

Introduction

New York's investor-owned electric utilities and the Long Island Power Authority (Utilities)¹ performed analyses of their local transmission and distribution (LT&D) systems in a November 2020 filing (the Utilities' Report)² pursuant to the New York Public Service Commission's (Commission) initiating order³ in this proceeding. The Utilities' Report identified representative system upgrades (identified as Phase 1 and Phase 2 projects) that are designed to support achievement of New York's climate policy goals through 2030 and made various policy proposals related to Phase 2 project implementation.⁴

On September 9, 2021, the Commission addressed the Utilities' proposed policy recommendations in its *Order on Local Transmission and Distribution Planning Process and Phase 2 Project Proposals*.⁵ Among other things, the Phase 2 Order found the Utilities' proposed investment criteria required certain modifications, and directed additional work to develop a coordinated grid planning process (which includes a revised benefit cost analysis framework, enhanced stakeholder engagement and a participant funding agreement to share CLCPA project costs across the state on a volumetric load ratio share basis). In addition, the Phase 2 Order adopted the Department of Public Service Staff's (Staff) recommended modifications to the calculation of headroom and directed the investor-owned utilities to provide updated headroom data to stakeholders.⁶

As directed in the Phase 2 Order, the Utilities continue to use a common approach to calculate capacity and energy headroom for local transmission projects. The updated estimates for each of the Utilities presented in this filing illustrate existing system limitations identified

¹ The Utilities include Central Hudson Gas & Electric Corp. (Central Hudson); Consolidated Edison Company of New York, Inc. (CECONY); Long Island Power Authority (LIPA); Niagara Mohawk Power Corporation d/b/a National Grid (National Grid); New York State Electric & Gas Corporation (NYSEG); Orange & Rockland Utilities, Inc. (O&R); and Rochester Gas and Electric Corporation (RG&E) (collectively, Utilities). Throughout this document, when referring to a single or generic company the term "utility" will not be capitalized.

² Local T&D Planning Proceeding, Utility Transmission and Distribution Investment Working Group Report (Utilities' Report), November 2, 2020.

³ Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act* (Local T&D Planning Proceeding), Order on Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act (issued May 14, 2020).

⁴ See, Climate Leadership and Community Protection Act (CLCPA). New York Public Service Law, § 66-p.

⁵ LT&D Planning Proceeding, Order on Local Transmission and Distribution Planning Process and Phase 2 Project Proposals (September 9, 2021) (Phase 2 Order).

⁶ LT&D Planning Proceeding, Phase 2 Order, pp. 3, 50.

under the methods proposed by Staff⁷ and confirmed by the Commission in the Phase 2 Order.⁸ Descriptions of system features and assumptions that have not changed since the Utilities' recent updated Headroom Calculations filings⁹ (made in February and August 2022 and in February 2023) are not included here. However, any revisions to assumptions and headroom figures are described in the sections that apply to each of the Utilities, below.

The Utilities recognize the important work required to facilitate achievement of the State's CLCPA mandates and other environmental objectives. Furthermore, the Utilities remain committed to supporting the State's leadership on environmental matters, and to meeting the purposes identified in the Phase 2 Order. The Utilities are eager to serve as the State's partner in these vital endeavors.

⁷ LT&D Planning Proceeding, Staff Straw Proposal for Conducting Headroom Assessments (March 16, 2021). Also, see LT&D Planning Proceeding, Addendum to Staff Straw Proposal for Conducting Energy Headroom Assessments (June 8, 2021).

⁸ LT&D Planning Proceeding, Phase 2 Order, p. 47.

⁹ LT&D Planning Proceeding, Utilities' Revised Headroom Calculations (February 1, 2022).

National Grid

A. Revised Headroom Study Assumptions

For this updated analysis of headroom available across the National Grid system, all approved Phase 1¹⁰ and Phase 2¹¹ (also referred to as Areas of Concern) projects have been modeled as in service for all study years.

B. Existing Capacity Headroom within National Grid's System

The headroom capacity calculations were done in accordance with the methodology discussed in the Appendix of the straw proposal for assessing local transmission capability headroom for on-ramp needs. To provide headroom data that is considerate of the interconnected local system topology, National Grid defined seven local transmission areas where the headroom was established, rather than on a broader regional basis.

¹⁰ July 2022 Order approving National Grid Phase.

¹¹ February 2023 Order approving Phase 2/AOC projects.

Table 1: Capacity Headroom in the Southwest Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Dunkirk	150	100	60	170	160	80	60	200	180	80	70	240
Laona	0	0	0	30	0	0	0	30	0	0	0	40
Moon	0	0	0	0	0	0	0	0	0	0	0	0
Falconer	200	190	140	260	210	120	150	280	230	130	150	370
Homer Hill	200	200	280	370	140	260	330	410	120	270	340	280
Five Mile	0	0	0	90	0	0	30	10	0	0	40	0
Arcade	0	0	0	0	0	0	0	0	0	0	0	20
Total	550	490	480	920	510	460	570	930	530	480	600	950

Table 2: Capacity Headroom in the Genesee Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Lockport	570	790	480	590	400	230	220	560	440	240	240	500
Batavia	280	260	270	280	280	260	270	290	280	260	280	300
Golah	460	270	410	510	470	320	440	600	490	330	450	670
Total	1,310	1,320	1,160	1,380	1,150	8,10	930	1,450	1,210	830	970	1,470

Table 3: Capacity Headroom in the East of Syracuse Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Cortland	190	200	190	240	200	220	200	250	200	210	200	100
Fenner	130	100	120	130	130	90	130	150	130	100	130	140
Oneida	140	90	120	200	100	60	150	130	90	80	140	230
Yahnundasis	200	130	170	250	200	130	180	240	200	130	200	260
Total	660	520	600	820	630	500	660	770	620	520	670	730

Table 4: Capacity Headroom in the Watertown/Oswego/Porter Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Malone	110	130	120	190	110	120	120	200	120	120	120	210
Colton	0	0	0	0	0	0	0	0	0	0	0	0
Dennison	90	10	50	0	120	20	50	170	150	10	60	230
McIntyre	60	0	30	110	50	0	30	0	70	0	30	90
Brown Falls	0	0	0	0	0	0	0	0	0	0	0	0
Taylorville	0	0	0	0	0	0	0	0	0	0	0	0
Boonville	470	310	390	580	500	340	390	710	610	310	410	990
Rome	40	0	0	40	50	0	10	70	60	0	20	140
Black River	0	0	0	0	0	0	0	0	0	0	0	0
Coffeen	0	0	0	0	0	0	0	0	0	0	0	0
Middle Rd	510	590	560	690	390	420	580	420	0	580	580	0
Lighthouse Hill	310	370	310	340	410	510	280	610	770	400	280	0
South Oswego	200	120	200	290	170	120	250	160	60	130	250	0

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Lyme	280	250	260	320	280	250	270	330	270	250	270	0
Total	2,070	1,780	1,920	2,560	2,080	1,780	1,980	2,670	2,110	1,800	2,020	1,660

Table 5: Capacity Headroom in the Porter – Rotterdam Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Watkins	0	0	0	0	0	0	0	0	0	0	0	0
Valley	30	10	20	30	40	20	30	40	30	20	30	50
Inghams Central	0	0	0	0	0	0	10	0	0	0	0	0
Inghams East	0	0	0	0	0	0	0	0	0	0	0	0
St Johnsville	0	0	0	0	0	0	0	0	0	0	0	0
Marshville	790	570	620	840	670	630	580	730	860	610	580	840
Meco	0	0	0	0	130	0	90	420	0	0	150	0
Stoner	190	130	140	180	210	180	280	150	30	220	260	0
Total	1,010	710	780	1,050	1,050	830	990	1,340	920	850	1,020	890

Table 6: Capacity Headroom in the Capital/Northeast Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Whitehall	0	0	0	0	0	0	0	0	0	0	0	0
Mohican	0	0	0	0	0	0	0	0	0	0	0	0
Battenkill	0	0	0	0	0	0	0	0	0	0	0	0
Luther Forest	0	160	0	0	0	90	0	540	120	110	0	360
Spier	0	0	0	350	0	0	100	70	200	0	90	280
Queensbury	0	0	0	0	0	0	0	0	190	0	0	60
Schaghticoke	0	0	0	0	0	0	0	0	0	0	0	0
Lasher	190	100	100	260	50	180	280	430	230	190	300	420
Total	190	260	100	610	50	270	380	1,040	740	300	390	1,120

Table 7: Capacity Headroom in the Albany South Region (MW)

