	0	(0)	0	(0)	0	(0)	(0)	0	0
Central	(1)	(0)	0	(0)	0	0	(0)	0	(0)	1
North	(0)	(0)	(0)	(0)	0	(0)	(0)	0	0	0
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	0	0	0	0
Capital	0	(1)	(0)	0	0	(0)	(1)	(0)	(0)	(0)
Hudson Valley	(1)	(1)	(1)	(1)	(1)	(0)	(1)	(1)	(0)	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(3)	(3)	(2)	(2)	(2)	(2)	(2)	(3)	(2)	(5)
Long Island	(0)	(0)	(0)	(1)	(2)	(3)	(2)	(2)	(2)	(3)
NYCA Total	(5)	(6)	(4)	(4)	(5)	(5)	(6)	(6)	(5)	(6)
NYCA Imports	(1)	(1)	(1)	(3)	(2)	(2)	(2)	(2)	(2)	(1)
NYCA Exports	1	(0)	1	0	0	0	1	1	1	1
NYCA + Imports - Exports	(7)	(6)	(7)	(7)	(7)	(7)	(8)	(9)	(8)	(9)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(3)	(1)	(0)	4	0	(5)	1	(2)	(7)	3
Genesee	(1)	0	(0)	(0)	(0)	0	(0)	(0)	0	0
Central	(7)	(4)	1	(3)	6	5	(3)	1	(7)	19
North	0	(2)	(2)	(3)	0	(2)	(1)	1	2	0
Mohawk Valley	(1)	(1)	(1)	(2)	(1)	(0)	0	0	0	(0)
Capital	37	5	24	28	24	18	15	24	17	12
Hudson Valley	1	(12)	(8)	4	1	13	11	9	20	27
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(6)	23	37	55	55	53	46	40	51	19
Long Island	(1)	(2)	(4)	(14)	(35)	(43)	(29)	(34)	(32)	(38)
NYCA Total	19	7	45	70	49	40	40	40	44	43

PROJECTED NET IMPORTS CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(0)	4	(5)	(25)	(19)	(3)	(2)	(8)	(10)	(21)
LINDEN VFT	(4)	(7)	(11)	(2)	(1)	(2)	(1)	(0)	2	(0)
NEPTUNE	(3)	2	(4)	(6)	1	1	(1)	7	0	0
HTP	1	1	2	(4)	(25)	(21)	(13)	(21)	(22)	(4)
ISONE - NYISO	(20)	4	(22)	(18)	(5)	(9)	(13)	(15)	(12)	(17)
CROSS SOUND CABLE	(2)	(1)	(1)	(4)	(1)	2	(1)	(3)	1	2
NORTHPORT NORWALK	0	1	(3)	(2)	2	5	3	1	2	1
IESO - NYISO	9	(9)	(3)	(8)	2	(11)	(13)	(2)	(5)	(5)
HQ - NYISO CHAT	0	0	0	0	1	0	0	0	0	0
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(20)	(6)	(46)	(70)	(43)	(40)	(41)	(41)	(45)	(43)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	(0)	(0)	0	(0)	(0)	(0)	(0)	(1)	(0)
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Central	(2)	(0)	(0)	(0)	(0)	(1)	(0)	(0)	(0)	0
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(0)	(0)	(0)	1	0	0	0	1	0	0
Hudson Valley	(0)	(1)	(1)	0	0	1	1	0	1	1
Millwood	(1)	(0)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	0	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(3)	(4)	(3)	1	(0)	(1)	0	(0)	(1)	(0)
Long Island	(1)	(1)	(0)	(1)	(3)	(3)	(2)	(3)	(3)	(2)
NYCA Total	(8)	(7)	(5)	0	(3)	(4)	(2)	(3)	(4)	(2)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	(0)	0	0	0	0	(0)	(0)	(0)	(0)
Genesee	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Central	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
North	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Capital	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Hudson Valley	(1)	(1)	(1)	(0)	(0)	(0)	(0)	(1)	(0)	(1)
Millwood	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Dunwoodie	(1)	(0)	(0)	(0)	(1)	(1)	(1)	(1)	(1)	(0)
NY City	(6)	(12)	(10)	(4)	(7)	(7)	(5)	(6)	(8)	(4)
Long Island	(1)	(1)	(0)	(0)	(2)	(3)	(2)	(2)	(2)	0
NYCA Total	(13)	(15)	(12)	(6)	(11)	(11)	(8)	(11)	(12)	(6)

PROJECTED LBMPS CHANGE ($/MWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	(0.0)	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)
Genesee	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Central	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
North	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Mohawk Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Capital	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Hudson Valley	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Millwood	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.0)
Dunwoodie	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.0)
NY City	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.0)	(0.1)	(0.1)	(0.0)
Long Island	(0.0)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	0.0

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	0	0	0	0	(0)	(0)	0	(0)	0
Genesee	0	0	0	0	0	0	0	0	0	0
Central	(30)	(0)	0	0	0	0	(0)	0	(0)	0
North	0	(0)	(0)	(0)	0	0	0	0	0	0
Mohawk Valley	0	0	0	(0)	0	0	0	0	0	0
Capital	0	(0)	(0)	0	0	(0)	(0)	0	(0)	(0)
Hudson Valley	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	0	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1)	(1)	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Long Island	(1)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NYCA Total	(31)	(2)	(0)	(0)	(1)	(0)	(0)	(0)	(0)	(0)

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	1	6	(1)	0	(2)	(2)	(1)	(4)	0
Genesee	(0)	0	(0)	0	(0)	(0)	(0)	0	(0)	0
Central	(4)	(0)	(1)	(1)	(0)	0	(0)	(0)	(0)	2
North	0	(0)	(0)	(0)	(0)	(0)	(0)	0	0	0
Mohawk Valley	(0)	(0)	(0)	(0)	(0)	(0)	0	0	0	(0)
Capital	0	(0)	(1)	0	(0)	(0)	(1)	(1)	(1)	(1)
Hudson Valley	(5)	(11)	(8)	(4)	(0)	(0)	(1)	(1)	(1)	(1)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(46)	(60)	(47)	(34)	(44)	(44)	(45)	(46)	(48)	(49)
Long Island	(4)	(4)	(1)	(13)	(22)	(27)	(16)	(19)	(18)	(11)
NYCA Total	(61)	(75)	(52)	(52)	(66)	(74)	(65)	(69)	(72)	(60)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)
Long Island	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0
NYCA Total	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0	0.0	0.0	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	0	2	(0)	1	(1)	(1)	(1)	(2)	0
Genesee	(0)	0	(0)	0	(0)	(0)	(0)	(0)	(0)	0
Central	(6)	(2)	0	(1)	2	2	(1)	0	(3)	8
North	0	(1)	(1)	(1)	(0)	(1)	(0)	0	1	0
Mohawk Valley	(1)	(1)	(1)	(1)	(1)	(0)	0	0	0	0
Capital	4	(7)	(3)	1	(1)	(3)	(3)	(0)	(3)	(4)
Hudson Valley	(12)	(21)	(18)	(13)	(12)	(4)	(5)	(7)	(0)	0
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(55)	(41)	(30)	(19)	(19)	(20)	(25)	(28)	(23)	(41)
Long Island	(1)	(2)	(3)	(9)	(23)	(27)	(19)	(23)	(22)	(23)
NYCA Total	(73)	(74)	(53)	(42)	(53)	(55)	(55)	(59)	(51)	(59)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	(0.0)	0.1
North	0.0	(0.0)	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0
Capital	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Hudson Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.1)	(0.0)	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.2)	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.1)	(0.3)
Long Island	(0.0)	(0.0)	(0.0)	(0.1)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)	(0.2)
NYCA Total	(0.2)	(0.3)	(0.2)	(0.2)	(0.3)	(0.3)	(0.3)	(0.4)	(0.4)	(0.5)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Demand Response Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)
Hudson Valley	(0.1)	(0.1)	(0.1)	(0.0)	(0.0)	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)
Millwood	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	(0.0)	0.0
Dunwoodie	(0.1)	(0.0)	(0.0)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	0.0
NY City	(0.6)	(0.4)	(0.4)	(0.4)	(0.1)	(0.2)	(0.4)	(0.3)	(0.3)	(0.1)
Long Island	(0.2)	(0.1)	(0.1)	(0.1)	0.1	0.2	0.0	0.1	0.1	0.1
NYCA Total	(1.1)	(0.7)	(0.8)	(0.5)	(0.1)	(0.1)	(0.4)	(0.3)	(0.2)	(0.0)

Generic Energy Efficiency Solution (Study 6: Central East - New Scotland - Pleasant Valley under System Resource Shift Case with Edic - Marcy Relaxed)

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Demand Congestion ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(4)	(6)	(5)	(6)	(8)	(8)	(6)	(8)	(5)	(3)
Genesee	(2)	(2)	(0)	(1)	(2)	(2)	(2)	(2)	(1)	(0)
Central	(2)	(2)	(0)	(2)	(3)	(3)	(2)	(3)	(2)	(0)
North	0	(0)	0	(0)	(0)	(0)	(0)	(0)	(0)	(0)
Mohawk Valley	(0)	(0)	(1)	(0)	0	(0)	(0)	(0)	(0)	(1)
Capital	(5)	(8)	(18)	(16)	(11)	(12)	(17)	(17)	(18)	(29)
Hudson Valley	(6)	(8)	(14)	(14)	(11)	(12)	(15)	(16)	(16)	(24)
Millwood	(1)	(1)	(2)	(2)	(1)	(1)	(2)	(2)	(2)	(3)
Dunwoodie	(1)	(2)	(4)	(4)	(3)	(3)	(5)	(5)	(5)	(7)
NY City	(34)	(57)	(85)	(79)	(75)	(73)	(90)	(97)	(97)	(133)
Long Island	4	(2)	(3)	0	(5)	(4)	(5)	(7)	(8)	(12)
NYCA Total	(51)	(89)	(132)	(124)	(120)	(118)	(143)	(158)	(154)	(211)