Location	2030				2035				2040			
	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load	Summer Peak Load	Light Load	Shoulder Load	Winter Peak Load
Churchtown	0	0	0	0	0	0	0	90	0	0	0	40
Hudson	0	10	0	70	0	0	0	30	0	0	0	0
Schodack	160	120	110	100	160	140	110	0	150	130	110	0
North Catskill	220	40	110	280	230	0	140	370	170	20	180	400
Long Lane	70	30	70	70	70	0	70	40	70	0	70	-50
Feura Bush	120	120	120	130	120	70	120	120	120	130	120	0
Total	570	320	410	650	580	210	440	650	510	280	480	390

C. Existing Energy Headroom within National Grid’s System

The headroom energy calculations were done in accordance with the methodology discussed in the Addendum to the Staff Straw Proposal for Conducting Energy Headroom.¹² The analysis is presented for seven local transmission areas of the National Grid system.¹³

Table 8: Energy Headroom in the Southwest Region (GWh)

	Optimal Transfer (MW) ^[1]	Applicable Hours	GWh
Summer Peak 2030	550	900	495
Winter Peak 2030	920	900	828
Shoulder 2030	480	4460	2141
LL 2030	490	2500	1225
Total			4,689
Summer Peak 2035	510	900	459
Winter Peak 2035	930	900	837
Shoulder 2035	570	4460	2542
LL 2035	460	2500	1150
Total			4,988
Summer Peak 2040	530	900	477
Winter Peak 2040	950	900	855
Shoulder 2040	600	4460	2676
LL 2040	480	2500	1200
Total			5,208

Table 9: Energy Headroom in the Genesee Region (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1310	900	1179
Winter Peak 2030	1380	900	1242
Shoulder 2030	1160	4460	5174
LL 2030	1320	2500	3300
Total			10,895
Summer Peak 2035	1150	900	1035
Winter Peak 2035	1450	900	1305
Shoulder 2035	930	4460	4148

¹² See *supra*, note 7.

¹³ “Optimal Transfer,” as used throughout this Section C, represents the unconstrained operations of DER. Higher levels may be possible during Summer, Winter, and Shoulder months with periods of curtailment.

	Optimal Transfer (MW)	Applicable Hours	GWh
LL 2035	810	2500	2025
Total			8,513
Summer Peak 2040	1210	900	1089
Winter Peak 2040	1470	900	1323
Shoulder 2040	970	4460	4326
LL 2040	830	2500	2075
Total			8,813

Table 10: Energy Headroom in the East of Syracuse Region (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	660	900	594
Winter Peak 2030	820	900	738
Shoulder 2030	600	4460	2676
LL 2030	520	2500	1300
Total			5,308
Summer Peak 2035	630	900	567
Winter Peak 2035	770	900	693
Shoulder 2035	660	4460	2944
LL 2035	500	2500	1250
Total			5,454
Summer Peak 2040	620	900	558
Winter Peak 2040	730	900	657
Shoulder 2040	670	4460	2988
LL 2040	520	2500	1300
Total			5,503

Table 11: Energy Headroom in the Watertown/Oswego/Porter Region (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	2070	900	1863
Winter Peak 2030	2560	900	2304
Shoulder 2030	1920	4460	8563
LL 2030	1780	2500	4450
Total			17,180
Summer Peak 2035	2080	900	1872
Winter Peak 2035	2670	900	2403
Shoulder 2035	1980	4460	8831

	Optimal Transfer (MW)	Applicable Hours	GWh
LL 2035	1780	2500	4450
Total			17,556
Summer Peak 2040	2110	900	1899
Winter Peak 2040	1660	900	1494
Shoulder 2040	2020	4460	9009
LL 2040	1800	2500	4500
Total			16,902

Table 12: Energy Headroom in the Porter – Rotterdam Region (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1010	900	909
Winter Peak 2030	1050	900	945
Shoulder 2030	780	4460	3479
LL 2030	710	2500	1775
Total			7,108
Summer Peak 2035	1050	900	945
Winter Peak 2035	1340	900	1206
Shoulder 2035	990	4460	4415
LL 2035	830	2500	2075
Total			8,641
Summer Peak 2040	920	900	828
Winter Peak 2040	890	900	801
Shoulder 2040	1020	4460	4549
LL 2040	850	2500	2125
Total			8,303

Table 13: Energy Headroom in the Capital/Northeast Region (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	190	900	171
Winter Peak 2030	610	900	549
Shoulder 2030	100	4460	446
LL 2030	260	2500	650
Total			1,816
Summer Peak 2035	50	900	45
Winter Peak 2035	1040	900	936
Shoulder 2035	380	4460	1695

	Optimal Transfer (MW)	Applicable Hours	GWh
LL 2035	270	2500	675
Total			3,351
Summer Peak 2040	740	900	666
Winter Peak 2040	1120	900	1008
Shoulder 2040	390	4460	1739
LL 2040	300	2500	750
Total			4,163

Table 14: Energy Headroom in the Albany South Region (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	570	900	513
Winter Peak 2030	650	900	585
Shoulder 2030	410	4460	1829
LL 2030	320	2500	800
Total			3,727
Summer Peak 2035	525	525	525
Winter Peak 2035	525	525	525
Shoulder 2035	525	525	525
LL 2035	525	525	525
Total			3,594
Summer Peak 2040	510	900	459
Winter Peak 2040	390	900	351
Shoulder 2040	480	4460	2141
LL 2040	280	2500	700
Total			3,651

D. Base Case Solar and Wind Generation

The following solar and wind generators were included in study base cases.

Table 15: Base Case Solar and Wind Generation

Queue Pos.	Region	MW
0173	Southwest	72
0212	Southwest	29
0387	Southwest	127
0421	Southwest	78
0505	Southwest	100

Queue Pos.	Region	MW
0666	Southwest	20
0667	Southwest	20
0783	Southwest	270
0571	Genesee	200
0704	Genesee	100
0710	Genesee	180
0055	East of Syracuse	30
0276	East of Syracuse	90
0545	East of Syracuse	20
0805	East of Syracuse	140
0395	Watertown/Oswego/Porter	80
0531	Watertown/Oswego/Porter	104
0843	Watertown/Oswego/Porter	20
0848	Watertown/Oswego/Porter	20
0864	Watertown/Oswego/Porter	120
0156	Porter-Rotterdam	74
0495	Porter-Rotterdam	91
0564	Porter-Rotterdam	20
0565	Porter-Rotterdam	20
0581	Porter-Rotterdam	20
0586	Porter-Rotterdam	20
0618	Porter-Rotterdam	90
0619	Porter-Rotterdam	50
0638	Porter-Rotterdam	20
0670	Porter-Rotterdam	20
0682	Porter-Rotterdam	20
0748	Porter-Rotterdam	20
0865	Porter-Rotterdam	20
0885	Porter-Rotterdam	20
0730	Capital/Northeast	20
0731	Capital/Northeast	20
0734	Capital/Northeast	20
0735	Capital/Northeast	20
0807	Capital/Northeast	20
0832	Capital/Northeast	20
0833	Capital/Northeast	20
0855	Capital/Northeast	20
0570	Albany South	20
0572	Albany South	20

Queue Pos.	Region	MW
0573	Albany South	10
0598	Albany South	20
0637	Albany South	100
0644	Albany South	60

Central Hudson Gas & Electric

A. Revised Headroom Study Assumptions

Central Hudson made no revisions to the headroom methodology compared to the February 1, 2023 filing.

B. Existing Capacity Headroom within Central Hudson's System

The headroom capacity calculations were done in accordance with the methodology discussed in the Appendix of the straw proposal for assessing local transmission capability headroom for on-ramp needs.

Table 16: Central Hudson Capacity Headroom (MW)

Location	2030				2035				2040			
	Summer Peak	Light Load	Shoulder Load	Winter Peak	Summer Peak	Light Load	Shoulder Load	Winter Peak	Summer Peak	Light Load	Shoulder Load	Winter Peak
East Fishkill	316.8	0.0	316.8	369	369	0.0	316.8	369	316.8	0.0	316.8	369
Fishkill Plains	0.0	0.0	153.1	105.4	281.3	0.0	165.6	0.0	0.0	0.0	113.8	0.0
Southern Dutchess Area (Merritt Park, Forgebrook, Shenandoah, Wiccopee and Tioranda)	159.4	65.7	196.4	289.1	228.8	81.6	192.7	268.9	159.9	48.5	216.6	204.6
Mid Dutchess Area (Knapps Corners, Spackenkill, Barnegat, Sand Dock, North Chelsea and Manchester)	0.0	136.1	0.0	0.0	0.0	137.1	0.0	204.3	0.0	139.4	0.0	164.9
Myers Corners	0.0	113	42.8	0.0	0.0	112.2	0.0	0.0	0.0	113.2	0.0	0.0
P&MK (Modena 115 kV, Sturgeon Pool 115 kV, Kerhonkson, High Falls and Galeville)	161.4	160.1	133.1	0.0	139.4	114.3	57.9	13.8	163.6	132.3	116.3	47.1
Ellenville Area (Honk Falls, Greenfield Rd, Grimley Rd, Neversink)	94.8	0.0	97.6	0.0	44.6	0.0	85.1	0.0	86.7	0.0	73.9	0.0
Northwest Area (Saugerties, Woodstock, North Catskill, Coxsakie, New Baltimore, Westerlo, Freehold, South Cairo, Lawrenceville, Vinegar Hill)	280.7	158.1	248.3	321.9	377.3	160.4	285.1	380.8	298	160.4	297.4	428.8
WM Area (Maybrook, Montgomery, East Walden, Rock Tavern 69 kV, NYSEG Walden)	84.5	74.1	72.7	82.9	111.5	77.8	69.6	102.7	92.3	79.6	71.8	214.8