PROJECTED PRODUCTION COST CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Production Cost ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	0	1	0	(0)	0	0	0	0	1
Genesee	(0)	0	0	0	0	0	(0)	(0)	0	(0)
Central	(9)	(0)	1	(1)	(7)	(1)	(4)	(4)	1	(1)
North	(1)	(0)	(0)	0	(1)	(0)	0	(0)	1	0
Mohawk Valley	(0)	(0)	1	0	(0)	0	1	0	0	1
Capital	(27)	(38)	(29)	(24)	(50)	(42)	(32)	(31)	(29)	(33)
Hudson Valley	(7)	(16)	(23)	(31)	(39)	(54)	(47)	(31)	(36)	(30)
Millwood	0	0	0	0	(0)	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(72)	(66)	(65)	(75)	(66)	(70)	(75)	(75)	(77)	(84)
Long Island	(8)	(3)	(5)	(4)	(6)	(8)	(10)	(7)	(9)	(7)
NYCA Total	(124)	(123)	(121)	(135)	(169)	(174)	(166)	(147)	(148)	(154)
NYCA Imports	(29)	(33)	(40)	(42)	(38)	(37)	(37)	(46)	(48)	(42)
NYCA Exports	28	32	40	38	25	25	38	45	53	51
NYCA + Imports - Exports	(180)	(188)	(202)	(216)	(233)	(236)	(242)	(238)	(249)	(248)

PROJECTED NYCA GENERATION CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Generation (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	4	24	27	15	20	13	47	10	(2)	(6)
Genesee	(4)	4	1	(1)	(0)	(0)	(2)	2	3	1
Central	(264)	(57)	(1)	(84)	(151)	(36)	(72)	(55)	4	(52)
North	(19)	(6)	(2)	(3)	(11)	(6)	0	(3)	6	2
Mohawk Valley	(6)	(2)	10	5	(3)	(3)	5	5	3	4
Capital	(800)	(1,164)	(912)	(626)	(1,143)	(907)	(858)	(715)	(756)	(780)
Hudson Valley	(166)	(377)	(568)	(793)	(883)	(1,217)	(997)	(621)	(616)	(620)
Millwood	0	0	0	(0)	0	0	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(2,120)	(1,719)	(1,652)	(1,640)	(1,334)	(1,368)	(1,553)	(1,537)	(1,364)	(1,369)
Long Island	(200)	(170)	(113)	(91)	(170)	(144)	(42)	(121)	(155)	(134)
NYCA Total	(3,574)	(3,467)	(3,210)	(3,217)	(3,674)	(3,668)	(3,474)	(3,035)	(2,878)	(2,954)

PROJECTED NET IMPORTS CHANGE (GWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Net Imports (GWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
PJM - NYISO	(420)	(450)	(776)	(719)	(431)	(400)	(416)	(551)	(496)	(459)
LINDEN VFT	(51)	(64)	(49)	(24)	(13)	(23)	(28)	(32)	(26)	(21)
NEPTUNE	(160)	(94)	(80)	(50)	(50)	(47)	(44)	(67)	(109)	(124)
HTP	(294)	(325)	(281)	(347)	(311)	(294)	(362)	(389)	(444)	(417)
ISONE - NYISO	(724)	(728)	(779)	(735)	(514)	(474)	(710)	(711)	(821)	(728)
CROSS SOUND CABLE	(7)	(42)	(50)	(57)	(103)	(83)	(28)	(86)	(107)	(124)
NORTHPORT NORWALK	(12)	(67)	(41)	(36)	(65)	(46)	(9)	(76)	(90)	(84)
IESO - NYISO	(172)	(137)	(72)	(103)	(44)	(136)	(48)	(135)	(70)	(88)
HQ - NYISO CHAT	0	0	0	0	1	0	0	0	0	(0)
HQ - NYISO CEDARS	0	0	0	0	0	0	0	0	0	0
TOTAL	(1,840)	(1,908)	(2,126)	(2,071)	(1,530)	(1,502)	(1,646)	(2,048)	(2,163)	(2,047)