Location	2030				2035				2040			
	Summer Peak	Light Load	Shoulder Load	Winter Peak	Summer Peak	Light Load	Shoulder Load	Winter Peak	Summer Peak	Light Load	Shoulder Load	Winter Peak
E Line (Hibernia, Stanfordville, Smithfield, Millerton, Pulvers Corners)	32.5	63.4	18.6	93.2	103.1	64.4	81.7	104.6	32	65.3	84.3	116.3
G Line (Tinkertown)	8.4	12.8	72	16.9	19.8	13.4	10.8	0.0	19.6	14.5	12.4	0.8
A&C Lines (Todd Hill)	0.0	0.0	194.6	147	83.1	0.0	134.1	0.0	0.0	0.0	113.7	0.0
J, RD and RJ Lines (Coldenham, Bethlehem Road, Union Ave, Rock Tavern 115 kV)	359.8	107	294	461.1	378.8	69.5	290.7	496.6	412.9	213.5	298.1	551.2
HG Line (West Delaware, Neversink and East Delaware)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HP, MR and Q Line (Hurley, Lincoln Park, East Kingston, Rhinebeck, Milan, Staatsburg, East Park)	351.3	93.6	310.6	430.9	370.5	93.9	305.6	412.7	337.5	94.3	336.6	462.5
IR-OR Lines (Highland, Reynolds, Ohioville, Highland)	190.2	0.0	212	0.0	397.8	0.0	330.3	13.8	197.8	0.0	299.6	0.0
MW Line (Marlboro, West Balmville)	88.2	129.5	0.0	0.0	63.4	97.1	0.0	0.0	63.5	214.8	0.0	0.0
Pleasant Valley Area	390.5	63.8	69.2	344	73.1	62.7	128.8	461.9	408.5	64.1	155.1	487.1
I Line and O Line (Hurley 69 kV, Sturgeon 69 kV, Boulevard, Dashville)	32.8	49.2	34.2	0.0	97.9	47.9	59.7	76.3	60.1	54.3	61.8	89.5
Total	2,551.3	1,226.4	2,466	2,661.4	3,139.4	1,132.3	2,514.5	2,905.4	2,649.2	1,394.2	2,568.2	3,136.6

C. Existing Energy Headroom within Central Hudson’s System

The headroom energy calculations were completed in accordance with the methodology discussed in the Addendum to the Staff Straw Proposal for Conducting Energy Headroom.¹⁴

Table 17: Central Hudson Energy Headroom

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	2551	900	2296
Light Load 2030	1226	2500	3065
Shoulder 2030	2466	4460	10998
Winter Peak 2030	2661	900	2395
Total			18,754
Summer Peak 2035	3139	900	2825
Light Load 2035	1132	2500	2830
Shoulder 2035	2515	4460	11217
Winter Peak 2035	2905	900	2615
Total			19,487
Summer Peak 2040	2649	900	2384
Light Load 2040	1394	2500	3485
Shoulder 2040	2568	4460	11453
Winter Peak 2040	3137	900	2823
Total			20,146

D. Revised Base Case Generation

The amount of local generation for each area in the base cases are summarized below. All local renewable generation that are modelled (existing and queue projects) and available in the specific study year are switched on. Local fossil fueled generation was turned off. Generation from the NYS SIR process was assumed to be accounted for in the load.

Table 18: Central Hudson Local Generation (MW)

Location	All Study Cases (MW)
Southern Dutchess Area	0.8
Mid Dutchess Area	9.9
P&MK	2.8
Ellenville Area	50.5
Northwest Area	30.9
WM Area	20.7
J, RD and RJ Lines	200.5
I Line and O Line	16
Other local generation	0.0

¹⁴ See *supra*, note 7.

Total	332.1
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Consolidated Edison Company of New York, Inc.

A. Revised Headroom Study Assumptions

CECONY made no revisions to the headroom methodology compared to the February 1, 2023 filing.

B. Existing Capacity Headroom within CECONY's System

The headroom capacity calculations were done in accordance with the methodology discussed in the Appendix of the straw proposal for assessing local transmission capability headroom for on-ramp needs.

Table 19: Millwood / Buchanan 138 kV Transmission Load Area (MW)

	Assumed Local Generation	Millwood	Buchanan	Millwood + Buchanan
Summer Peak 2030	50.60	360	350	710
Winter Peak 2030/3	52.90	390	350	740
Shoulder 2030	50.60	380	330	710
LL 2030	52.90	340	300	640
Summer Peak 2035	50.60	380	350	730
Winter Peak 2035/3	52.90	420	360	780
Shoulder 2035	50.60	390	340	740
LL 2035	52.90	340	290	630
Summer Peak 2040	50.60	380	350	740
Winter Peak 2040/4	52.90	450	390	840
Shoulder 2040	50.60	400	340	750
LL 2040	52.90	350	290	640

Table 20: Eastview 138 kV TLA (MW)

	Assumed Local Generation	Eastview
Summer Peak 2030	0	1750
Winter Peak 2030	0	1800
Shoulder 2030	0	1760
LL 2030	0	1590
Summer Peak 2035	0	1800
Winter Peak 2035	0	1900
Shoulder 2035	0	1790
LL 2035	0	1620
Summer Peak 2040	0	1840
Winter Peak 2040	0	2020
Shoulder 2040	0	1820
LL 2040	0	1640

Table 21: Dunwoodie North / Sherman Creek 138 kV Transmission Load Area (MW)*

	Assumed Local Generation	Dunwoodie North
Summer Peak 2030	0	1400
Winter Peak 2030	0	1470
Shoulder 2030	0	1300
LL 2030	0	1330
Summer Peak 2035	0	1470
Winter Peak 2035	0	1370
Shoulder 2035	0	1270
LL 2035	0	1370
Summer Peak 2040	0	1490
Winter Peak 2040	0	1500
Shoulder 2040	0	1390
LL 2040	0	1390

* Injection at Dunwoodie South may lower NYC Import Capability

Table 22: Dunwoodie South 138 kV Transmission Load Area (MW)*

	Assumed Local Generation	Dunwoodie South
Summer Peak 2030	0	1310
Winter Peak 2030	0	1240
Shoulder 2030	0	1230
LL 2030	0	1260
Summer Peak 2035	0	1320
Winter Peak 2035	0	1390
Shoulder 2035	0	1230
LL 2035	0	1280
Summer Peak 2040	0	1320
Winter Peak 2040	0	1510
Shoulder 2040	0	1410
LL 2040	0	1300

* Injection at Dunwoodie South may lower NYC Import Capability

Table 23: The Bronx 138 kV Transmission Load Area (MW)*

	Assumed Local Generation	Sherman Creek	East 179 th Street	Sherman Creek East + 179 th Street
Summer Peak 2030	0	360	800	1160
Winter Peak 2030/31	0	460	760	1230
Shoulder 2030	0	460	760	1230
LL 2030	0	370	820	1190
Summer Peak 2035	0	520	740	1260
Winter Peak 2035/36	0	500	820	1320
Shoulder 2035	0	440	780	1220
LL 2035	0	420	780	1210
Summer Peak 2040	0	510	830	1350
Winter Peak 2040/41	0	520	900	1430
Shoulder 2040	0	500	820	1330
LL 2040	0	430	790	1220

* Injection at East 179th Street and/or Sherman Creek may lower NYC Import Capability

Table 24: Astoria West / Queensbridge 138 kV Transmission Load Area (MW)

	Assumed Local Generation	Astoria West	Queensbridge	Astoria West + Queensbridge
Summer Peak 2030	1226.2	90	0	90
Winter Peak 2030/31	1286.6*	0	0	0
Shoulder 2030	1284.9*	0	0	0
LL 2030	1226.2*	0	0	0
Summer Peak 2035	1226.2	230	0	230
Winter Peak 2035/36	1286.6*	50	0	50
Shoulder 2035	1284.9*	0	0	0
LL 2035	1226.2*	0	0	0
Summer Peak 2040	1226.2	380	0	380
Winter Peak 2040/41	1286.6	790	0	790
Shoulder 2040	1284.9*	0	0	0
LL 2040	1226.2*	0	0	0

* Not all Assumed Local Generation can be committed w/o overloading outlet feeders

Table 25: Astoria East / Corona 138 kV Transmission Load Area (MW)

	Assumed Local Generation	Astoria East	Corona	Astoria East + Corona
Summer Peak 2030	756.8	80	1440	1520
Winter Peak 2030/31	839.5	30	1410	1440
Shoulder 2030	756.8	130	960	1090
LL 2030	839.5	0	800	800
Summer Peak 2035	756.8	80	1470	1560
Winter Peak 2035/36	839.5	60	1550	1620
Shoulder 2035	756.8	370	750	1130
LL 2035	839.5	0	840	840
Summer Peak 2040	756.8	90	1480	1570
Winter Peak 2040/41	839.5	110	1520	1630
Shoulder 2040	756.8	630	530	1160
LL 2040	839.5	0	860	860

Table 26: Vernon / Queensbridge 138 kV Transmission Load Area (MW)

	Assumed Local Generation	Vernon
Summer Peak 2030	1108.2	40
Winter Peak 2030	1164.4*	0
Shoulder 2030	1108.2*	0
LL 2030	1114.4*	0
Summer Peak 2035	1108.2	220
Winter Peak 2035	1164.4	50
Shoulder 2035	1108.2*	0
LL 2035	1114.4*	0
Summer Peak 2040	1108.2	350
Winter Peak 2040	1164.4	840
Shoulder 2040	1108.2*	0
LL 2040	1114.4*	0

* Not all Assumed Local Generation can be committed w/o overloading outlet feeders.

Table 27: Jamaica 138 kV Transmission Load Area (MW)

	Assumed Local Generation	Jamaica
Summer Peak 2030	105.5	300
Winter Peak 2030	114.8	320
Shoulder 2030	105.5	230
LL 2030	114.8	230
Summer Peak 2035	105.5	320
Winter Peak 2035	114.8	390
Shoulder 2035	105.5	250
LL 2035	114.8	260
Summer Peak 2040	105.5	370
Winter Peak 2040	114.8	590
Shoulder 2040	105.5	260
LL 2040	114.8	270

Table 28: East 13th Street 138 kV Transmission Load Area (MW)

	Assumed Local Generation	East 13th Street
Summer Peak 2030	638.8	2030
Winter Peak 2030	726.5	1680
Shoulder 2030	638.8	1400
LL 2030	726.5	1060
Summer Peak 2035	638.8	2040
Winter Peak 2035	726.5	2150
Shoulder 2035	638.8	1470
LL 2035	726.5	1080
Summer Peak 2040	638.8	2110
Winter Peak 2040	726.5	2670
Shoulder 2040	638.8	1500
LL 2040	726.5	1120

Table 29: Greenwood / Fox Hills 138 kV Transmission Load Area (MW)

	Assumed Local Generation	Greenwood
Summer Peak 2030	79.9	100
Winter Peak 2030	830.3*	30
Shoulder 2030	79.9	50
LL 2030	830.3*	0
Summer Peak 2035	79.9	150
Winter Peak 2035	830.3*	60
Shoulder 2035	79.9	40
LL 2035	830.3*	0
Summer Peak 2040	79.9	200
Winter Peak 2040	830.3	550
Shoulder 2040	79.9	30
LL 2040	830.3*	0

* Not all Assumed Local Generation can be committed w/o overloading outlet feeders.

Table 30: Staten Island 138 kV Transmission Load Area (MW)

	Assumed Local Generation*	Fresh Kills
Summer Peak 2030	352.1	0
Winter Peak 2030	359.3	0
Shoulder 2030	352.1	0
LL 2030	359.3	0
Summer Peak 2035	352.1	0
Winter Peak 2035	359.3	0
Shoulder 2035	352.1	0
LL 2035	359.3	0
Summer Peak 2040	352.1	0
Winter Peak 2040	359.3	0
Shoulder 2040	352.1	0
LL 2040	359.3	0

* Not all Assumed Local Generation can be committed w/o overloading outlet feeders.

C. Existing Energy Headroom within CECONY's System

The headroom energy calculations were done in accordance with the methodology discussed in the Addendum to the Staff Straw Proposal for Conducting Energy Headroom.¹⁵

¹⁵ See *supra*, note 7.

Table 31: Millwood / Buchanan 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	710	900	630
Winter Peak 2030	740	900	660
Shoulder 2030	710	4460	3160
LL 2030	640	2500	1600
Total			6,050
Summer Peak 2035	730	900	650
Winter Peak 2035	780	900	700
Shoulder 2035	740	4460	3300
LL 2035	630	2500	1570
Total			6,220
Summer Peak 2040	740	900	660
Winter Peak 2040	840	900	750
Shoulder 2040	750	4460	3340
LL 2040	640	2500	1600
Total			6,350

Table 32: Eastview 138 kV TLA (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1750	900	1570
Winter Peak 2030	1800	900	1620
Shoulder 2030	1760	4460	7840
LL 2030	1590	2500	3970
Total			15,000
Summer Peak 2035	1800	900	1620
Winter Peak 2035	1900	900	1710
Shoulder 2035	1790	4460	7980
LL 2035	1620	2500	4050
Total			15,360
Summer Peak 2040	1840	900	1650
Winter Peak 2040	2020	900	1810
Shoulder 2040	1820	4460	8110
LL 2040	1640	2500	4100
Total			15,670

Table 33: Dunwoodie North / Sherman Creek 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1400	900	1260
Winter Peak 2030	1470	900	1320
Shoulder 2030	1300	4460	5790
LL 2030	1330	2500	3320
Total			11,690
Summer Peak 2035	1470	900	1320
Winter Peak 2035	1370	900	1230
Shoulder 2035	1270	4460	5660
LL 2035	1370	2500	3420
Total			11,630
Summer Peak 2040	1490	900	1340
Winter Peak 2040	1500	900	1350
Shoulder 2040	1390	4460	6190
LL 2040	1390	2500	3470
Total			12,350

Table 34: Dunwoodie South 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1310	900	1170
Winter Peak 2030	1240	900	1110
Shoulder 2030	1230	4460	5480
LL 2030	1260	2500	3150
Total			10,910
Summer Peak 2035	1320	900	1180
Winter Peak 2035	1390	900	1250
Shoulder 2035	1230	4460	5480
LL 2035	1280	2500	3200
Total			11,110
Summer Peak 2040	1320	900	1180
Winter Peak 2040	1510	900	1350
Shoulder 2040	1410	4460	6280
LL 2040	1300	2500	3250
Total			12,060

Table 35: The Bronx 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1160	900	1040
Winter Peak 2030	1230	900	1100
Shoulder 2030	1230	4460	5480
LL 2030	1190	2500	2970
Total			10,590
Summer Peak 2035	1260	900	1130
Winter Peak 2035	1320	900	1180
Shoulder 2035	1220	4460	5440
LL 2035	1210	2500	3020
Total			10,770
Summer Peak 2040	1350	900	1210
Winter Peak 2040	1430	900	1280
Shoulder 2040	1330	4460	5930
LL 2040	1220	2500	3050
Total			11,470

Table 36: Astoria West / Queensbridge 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	90	900	80
Winter Peak 2030	0	900	0
Shoulder 2030	0	4460	0
LL 2030	0	2500	0
Total			80
Summer Peak 2035	230	900	200
Winter Peak 2035	50	900	40
Shoulder 2035	0	4460	0
LL 2035	0	2500	0
Total			240
Summer Peak 2040	380	900	340
Winter Peak 2040	790	900	710
Shoulder 2040	0	4460	0
LL 2040	0	2500	0
Total			1,050

Table 37: Astoria East / Corona 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	1520	900	1360
Winter Peak 2030	1440	900	1290
Shoulder 2030	1090	4460	4860
LL 2030	800	2500	2000
Total			9,510
Summer Peak 2035	1560	900	1400
Winter Peak 2035	1620	900	1450
Shoulder 2035	1130	4460	5030
LL 2035	840	2500	2100
Total			9,980
Summer Peak 2040	1570	900	1410
Winter Peak 2040	1630	900	1460
Shoulder 2040	1160	4460	5170
LL 2040	860	2500	2150
Total			10,190

Table 38: Vernon / Queensbridge 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	40	900	30
Winter Peak 2030	0	900	0
Shoulder 2030	0	4460	0
LL 2030	0	2500	0
Total			30
Summer Peak 2035	220	900	190
Winter Peak 2035	50	900	40
Shoulder 2035	0	4460	0
LL 2035	0	2500	0
Total			230
Summer Peak 2040	350	900	310
Winter Peak 2040	840	900	750
Shoulder 2040	0	4460	0
LL 2040	0	2500	0
Total			1,060