PROJECTED GENERATOR PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Generator Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0)	2	0	(0)	4	1	6	1	(1)	1
Genesee	(1)	(0)	(0)	(1)	(0)	(1)	0	(1)	(1)	(1)
Central	(17)	(5)	(3)	(7)	(6)	(8)	(4)	(10)	(8)	(5)
North	(3)	(2)	(1)	(2)	(2)	(3)	(1)	(4)	(3)	(1)
Mohawk Valley	(1)	(1)	(0)	(1)	(1)	(2)	(0)	(2)	(2)	(1)
Capital	(36)	(46)	(45)	(38)	(59)	(53)	(49)	(51)	(53)	(60)
Hudson Valley	(8)	(17)	(25)	(39)	(44)	(59)	(52)	(41)	(41)	(39)
Millwood	(11)	(10)	(15)	(11)	(2)	(1)	(1)	(1)	(1)	(1)
Dunwoodie	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)	(0)
NY City	(92)	(86)	(94)	(97)	(87)	(96)	(109)	(112)	(107)	(114)
Long Island	(10)	(7)	(7)	(6)	(11)	(13)	(10)	(13)	(16)	(16)
NYCA Total	(180)	(173)	(192)	(203)	(207)	(235)	(220)	(233)	(233)	(237)

PROJECTED LOAD PAYMENTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Load Payment ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(1)	3	3	2	5	3	4	2	0	1
Genesee	(2)	(1)	(1)	(1)	(0)	(1)	0	(2)	(2)	(1)
Central	(4)	(2)	(2)	(3)	(1)	(3)	(1)	(4)	(4)	(2)
North	(1)	(1)	(1)	(1)	(1)	(1)	(0)	(2)	(1)	(1)
Mohawk Valley	(3)	(2)	(2)	(2)	(2)	(3)	(1)	(3)	(3)	(2)
Capital	(39)	(40)	(50)	(51)	(47)	(50)	(55)	(55)	(56)	(61)
Hudson Valley	(34)	(35)	(40)	(44)	(42)	(45)	(47)	(49)	(49)	(51)
Millwood	(2)	(2)	(3)	(3)	(2)	(3)	(3)	(4)	(3)	(4)
Dunwoodie	(4)	(4)	(5)	(6)	(5)	(6)	(7)	(8)	(8)	(8)
NY City	(165)	(180)	(204)	(214)	(214)	(219)	(231)	(245)	(245)	(251)
Long Island	(5)	(8)	(7)	(7)	(12)	(13)	(9)	(18)	(17)	(17)
NYCA Total	(260)	(271)	(312)	(330)	(321)	(340)	(350)	(388)	(388)	(396)

PROJECTED LBMPS CHANGE ($/MWh) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

LBMP ($/MWh)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.1)	0.2	0.2	0.1	0.3	0.2	0.2	0.1	0.0	0.0
Genesee	(0.2)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)	0.0	(0.2)	(0.2)	(0.1)
Central	(0.2)	(0.1)	(0.1)	(0.1)	(0.1)	(0.2)	(0.0)	(0.2)	(0.2)	(0.2)
North	(0.3)	(0.2)	(0.1)	(0.2)	(0.2)	(0.3)	(0.1)	(0.4)	(0.3)	(0.1)
Mohawk Valley	(0.4)	(0.2)	(0.2)	(0.3)	(0.2)	(0.4)	(0.2)	(0.4)	(0.4)	(0.2)
Capital	(0.6)	(0.5)	(1.0)	(0.9)	(0.5)	(0.6)	(1.0)	(1.0)	(1.0)	(1.3)
Hudson Valley	(0.6)	(0.6)	(0.9)	(0.9)	(0.6)	(0.8)	(0.9)	(1.1)	(1.0)	(1.2)
Millwood	(0.6)	(0.6)	(0.9)	(0.9)	(0.7)	(0.8)	(1.0)	(1.2)	(1.1)	(1.3)
Dunwoodie	(0.6)	(0.6)	(0.9)	(0.9)	(0.7)	(0.9)	(1.0)	(1.2)	(1.2)	(1.3)
NY City	(0.7)	(0.8)	(1.1)	(1.1)	(0.9)	(1.0)	(1.1)	(1.4)	(1.3)	(1.5)
Long Island	(0.2)	(0.4)	(0.4)	(0.3)	(0.5)	(0.6)	(0.4)	(0.8)	(0.8)	(0.8)

PROJECTED SO2 EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

SO_2 Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(2)	0	1	(1)	(0)	(0)	0	1	(0)	(2)
Genesee	(0)	0	0	0	0	0	(0)	(0)	0	(0)
Central	(186)	27	(0)	(0)	(63)	(0)	(43)	(90)	(0)	22
North	(0)	(0)	(0)	0	(0)	(0)	(0)	0	0	0
Mohawk Valley	(0)	0	0	0	0	0	0	0	(0)	(0)
Capital	(2)	(2)	(2)	(1)	(2)	(2)	(1)	(1)	(1)	(0)
Hudson Valley	(0)	(1)	(1)	(2)	(2)	(3)	(2)	(1)	(1)	(1)
Millwood	0	(0)	0	0	(0)	0	0	(0)	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(6)	(6)	(5)	(5)	(4)	(4)	(4)	(4)	(4)	(4)
Long Island	(1)	(1)	(0)	(0)	(1)	(1)	(1)	(0)	(0)	(0)
NYCA Total	(197)	17	(8)	(8)	(73)	(10)	(51)	(97)	(8)	15