Table 39: Jamaica 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	300	900	270
Winter Peak 2030	320	900	280
Shoulder 2030	230	4460	1020
LL 2030	230	2500	570
Total			2,140
Summer Peak 2035	320	900	280
Winter Peak 2035	390	900	350
Shoulder 2035	250	4460	1110
LL 2035	260	2500	650
Total			2,390
Summer Peak 2040	370	900	330
Winter Peak 2040	590	900	530
Shoulder 2040	260	4460	1150
LL 2040	270	2500	670
Total			2,680

Table 40: East 13th Street 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	2030	900	1820
Winter Peak 2030	1680	900	1510
Shoulder 2030	1400	4460	6240
LL 2030	1060	2500	2650
Total			12,220
Summer Peak 2035	2040	900	1830
Winter Peak 2035	2150	900	1930
Shoulder 2035	1470	4460	6550
LL 2035	1080	2500	2700
Total			13,010
Summer Peak 2040	2110	900	1890
Winter Peak 2040	2670	900	2400
Shoulder 2040	1500	4460	6690
LL 2040	1120	2500	2800
Total			13,780

Table 41: Greenwood / Fox Hills 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	100	900	90
Winter Peak 2030	30	900	20
Shoulder 2030	50	4460	220
LL 2030	0	2500	0
Total			330
Summer Peak 2035	150	900	130
Winter Peak 2035	60	900	50
Shoulder 2035	40	4460	170
LL 2035	0	2500	0
Total			350
Summer Peak 2040	200	900	180
Winter Peak 2040	550	900	490
Shoulder 2040	30	4460	130
LL 2040	0	2500	0
Total			800

Table 42: Staten Island 138 kV Transmission Load Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	0	900	0
Winter Peak 2030	0	900	0
Shoulder 2030	0	4460	0
LL 2030	0	2500	0
Total			0
Summer Peak 2035	0	900	0
Winter Peak 2035	0	900	0
Shoulder 2035	0	4460	0
LL 2035	0	2500	0
Total			0
Summer Peak 2040	0	900	0
Winter Peak 2040	0	900	0
Shoulder 2040	0	4460	0
LL 2040	0	2500	0
Total			0

Orange and Rockland Utilities, Inc.

A. Revised Headroom Study Assumptions

The headroom calculations are based on the 2023 NYISO FERC Form 715 filing database cases and the information provided within the 2023 NYISO Load and Capacity Data (“Gold Book”). The database was modified to establish the 2030, 2035, and 2040 Summer Peak base cases per Gold Book Coincident Summer Peak Demand by Zone – MW (see Table I-3a) and 2030, 2035, and 2040 Winter Peak base cases per Gold Book Coincident Winter Peak Demand by Zone – MW (see Table I-3b). Light Load base cases were also created for the study years, using the FERC 715 Light Load case as a starting point, and maintaining the demand by zone as a percentage of the Summer Peak case for that same year. The Shoulder load base cases were created using 70% of the Summer Peak load. The 2023 FERC 715 Cases modified to adjust to year 2030, 2035 & 2040 Light Load, Winter, and Summer Peak cases. The O&R system loads in 2023 NYISO FERC Form 715 filing database cases have changed from the 2022 NYISO FERC Form 715 filing database cases.

Instead of Gold Book MW data, O&R used its own summer peak load forecast. The reason behind is that the ratio of the O&R New York Summer Peak load forecast over the NYCA Summer peak load is 1.05. Based on this ratio, it is assumed that the O&R New York forecast is basically the same as the NYCA forecast. The same ratio is assumed for Winter and Light Load conditions. The Shoulder load is assumed to be 70% of Summer load. The resulting O&R net system load for the PSSE cases are summarized in Table 43 below.

Table 43: O&R Net System Load (MW)

Study Year	SUMMER (Net MW)	WINTER (Net MW)	SHOULDER (Net MW)	LIGHT LOAD (Net MW)
2030	1560	1008	1116	442
2035	1610	1074	1189	471
2040	1810	1356	1503	596

The term “Net MW” implies that there are load modifiers in each load buses in the O&R system. These load modifiers are modeled in the PSSE cases and the basis of the DER buses when determining the headroom capacity. In addition, O&R’s Distribution Engineering has a list of hosting capacity limits per station. These limits become the maximum generation available in the DER buses modeled in the PSSE cases.

The 2023 NYISO FERC Form 715 filing database and the modified 2030, 2035, and 2040 Summer Peak and Winter Peak base case were not altered for any additional generation resource additions nor additional transmission expansion projects beyond the projected system topology that was established within the FERC Form 715 filing database, unless a project has

become firm since the creation of the base cases. The cases, however, were modified with minor corrections and to model the load modifiers at the stations or load buses.

B. Existing Capacity Headroom within O&R's System

For the existing headroom capacity calculations, O&R used the methodology discussed in the Appendix of the NYPSC's straw proposal for assessing local transmission capability headroom. O&R's existing capacity headroom (in MW) are summarized in Table 44 below:

Table 44: O&R Capacity Headroom – 2030, 2035, and 2040 (MW)

Station	2030 Light Load	2030 Winter	2030 Shoulder	2030 Summer	2030 DER Gen MW	2035 Light Load	2035 Winter	2035 Shoulder	2035 Summer	2035 DER Gen MW	2040 Light Load	2040 Winter	2040 Shoulder	2040 Summer	2040 DER Gen MW
Blooming Grove	38	38	38	38	13	35.7	35.7	35.7	35.7	15.3	35.7	35.7	35.7	35.7	15.3
Bloomingburg	0	0	0	0	1.1	0	0	0	0	1.1	0	0	0	0	1.1
Blue Lake	11.6	11.6	11.6	11.6	0.5	11.5	11.5	11.5	11.5	0.6	11.5	11.5	11.5	11.5	0.6
Bulville	6.7	6.7	6.7	6.7	26.3	4.6	4.6	4.6	4.6	28.4	4.6	4.6	4.6	4.6	28.4
Burns	31.5	31.5	31.5	31.5	5.8	29.7	29.7	29.7	29.7	7.6	29.7	29.7	29.7	29.7	7.6
Chester	0	0	0	0	38.7	0	0	0	0	38.7	0	0	0	0	38.7
Congers	23.1	23.1	23.1	23.1	10.1	20.4	20.4	20.4	20.4	12.8	20.4	20.4	20.4	20.4	12.8
Corporate Dr.	14.6	14.6	14.6	14.6	1	14.3	14.3	14.3	14.3	1.3	14.3	14.3	14.3	14.3	1.3
Cuddebackville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dean	9.6	9.6	9.6	9.6	0.5	9.5	9.5	9.5	9.5	0.6	9.5	9.5	9.5	9.5	0.6
Deerpark	2.4	2.4	2.4	2.4	8.9	2.2	2.2	2.2	2.2	9.1	2.2	2.2	2.2	2.2	9.1
East Walkill	2.6	2.6	2.6	2.6	14.7	1.1	1.1	1.1	1.1	16.2	1.1	1.1	1.1	1.1	16.2
Harriman	27.2	27.2	27.2	27.2	6.7	25.5	25.5	25.5	25.5	8.4	25.5	25.5	25.5	25.5	8.4
Hartley	0	0	0	0	27.7	0	0	0	0	27.7	0	0	0	0	27.7
Highland Falls	5.1	5.1	5.1	5.1	0.9	5	5	5	5	1	5	5	5	5	1
Hilburn	0	5.7	0	0	2.5	5.4	5.4	5.4	5.4	2.8	5.4	5.4	5.4	5.4	2.8
Hunt	7.9	7.9	7.9	7.9	6.3	6.6	6.6	6.6	6.6	7.6	6.6	6.6	6.6	6.6	7.6
Little Tor	2.4	2.4	2.4	2.4	1.5	2.1	2.1	2.1	2.1	1.8	2.1	2.1	2.1	2.1	1.8
Matamoras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mongaup	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Monroe	25.9	25.9	25.9	25.9	18	22.8	22.8	22.8	22.8	21.1	22.8	22.8	22.8	22.8	21.1
Monsey	26.8	26.8	26.8	26.8	1.9	26.1	26.1	26.1	26.1	2.6	26.1	26.1	26.1	26.1	2.6

Station	2030 Light Load	2030 Winter	2030 Shoulder	2030 Summer	2030 DER Gen MW	2035 Light Load	2035 Winter	2035 Shoulder	2035 Summer	2035 DER Gen MW	2040 Light Load	2040 Winter	2040 Shoulder	2040 Summer	2040 DER Gen MW
Nanuet	16.4	16.4	16.4	16.4	5	15.3	15.3	15.3	15.3	6.1	15.3	15.3	15.3	15.3	6.1
New Hempstead	29.4	29.4	29.4	29.4	11.5	26.2	26.2	26.2	26.2	14.7	26.2	26.2	26.2	26.2	14.7
Orangeburg	28.3	28.3	28.3	28.3	6.6	27.1	27.1	27.1	27.1	7.8	27.1	27.1	27.1	27.1	7.8
Otisville	0	0	0	0	5.3	0	0	0	0	5.3	0	0	0	0	5.3
Port Jervis	1	1	1	1	4.5	0.4	0.4	0.4	0.4	5.1	0.4	0.4	0.4	0.4	5.1
Q575_G1	0	0	8.5	8.5	12.5	12.5	12.5	9.3	9.3	3.2	12.5	12.5	9.3	9.3	3.2
Ringwood	14.3	14.3	14.3	14.3	0.6	14	14	14	14	0.9	14	14	14	14	0.9
Rio	0	0	0	0	0.1	0	0	0	0	0.1	0	0	0	0	0.1
Shoemaker	0	11.2	0	0	11.2	9.3	9.3	9.3	9.3	13.1	9.3	9.3	9.3	9.3	13.1
Silverlake	33	33	33	33	11.4	31.3	31.3	31.3	31.3	13.1	31.3	31.3	31.3	31.3	13.1
Sloatsburg	14	14	14	14	1.1	13.6	13.6	13.6	13.6	1.5	13.6	13.6	13.6	13.6	1.5
Snake Hill	24.6	24.6	24.6	24.6	5	23.3	23.3	23.3	23.3	6.3	23.3	23.3	23.3	23.3	6.3
South Goshen	0	0	0	0	5.7	0	0	0	0	5.7	0	0	0	0	5.7
Sparkill	18.9	18.9	18.9	18.9	1.2	18.6	18.6	18.6	18.6	1.5	18.6	18.6	18.6	18.6	1.5
Sterling Forest	6.1	6.1	6.1	6.1	0.2	6	6	6	6	0.3	6	6	6	6	0.3
Stonypoint	20.1	20.1	20.1	20.1	7.1	18.3	18.3	18.3	18.3	8.9	18.3	18.3	18.3	18.3	8.9
Summitville	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Swinging Bridge	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tallman	33.7	33.7	33.7	33.7	5.6	32.4	32.4	32.4	32.4	6.9	32.4	32.4	32.4	32.4	6.9
Washington Heights	0	0	0	0	11.9	0	0	0	0	11.9	0	0	0	0	11.9
West Haverstraw	30.4	30.4	30.4	30.4	9	28	28	28	28	11.4	28	28	28	28	11.4
West Milford	19.4	19.4	19.4	19.4	6.4	17.8	17.8	17.8	17.8	8	17.8	17.8	17.8	17.8	8

Station	2030				2030	2035				2035	2040				2040
	Light Load	Winter	Shoulder	Summer	DER Gen MW	Light Load	Winter	Shoulder	Summer	DER Gen MW	Light Load	Winter	Shoulder	Summer	DER Gen MW
West Nyack	31.7	31.7	31.7	31.7	4.5	30.9	30.9	30.9	30.9	5.3	30.9	30.9	30.9	30.9	5.3
Westtown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Wisner	0	0	0	0	17	0	0	0	0	17	0	0	0	0	17
Wurtsboro	0	0	0	0	0.5	0	0	0	0	0.5	0	0	0	0	0.5
Grand Total	556.7	573.6	565.2	565.2	330	547.5	547.5	544.3	544.3	359.3	547.5	547.5	544.3	544.3	359.3

C. Existing Energy Headroom within O&R's System

For the existing energy headroom calculations, O&R used the methodology discussed in the Appendix of the NYPSC's straw proposal for assessing local transmission capability headroom. O&R's existing energy headroom (in Nameplate AC MWHR) are summarized in Table 45 below:

Table 45: O&R's Existing Energy Headroom

	Optimal Transfer ¹⁶	Applicable Hours	GWh
Summer Peak 2030	565	900	509
Winter Peak 2030	574	900	517
Shoulder 2030	565	4460	2520
LL 2030	557	2500	1393
Total			4,939
Summer Peak 2035	544	900	490
Winter Peak 2035	548	900	493
Shoulder 2035	544	4460	2426
LL 2035	548	2500	1370
Total			4,779
Summer Peak 2040	544	900	490
Winter Peak 2040	548	900	493
Shoulder 2040	544	4460	2426
LL 2040	548	2500	1370
Total			4,779

¹⁶ Optimal Transfer represents the unconstrained operation of DER. Higher levels may be possible during Summer, Winter, and Shoulder months with periods of curtailment.

AVANGRID NY (NYSEG & RG&E)

A. Revised Headroom Study Assumptions

AVANGRID's headroom calculation methodology for this filing was broadly consistent with that used in the February 1, 2023, filing. A key change from the previous headroom filing is that numerous Phase 2 projects in the Hornell and Elmira Area of Concern ("Z1") were added to the case following Commission approval. The following is the list of all Phase 1 and Phase 2 projects included in the analysis:

Phase 1 (included in last filing)

Binghamton

- Oakdale 345/230/115/34.5/12 kV and Goudey/Westover 115/34.5/4.8 kV Substation Upgrades
- 115 kV Line 962 Full Rebuild
- Lounsberry 115/12.5 kV Substation Full Rebuild
- 115 kV Line 961 Full Rebuild

Ithaca

- 115 kV Line 982 Full Rebuild
- Etna 115/34.5/4.8 kV Substation Rebuild¹⁷
- Coddington 115/34.5 kV Substation Upgrades¹⁸
- Clarks Corners 345/115 kV Substation Upgrades

Lancaster

- Stolle Road 345/230/115/34.5 kV Substation Upgrades¹⁹

Oneonta

- Jennison 115/46 kV Substation Upgrades
- 115 kV Line 946 Full Rebuild

¹⁷ Some scope components of the proposed project were not deemed "qualified" by the Commission for CLCPA Phase 1 in the December 15, 2022 Order. These projects are being re-evaluated based on this determination. For this headroom analysis, only "qualified scope components were included.

¹⁸ See *supra*, note 14.

¹⁹ See *supra*, note 14.

Phase 2 (Hornell and Elmira Area of Concern)

230 kV Line Upgrades

- 230 kV Line 68 Full Rebuild
- 230 kV Line 69 Full Rebuild
- 230 kV Line 72 Full Rebuild
- 230 kV Line 67 Full Rebuild

115 kV Line Upgrades

- 115 kV Line 932 Power Flow Control Device & Structure Replacements
- 115 kV Line 723 Full Rebuild
- 115 kV Line 953 Full Rebuild
- 115 kV Line 965 Full Rebuild
- 115 kV Line 711 Full Rebuild
- 115 kV Line 712 Full Rebuild
- 115 kV Line 935 Full Rebuild
- 115 kV Line 722 Full Rebuild
- 115 kV Line 724 Full Rebuild
- 115 kV Line 968 Full Rebuild
- 115 kV Line 978 Full Rebuild
- 115 kV Line 963 Partial Rebuild
- 115 kV Line 906 Full Rebuild
- 115 kV Line 934 Full Rebuild

34.5 kV Line Upgrades

- 34.5 kV Line 539 Partial Rebuild
- 34.5 kV Line 542 Full Rebuild
- 34.5 kV Line 546 Partial Rebuild
- 34.5 kV Line 565 Full Rebuild

Substation Rebuilds and Expansions

- Stoney Ridge Transformer Replacement
- Hickling 115/34.5 kV Substation Rebuild
- Eelpot 115 kV Substation Expansion
- Greenidge 115 kV Substation Upgrades
- Bath 115/34.5 kV Substation Rebuild
- Bennett 115/34.5 kV Substation Expansion and Upgrades
- Watercure 345/230/115 kV Substation Expansion
- Hillside 230/115/34.5 kV Substation Upgrades
- Montour Falls 115/34.5 kV Substation Rebuild
- Additional Minor Substation Terminal Upgrades

B. Existing Capacity Headroom within AVANGRID's System

The following tables list the capacity headroom calculated for AVANGRID's system. This was determined for years 2030, 2035, and 2040 under Heavy, Light, Shoulder, and Winter load scenarios. The most limiting load level is identified with an asterisk (*) for each year.

It is notable that the system load reflected in the 2040 Winter Peak scenario is significantly higher than in the 2030 scenario. As a result, it was observed that some areas became load constrained, causing a reduction in headroom.