PROJECTED SO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

SO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NOX EMISSIONS CHANGE (Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

NO_X Emissions (Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0	1	11	(11)	(2)	(3)	3	8	(4)	(8)
Genesee	(4)	2	(0)	0	2	(2)	0	(1)	0	(3)
Central	(45)	(2)	8	(7)	(24)	(6)	(9)	(27)	3	(5)
North	(2)	(0)	0	(1)	(4)	1	1	(2)	1	5
Mohawk Valley	(1)	(1)	(0)	3	(0)	(2)	1	0	(2)	(0)
Capital	(21)	(32)	(21)	(3)	(30)	(26)	(21)	(29)	(9)	(14)
Hudson Valley	(45)	(47)	(76)	(47)	(64)	(98)	(51)	(48)	(53)	(27)
Millwood	0	(1)	(0)	1	(0)	0	0	(1)	0	1
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(556)	(294)	(511)	(300)	(397)	(410)	(367)	(315)	(349)	(348)
Long Island	(28)	(9)	(10)	(25)	(41)	(51)	(23)	(20)	(38)	(10)
NYCA Total	(704)	(383)	(598)	(389)	(562)	(597)	(466)	(436)	(450)	(408)

PROJECTED NOX EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

NO_X Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Central	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(0.1)	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Long Island	(0.0)	(0.0)	0.0	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)	0.0
NYCA Total	(0.2)	(0.1)	(0.0)	0.0	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)

PROJECTED CO2 EMISSIONS CHANGE (1000 Tons) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

CO_2 Emissions (1000 Tons)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(8)	0	4	1	(3)	(1)	3	3	1	5
Genesee	(2)	2	1	0	(0)	1	(1)	(1)	1	(0)
Central	(133)	(17)	1	(28)	(63)	(15)	(36)	(27)	0	(13)
North	(10)	(2)	(1)	(1)	(5)	(3)	0	(1)	3	0
Mohawk Valley	(3)	(0)	5	2	(1)	(0)	2	3	1	2
Capital	(327)	(473)	(352)	(242)	(474)	(368)	(336)	(272)	(278)	(302)
Hudson Valley	(110)	(190)	(278)	(341)	(382)	(564)	(440)	(254)	(274)	(256)
Millwood	0	0	0	0	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0	0	0	0	0
NY City	(1,160)	(958)	(870)	(868)	(719)	(742)	(837)	(816)	(727)	(743)
Long Island	(116)	(86)	(56)	(51)	(92)	(86)	(33)	(61)	(82)	(62)
NYCA Total	(1,868)	(1,725)	(1,545)	(1,529)	(1,739)	(1,777)	(1,678)	(1,427)	(1,354)	(1,370)

PROJECTED CO2 EMISSION COSTS CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

CO_2 Emissions Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	(0.0)	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0
Genesee	(0.0)	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	(0.0)
Central	(0.5)	(0.0)	0.0	(0.1)	(0.4)	(0.0)	(0.2)	(0.2)	0.1	(0.1)
North	(0.0)	0.0	0.0	0.0	(0.0)	(0.0)	0.0	(0.0)	0.0	0.0
Mohawk Valley	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital	(1.1)	(2.0)	(1.7)	(1.3)	(3.0)	(2.5)	(2.4)	(2.1)	(2.2)	(2.7)
Hudson Valley	(0.4)	(0.8)	(1.3)	(1.9)	(2.4)	(3.8)	(3.1)	(1.9)	(2.2)	(2.3)
Millwood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NY City	(3.2)	(2.9)	(2.7)	(3.2)	(3.2)	(3.5)	(4.0)	(4.2)	(3.9)	(4.7)
Long Island	(0.4)	(0.4)	(0.3)	(0.3)	(0.6)	(0.6)	(0.3)	(0.5)	(0.6)	(0.5)
NYCA Total	(5.7)	(6.1)	(5.9)	(6.7)	(9.6)	(10.4)	(10.0)	(8.8)	(8.8)	(10.2)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M) | Study 6: Central East-New Scotland-Pleasant Valley under SRS Case with EM relax | Generic Energy Efficiency Solution

Loss Costs ($M)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
West	0.6	0.4	0.5	0.8	0.5	0.7	0.4	0.9	0.5	0.5
Genesee	0.3	0.2	0.2	0.3	0.2	0.3	0.2	0.4	0.2	0.2
Central	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1
North	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mohawk Valley	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.1)	(0.0)	(0.1)
Capital	(2.9)	(2.6)	(2.8)	(3.1)	(2.9)	(3.0)	(3.0)	(2.8)	(2.5)	(2.3)
Hudson Valley	(2.5)	(2.2)	(2.1)	(2.5)	(2.8)	(2.8)	(2.7)	(3.0)	(2.8)	(2.5)
Millwood	(0.2)	(0.1)	(0.1)	(0.1)	(0.2)	(0.2)	(0.1)	(0.2)	(0.2)	(0.1)
Dunwoodie	(0.4)	(0.4)	(0.2)	(0.3)	(0.4)	(0.4)	(0.3)	(0.5)	(0.4)	(0.3)
NY City	(13.7)	(12.8)	(12.0)	(14.3)	(15.9)	(16.3)	(14.9)	(17.2)	(16.0)	(13.7)
Long Island	(1.3)	(0.9)	(0.5)	(0.9)	(1.0)	(1.0)	(0.7)	(1.2)	(0.8)	(0.5)
NYCA Total	(20.0)	(18.4)	(17.1)	(20.2)	(22.5)	(22.7)	(21.1)	(23.4)	(21.8)	(18.6)