Table 46: Auburn (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load	Shoulder Load*	Winter Load	Heavy Load	Light Load	Shoulder Load*	Winter Load	Heavy Load	Light Load	Shoulder Load*	Winter Load
State St 115 kV	330	315	285	450	340	240	165	455	405	155	290	270
Wright Ave 115 kV	80	10	55	80	105	90	195	130	120	175	70	300
Clinton Corners 115 kV	85	25	20	0	75	70	70	0	0	55	95	0
Capacity Headroom (MW)	350				400				385			

Table 47: Berkshire (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load	Shoulder Load*	Winter Load	Heavy Load	Light Load	Shoulder Load*	Winter Load	Heavy Load	Light Load	Shoulder Load*	Winter Load
Craryville 115 kV	65	50	5	65	60	40	50	20	60	40	50	25
Klinekill 115 kV	0	0	30	0	0	0	0	0	0	0	0	0
Mulberry St 115 kV	135	100	115	110	125	100	110	110	130	100	115	120
Stephentown 115 kV	45	45	45	50	45	40	45	50	45	40	45	50
Fallspark 115 kV	400	385	335	445	395	380	310	460	400	375	300	475
North Salem 115 kV	25	20	35	20	20	15	20	20	20	15	20	5
Wynantskill 115 kV	160	155	155	160	155	165	145	155	160	165	145	155
Capacity Headroom (MW)	720				680				675			

Table 48: Binghamton (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load*	Light Load	Shoulder Load	Winter Load	Heavy Load	Light Load	Shoulder Load	Winter Load*
Oakdale 115 kV	1185	845	980	1385	940	1345	1,480	1095	830	1340	1480	435
South Owego 115 kV	50	20	35	0	60	20	35	0	45	20	40	15
Lounsberry 115 kV	335	335	335	355	335	335	335	375	335	335	340	390
Kattelville 115 kV	15	10	10	20	15	10	15	25	20	10	15	170
Langdon Rd 115 kV	100	0	0	50	230	0	0	280	250	0	0	300
Capacity Headroom (MW)	1,210				1,580				1,310			

Table 49: Brewster (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Carmel 115 kV	270	85	105	115	235	70	100	205	215	75	210	135
Katonah 115 kV	335	75	200	125	335	60	280	380	280	60	315	375
Pawling 115 kV	170	80	115	115	180	80	120	135	185	80	120	165
Wood St 115 kV	500	500	500	500	500	500	500	500	500	500	500	500
Goldens Bridge 115 kV	35	220	130	270	25	195	55	35	0	200	25	60
Tilly Foster 115 kV	5	100	40	150	5	140	30	30	60	140	25	85
Union Valley 115 kV	0	75	120	35	0	50	135	80	0	50	30	115
Capacity Headroom (MW)	1,135				1,095				1,105			

Table 50: Geneva (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Border City 115 kV	40	40	130	50	35	95	105	0	50	95	105	0
Flat St 115 kV	370	300	245	390	385	250	245	425	375	245	235	450
Haley Rd 115 kV	0	0	0	0	0	5	20	0	0	10	20	0
Guardian Rd 115 kV	0	0	5	0	0	5	5	0	0	5	5	0
Hyatt 115 kV	165	165	170	195	180	160	170	200	175	165	175	205
Greenidge 115 kV	0	0	0	0	0	0	0	0	0	0	0	0
Macedon 115 kV	60	60	60	70	60	60	60	70	60	60	60	70
Capacity Headroom (MW)	695				670				695			

Table 51: Genesee Valley (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Station 158 34.5 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Station 171 34.5 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Station 179 (Houghton) 34.5 kV	28.9	26.3	27.6	28.1	28.9	26.8	28.6	41.3	29.2	27	28.9	46.9
Station 247 34.5 kV	41.2	32.3	36.2	50	41.5	38.7	46.5	50	42.6	39.4	47.8	50
Station 8373 34.5 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	0.3	0.0	0.0	10.3
Capacity Headroom (MW)	59				66				66			

Table 52: Gowanda (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Cold Spring Rd 115 kV	50	40	45	50	50	40	45	55	50	40	50	60
Silver Creek 115 kV	210	210	210	245	210	210	210	245	210	210	210	245
Capacity Headroom (MW)	250				250				250			

Table 53: Hornell, Elmira & Bath (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Bath 115 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eel Pot 115 kV	0.0	0.0	0.0	450	0.0	0.0	0.0	200	0.0	0.0	0.0	95
Hickling Station 115 kV	55	0.0	5	0.0	120	0.0	0.0	0.0	130	0.0	0.0	0.0
Meyer 115 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Montour Falls 115 kV	190	10	65	215	120	110	250	355	160	100	255	415
Moraine Rd 115 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stoney Ridge 115 kV	500	460	500	500	445	480	500	500	450	485	500	500
Sullivan Park 115 kV	0.0	0.0	0.0	165	0.0	0.0	40	215	0.0	0.0	50	255
Erwin 115 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
West Erie 115 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bennett 115 kV	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100	-100
Palimeter 115 kV	20	20	25	10	15	15	10	15	15	15	10	15
South Perry 115 kV	0.0	40	60	0.0	0.0	0.0	5	0.0	0.0	0.0	5	0.0
Indeck 115 kV	50	75	75	0.0	0.0	35	75	0.0	0.0	25	75	0.0
Spencer Hill 115 kV	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Station 128	175	155	165	5	5	160	170	5	5	160	175	10
Station 158	0.0	0.0	0.0	205	175	0.0	0.0	190	160	0.0	0.0	200
Watercure 115 kV	500	500	500	500	500	500	500	500	500	500	500	500
Capacity Headroom	1,160				1,200				1,185			

Note: The -100 MW of headroom at Bennett corresponds to an approximately 25% curtailment of the generation located at the station. This simulated curtailment materially improved the calculated optimal headroom in this region. Curtailment of less than 30% of nameplate capacity is consistent with Avangrid’s as-designed “Limited Curtailment” Area of Concern solution set.

Table 54: Ithaca (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Clarks Corners 115 kV	315	195	290	360	285	305	380	355	160	315	415	425
Milliken 115 kV	300	285	290	345	305	290	215	350	305	290	200	290
Willet 115 kV	0	80	0	50	0	65	60	70	0	65	40	25
Candor 115 kV	40	40	40	40	40	40	40	40	40	40	40	40
Etna 115 kV	80	0	20	95	85	40	160	130	75	45	180	165
Coddington 115 kV	370	355	370	420	385	340	355	435	375	340	360	460
Cornell Tap 115 kV	15	0	125	15	160	5	10	20	160	5	10	25
East Ithaca 115 kV	155	130	0	185	0	145	160	195	0	145	160	185
Candor 34.5 kV	30	25	25	30	30	25	25	30	30	25	25	35
Capacity Headroom (MW)	1,110				1,255				1,145			

Table 55: Lancaster (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Stolle Rd 345 kV	910	420	510	920	955	915	935	995	1025	925	940	1080
Stolle Rd 115 kV	275	500	480	220	235	185	220	165	200	185	220	100
Cobble Hill 115 kV	25	15	20	25	25	15	25	25	25	15	25	30
Cobble Hill 34.5 kV	0	0	0	0	0	0	0	0	0	0	0	0
Davis St 115 kV	95	80	80	155	100	80	85	175	115	80	80	150
Davis St 34.5 kV	45	50	50	50	40	50	50	45	40	50	50	45
Girdle Rd 115 kV	20	5	10	5	20	0	5	10	25	0	5	20
Girdle Rd 34.5 kV	50	50	50	50	50	50	50	50	50	50	50	50
Jamison 34.5 kV	45	40	40	50	45	40	40	50	45	40	40	50
South Colden 34.5 kV	0	0	0	0	0	5	0	0	0	5	0	0
Capacity Headroom (MW)	1,160				1,340				1,350			

Table 56: Liberty (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Coopers Corners 115 kV	30	5	15	35	85	5	20	100	55	10	25	50
Hazel 115 kV	0	0	0	0	0	0	0	0	0	0	0	0
Shortcut Rd 115 kV	135	125	130	135	135	125	130	140	140	125	130	145
West Woodbourne 115 kV	0	0	0	0	5	0	0	5	15	0	0	0
Ferndale 115 kV	70	45	55	75	25	45	65	30	60	45	75	165
Mountaindale 115 kV	5	0	0	0	5	0	5	0	10	0	5	50
Rock Hill 115 kV	125	105	120	135	125	120	125	140	125	125	125	25
Capacity Headroom (MW)	280				295				305			

Table 57: Lockport (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Robinson Rd 115 kV	70	30	50	35	120	15	75	270	245	15	40	270
Harris Radiator 115 kV	310	280	290	340	260	260	245	130	145	260	290	140
Chestnut Rd 34.5 kV	0	0	0	0	0	0	0	0	0	0	0	0
Mill St 34.5 kV	10	0	0	10	10	0	0	15	15	0	0	40
Robinson Rd 34.5 kV	20	5	15	20	20	0	10	25	20	5	10	5
Capacity Headroom (MW)	315				275				280			