Appendix I - Scenario Case Results

These results reflect changes in the identified metrics for 2026, only. All dollar values are presented as nominal.

PROJECTED DEMAND CONGESTION CHANGE BY ZONE ($M)

Demand Congestion ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	(6)	1	(19)	10	2	94
Genesee	0	(2)	(5)	4	6	36
Central	(0)	(1)	(10)	7	8	40
North	(0)	0	0	(0)	(0)	0
Mohawk Valley	(0)	0	3	(1)	(0)	3
Capital	(6)	4	60	(15)	(7)	75
Hudson Valley	(3)	2	28	(5)	1	69
Millwood	(1)	1	9	(1)	0	24
Dunwoodie	(1)	1	17	(3)	1	53
NY City	42	(15)	162	(38)	1	428
Long Island	20	(7)	117	(36)	(11)	123
NYCA Total	46	(16)	361	(77)	2	945

PROJECTED PRODUCTION COST CHANGE ($M)

Production Cost ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	8	(7)	114	(42)	19	(66)
Genesee	0	(1)	0	(0)	0	(0)
Central	29	(27)	(6)	1	26	(67)
North	2	(1)	1	0	0	3
Mohawk Valley	1	(1)	1	(0)	0	4
Capital	31	(41)	44	(38)	72	(93)
Hudson Valley	36	(40)	(21)	4	80	16
Millwood	0	0	0	0	0	(174)
Dunwoodie	0	0	0	0	0	0
NY City	76	(56)	255	(67)	52	(17)
Long Island	26	(27)	82	(25)	26	(54)
NYCA Total	208	(200)	471	(166)	276	(448)
NYCA Imports	67	(58)	242	(119)	(224)	(241)
NYCA Exports	(15)	24	50	2	31	353
NYCA + Imports - Exports	290	(282)	662	(287)	20	(1,042)

PROJECTED NYCA GENERATION CHANGE (GWh)

Generation (GWh)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	125	(117)	2,111	(670)	411	6,338
Genesee	4	(8)	(5)	(3)	2	236
Central	582	(575)	(841)	371	532	2,726
North	23	(15)	(8)	13	8	182
Mohawk Valley	7	(7)	2	3	5	5,292
Capital	516	(794)	(2,037)	589	1,545	3,340
Hudson Valley	598	(658)	(1,767)	822	1,449	1,543
Millwood	0	0	0	0	0	(16,668)
Dunwoodie	0	0	0	0	0	0
NY City	1,162	(939)	(1,360)	1,400	709	(409)
Long Island	431	(317)	(265)	277	452	972
NYCA Total	3,448	(3,430)	(4,171)	2,801	5,113	3,552

PROJECTED NET IMPORTS CHANGE (GWh)

Net Imports (GWh)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
PJM - NYISO	714	(677)	3,776	(2,367)	(3,784)	(6,586)
LINDEN VFT	(25)	(2)	91	(76)	(285)	138
NEPTUNE	(43)	22	185	(233)	(769)	169
HTP	110	(111)	477	(166)	(292)	1,724
ISONE - NYISO	281	(419)	(1,022)	651	932	(2,977)
CROSS SOUND CABLE	142	(80)	(31)	93	225	(247)
NORTHPORT NORWALK	105	(74)	(80)	71	156	(380)
IESO - NYISO	357	(319)	890	(789)	(1,333)	(5,608)
HQ - NYISO CHAT	0	0	0	0	0	(1)
HQ - NYISO CEDARS	0	0	0	0	0	0
TOTAL	1,641	(1,661)	4,287	(2,815)	(5,151)	(13,767)

PROJECTED GENERATOR PAYMENTS CHANGE ($M)

Generator Payment ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	20	(18)	240	(81)	43	(170)
Genesee	4	(4)	38	(15)	8	(66)
Central	39	(37)	176	(72)	77	(258)
North	7	(7)	61	(24)	20	(81)
Mohawk Valley	3	(3)	24	(9)	8	107
Capital	32	(46)	48	(27)	103	82
Hudson Valley	33	(38)	(15)	10	93	58
Millwood	4	(6)	184	(60)	47	(821)
Dunwoodie	0	(0)	2	(1)	1	(0)
NY City	94	(72)	206	(30)	113	(44)
Long Island	38	(29)	96	(27)	41	19
NYCA Total	274	(260)	1,062	(336)	554	(1,175)

PROJECTED LOAD PAYMENTS CHANGE ($M)

Load Payment ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	40	(37)	123	(50)	40	(312)
Genesee	22	(22)	79	(30)	17	(176)
Central	36	(36)	135	(54)	31	(259)
North	9	(9)	32	(13)	10	(50)
Mohawk Valley	16	(16)	60	(23)	16	(103)
Capital	26	(27)	175	(59)	24	(120)
Hudson Valley	20	(22)	114	(37)	27	(63)
Millwood	5	(6)	32	(10)	8	(9)
Dunwoodie	12	(13)	67	(22)	17	(14)
NY City	167	(145)	607	(205)	140	(164)
Long Island	77	(55)	303	(107)	43	(161)
NYCA Total	431	(387)	1,726	(609)	375	(1,431)

PROJECTED LBMPS CHANGE ($/MWh)

LBMP ($/MWh)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	1.1	(0.9)	8.0	(3.3)	2.4	(17.7)
Genesee	0.7	(0.7)	8.0	(3.2)	1.8	(15.0)
Central	0.7	(0.7)	8.3	(3.4)	1.9	(13.6)
North	0.6	(0.7)	7.1	(2.9)	2.2	(10.1)
Mohawk Valley	0.7	(0.7)	8.2	(3.2)	2.2	(11.4)
Capital	0.1	(0.2)	12.7	(4.3)	1.8	(4.5)
Hudson Valley	0.2	(0.3)	10.9	(3.7)	2.6	(1.9)
Millwood	0.2	(0.3)	11.0	(3.7)	2.6	(0.9)
Dunwoodie	0.2	(0.3)	11.0	(3.6)	2.7	(0.8)
NY City	0.8	(0.6)	11.3	(3.9)	2.6	(1.3)
Long Island	0.9	(0.6)	13.2	(4.7)	2.1	(3.0)

PROJECTED SO_2 EMISSIONS CHANGE (Tons)

SO_2 Emissions (Tons)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	174	(204)	4,585	(1,700)	573	(2,320)
Genesee	0	(0)	(0)	0	0	0
Central	1	(1)	2,312	1	116	(4)
North	0	(0)	(0)	0	0	0
Mohawk Valley	0	(0)	0	0	0	(0)
Capital	2	(1)	(4)	1	3	(6)
Hudson Valley	1	(1)	(4)	2	3	(0)
Millwood	(0)	(0)	0	0	0	(0)
Dunwoodie	0	0	0	0	0	0
NY City	7	(3)	(4)	4	2	(1)
Long Island	1	(1)	(1)	1	1	(2)
NYCA Total	186	(212)	6,883	(1,692)	699	(2,334)

PROJECTED SO_2 EMISSION COSTS CHANGE ($M)

SO_2 Emissions Costs ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	0.0	0.0	0.0	0.0	0.0	0.0
Genesee	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.0	0.0	0.0	0.0
North	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	0.0	0.0	0.0	0.0
Hudson Valley	0.0	0.0	0.0	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	0.0	0.0	0.0	0.0	0.0
Long Island	0.0	0.0	0.0	0.0	0.0	0.0
NYCA Total	0.0	0.0	0.0	0.0	0.0	0.0

PROJECTED NO_X EMISSIONS CHANGE (Tons)

NO_X Emissions (Tons)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	46	(42)	344	(480)	201	(1,007)
Genesee	1	(2)	1	(2)	1	(71)
Central	33	(35)	596	17	100	(257)
North	3	(2)	(3)	2	2	(0)
Mohawk Valley	2	(2)	(0)	0	1	3
Capital	25	(22)	(46)	16	40	(30)
Hudson Valley	25	(14)	(113)	70	158	11
Millwood	(1)	(0)	0	0	0	(1)
Dunwoodie	0	0	0	0	0	0
NY City	412	(227)	(219)	311	222	(24)
Long Island	82	(56)	(52)	72	87	(114)
NYCA Total	630	(403)	507	8	812	(1,491)

PROJECTED NO_X EMISSION COSTS CHANGE ($M)

NO_X Emissions Costs ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	0.0	0.0	0.0	(0.0)	0.0	(0.1)
Genesee	0.0	0.0	0.0	0.0	0.0	0.0
Central	0.0	0.0	0.1	0.0	0.0	(0.0)
North	0.0	0.0	0.0	0.0	0.0	0.0
Mohawk Valley	0.0	0.0	0.0	0.0	0.0	0.0
Capital	0.0	0.0	(0.0)	0.0	0.0	(0.0)
Hudson Valley	0.0	0.0	(0.0)	0.0	0.0	0.0
Millwood	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0
NY City	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)
Long Island	0.0	(0.0)	(0.0)	0.0	0.0	(0.0)
NYCA Total	0.1	(0.0)	0.0	0.0	0.1	(0.1)