Table 58: Oneonta (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Brothertown Rd 115 kV	0	0	0	45	0	0	0	20	20	0	0	0
County Line 115 kV	0	0	0	0	30	0	10	25	0	0	20	40
Colliers 115 kV	0	0	0	0	0	0	0	0	0	0	0	0
Colliers Bus 1 46 kV	0	0	0	15	0	0	0	105	20	0	5	0
Colliers Bus 2 46 kV	0	0	0	0	0	0	0	0	0	0	0	15
East Norwich 115 kV	170	115	135	0	60	125	30	130	85	125	30	135
East Norwich 46 kV	0	10	20	0	80	0	50	45	70	0	40	80
East Springfield 115 kV	65	65	75	50	105	30	60	135	110	30	110	105
Fraser 115 kV	240	100	150	500	225	215	245	230	210	220	220	225
Jennison 115 kV	230	200	200	0	220	195	225	105	200	200	215	0
Jennison 46 kV	0	0	0	0	0	0	0	0	0	0	0	170
Sidney Tap 115 kV	0	0	0	0	0	0	0	0	0	0	0	50
Grand Gorge 115 kV	10	5	5	35	10	5	10	35	10	5	15	35
Hancock 115 kV	90	70	80	0	90	70	80	100	95	70	85	0
Windham 115 kV	135	130	130	160	135	130	130	160	135	130	130	160
Morris 46 kV	0	0	0	40	10	0	40	60	45	0	40	60
Pierce Ave 46 kV	0	0	0	0	0	0	0	0	0	0	0	170
Delhi Co-op 46 kV	45	40	40	55	45	40	45	55	45	40	45	60
Capacity Headroom (MW)	735				810				820			

Table 59: Plattsburgh (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load	Heavy Load	Light Load*	Shoulder Load	Winter Load
Barton Brook 115 kV	55	45	50	50	55	45	45	50	55	45	50	55
Chateaugay 115 kV	0	0	0	0	0	0	0	0	0	0	0	0
Chateaugay Tap 115 kV	35	20	25	50	35	20	35	50	40	25	35	55
Sciota Flatrock 115 kV	0	0	0	0	0	0	0	0	0	0	0	0
Hallock Hill 115 kV	25	0	30	65	35	0	30	70	35	0	30	65
Lyon Mountain 115 kV	130	130	130	160	130	130	130	160	130	130	130	160
Ashley Rd 115 kV	0	0	0	0	0	0	0	0	0	0	0	0
Northend 115 kV	90	65	70	130	90	60	75	140	95	60	75	145
Masons Corners 115 kV	130	125	130	170	135	110	130	180	135	115	130	185
Capacity Headroom (MW)	385				365				375			

Table 60: Rochester (MW)

Location	2030				2035				2040			
	Heavy Load	Light Load	Shoulder Load	Winter Load*	Heavy Load	Light Load	Shoulder Load*	Winter Load	Heavy Load	Light Load	Shoulder Load*	Winter Load
Station 168 (Farmington) Bus 1 115 kV	95	105	5	0	135	10	0	50	150	0	0	210
Station 168 (Farmington) Bus 2 115kV	175	185	100	115	180	190	120	205	165	190	100	170
Station 127 (Hook Rd) 115 kV	235	210	300	285	240	185	235	195	245	190	235	185
Station 113 115 kV	60	265	305	370	325	265	295	370	325	265	300	85
Station 71 115 kV	285	0	0	10	20	0	0	30	30	0	0	350
Station 13A 115 kV	0	85	125	220	0	85	0	15	0	90	0	150
Station 122 (Pannel) 115 kV	500	500	500	185	500	500	265	500	435	500	220	490
Station 121 115 kV	345	295	335	405	165	300	400	205	0	305	405	0
Capacity Headroom (MW)	1,590				1,315				1,260			

C. Existing Energy Headroom within AVANGRID’s System

The energy headroom calculations were done in accordance with the methodology discussed in the Addendum to the Staff Straw Proposal for Conducting Energy Headroom.²⁰

Table 61: Hours per Year in Each Load Level

Description		Applicable Yearly Hours
Summer Peak	An average of summer peak hours	900
Winter Peak	An average of winter peak hours	900
Shoulder Load	Shoulder month load hours	4460
Light Load	Low load hours	2500
Total		8,760

Table 62: Auburn Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	495	900	446
2030 Light Load	350	2500	875
2030 Shoulder Load	360	4460	1606
2030 Winter Load	530	900	477
2030 Total			3,400
2035 Summer Load	520	900	468
2035 Light Load	400	2500	1000
2035 Shoulder Load	430	4460	1918
2035 Winter Load	585	900	527
2035 Total			3,910
2040 Summer Load	525	900	473
2040 Light Load	385	2500	963
2040 Shoulder Load	455	4460	2029
2040 Winter Load	570	900	513
2040 Total			3,980

²⁰ See *supra*, note 7.

Table 63: Berkshire Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	830	900	747
2030 Light Load	755	2500	1888
2030 Shoulder Load	720	4460	3211
2030 Winter Load	850	900	765
2030 Total			6,610
2035 Summer Load	800	900	720
2035 Light Load	740	2500	1,850
2035 Shoulder Load	680	4460	3033
2035 Winter Load	815	900	734
2035 Total			6,340
2040 Summer Load	815	900	734
2040 Light Load	735	2500	1838
2040 Shoulder Load	675	4460	3011
2040 Winter Load	830	900	747
2040 Total			6,330

Table 64: Binghamton Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	1685	900	747
2030 Light Load	1210	2500	1888
2030 Shoulder Load	1360	4460	3211
2030 Winter Load	1810	900	765
2030 Total			12,240
2035 Summer Load	1580	900	720
2035 Light Load	1710	2500	1,850
2035 Shoulder Load	1865	4460	3033
2035 Winter Load	1775	900	734
2035 Total			15,610
2040 Summer Load	1480	900	734
2040 Light Load	1705	2500	1838
2040 Shoulder Load	1875	4460	3011
2040 Winter Load	1310	900	747
2040 Total			15,140

Table 65: Brewster Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	1315	900	1184
2030 Light Load	1135	2500	2838
2030 Shoulder Load	1210	4460	5397
2030 Winter Load	1310	900	1179
2030 Total			10,600
2035 Summer Load	1280	900	1152
2035 Light Load	1095	2500	2738
2035 Shoulder Load	1220	4460	5441
2035 Winter Load	1365	900	1229
2035 Total			10,560
2040 Summer Load	1240	900	1116
2040 Light Load	1105	2500	2763
2040 Shoulder Load	1225	4460	5464
2040 Winter Load	1435	900	1292
2040 Total			10,630

Table 66: Geneva Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	735	900	662
2030 Light Load	695	2500	1738
2030 Shoulder Load	780	4460	3479
2030 Winter Load	880	900	792
2030 Total			6,670
2035 Summer Load	740	900	666
2035 Light Load	670	2500	1675
2035 Shoulder Load	740	4460	3300
2035 Winter Load	830	900	747
2035 Total			6,390
2040 Summer Load	710	900	639
2040 Light Load	695	2500	1738
2040 Shoulder Load	715	4460	3189
2040 Winter Load	780	900	702
2040 Total			6,270

Table 67: Genesee Valley Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	70	900	63
2030 Light Load	59	2500	147
2030 Shoulder Load	64	4460	285
2030 Winter Load	78	900	70
2030 Total			560
2035 Summer Load	70	900	63
2035 Light Load	66	2500	164
2035 Shoulder Load	75	4460	335
2035 Winter Load	95	900	85
2035 Total			650
2040 Summer Load	72	900	65
2040 Light Load	66	2500	166
2040 Shoulder Load	77	4460	342
2040 Winter Load	107	900	96
2040 Total			670

Table 68: Gowanda Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	260	900	234
2030 Light Load	250	2500	625
2030 Shoulder Load	255	4460	1137
2030 Winter Load	295	900	266
2030 Total			2,260
2035 Summer Load	260	900	234
2035 Light Load	250	2500	625
2035 Shoulder Load	255	4460	1137
2035 Winter Load	300	900	270
2035 Total			2,270
2040 Summer Load	260	900	234
2040 Light Load	250	2500	625
2040 Shoulder Load	260	4460	1160
2040 Winter Load	305	900	275
2040 Total			2,290

Table 69: Hornell, Elmira & Bath Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	1390	900	1251
2030 Light Load	1160	2500	2900
2030 Shoulder Load	1295	4460	5776
2030 Winter Load	1950	900	1755
2030 Total			11,680
2035 Summer Load	1280	900	1152
2035 Light Load	1200	2500	3000
2035 Shoulder