PROJECTED CO_2 EMISSIONS CHANGE (1000 Tons)

CO_2 Emissions (1000 Tons)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	109	(123)	2,128	(731)	317	(1,109)
Genesee	2	(4)	(3)	(1)	1	4
Central	253	(250)	(29)	161	257	(693)
North	12	(7)	(3)	6	4	20
Mohawk Valley	4	(4)	1	2	2	24
Capital	240	(347)	(844)	251	662	(1,044)
Hudson Valley	270	(287)	(822)	388	683	(18)
Millwood	0	0	0	0	0	0
Dunwoodie	0	0	0	0	0	0
NY City	661	(485)	(710)	748	344	(128)
Long Island	258	(194)	(153)	157	240	(458)
NYCA Total	1,807	(1,701)	(435)	980	2,510	(3,402)

PROJECTED CO_2 EMISSION COSTS CHANGE ($M)

CO_2 Emissions Costs ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	1.0	(1.1)	18.8	(6.6)	2.8	(9.9)
Genesee	0.0	(0.0)	(0.0)	(0.0)	0.0	0.1
Central	2.3	(2.3)	(0.3)	1.4	2.3	(5.4)
North	0.1	(0.1)	(0.0)	0.1	0.0	0.3
Mohawk Valley	0.0	(0.0)	0.0	0.0	0.0	0.3
Capital	2.3	(3.2)	(7.4)	2.1	5.7	(8.3)
Hudson Valley	2.5	(2.7)	(7.3)	3.4	5.9	0.6
Millwood	0.0	0.0	0.0	0.0	0.0	0.0
Dunwoodie	0.0	0.0	0.0	0.0	0.0	0.0
NY City	5.0	(3.3)	(4.6)	4.4	19.4	0.1
Long Island	2.3	(1.7)	(1.3)	1.4	2.1	(4.0)
NYCA Total	15.5	(14.5)	(2.0)	6.2	38.3	(26.3)

PROJECTED DEMAND LOSS PAYMENT CHANGE ($M)

Loss Costs ($M)	High Load	Low Load	High Fuel	Low Fuel	No National CO_2	Public Policy (SRS/Transmission)
West	1.2	(1.5)	(14.6)	5.9	6.9	(17.2)
Genesee	1.5	(1.4)	(4.9)	1.8	1.2	(8.7)
Central	1.7	(1.7)	(1.6)	0.6	2.4	(12.7)
North	(0.1)	0.1	(1.4)	0.4	(0.4)	1.0
Mohawk Valley	1.0	(1.0)	1.3	(0.6)	0.6	(9.2)
Capital	2.1	(2.0)	11.3	(3.8)	0.3	(14.9)
Hudson Valley	1.4	(1.4)	5.9	(2.3)	2.4	1.2
Millwood	0.4	(0.4)	1.8	(0.7)	0.7	0.8
Dunwoodie	0.9	(1.0)	3.8	(1.5)	1.6	2.2
NY City	10.4	(11.0)	36.6	(14.4)	17.7	11.3
Long Island	5.3	(4.3)	16.7	(7.3)	3.9	(3.5)
NYCA Total	25.8	(25.6)	55.0	(21.9)	37.3	(49.7)

Appendix J - Annualized Growth Rates for the Base, Low and High Loads

These values represent the annualized-growth rates for energy and non-coincident peaks for each NYCA Load Zone from 2017 to 2026 for the "Business as Usual" case as well as the Low and High scenarios. The energy growth rates are presented as well for the New York Control Area.

Zones	Energy			Non-Coincident Peak		
	Low	Base	High	Low	Base	High
West	-0.15%	0.00%	0.13%	-0.15%	0.38%	0.83%
Genesee	-0.21%	-0.06%	0.07%	-0.07%	0.45%	0.92%
Central	-0.10%	0.05%	0.18%	-0.07%	0.45%	0.90%
North	0.09%	0.24%	0.37%	-0.20%	0.02%	0.22%
Mohawk Valley	0.04%	0.18%	0.31%	0.04%	0.54%	0.99%
Capital	0.47%	0.60%	0.73%	0.27%	0.76%	1.17%
Hudson Valley	0.12%	0.25%	0.36%	-0.24%	0.26%	0.65%
Millwood	0.12%	0.26%	0.37%	0.11%	0.59%	1.05%
Dunwoodie	-0.09%	0.06%	0.18%	0.00%	0.49%	0.96%
NY City	-0.41%	-0.26%	-0.13%	0.10%	0.61%	1.10%
Long Island	-0.31%	-0.23%	-0.05%	-0.36%	0.10%	0.59%
NYCA	-0.16%	-0.03%	0.11%	N/A	N/A	N/A

10 Krey Boulevard, Rensselaer, New York 12144

518.356.6000 ■ www.nyiso.com

Follow us: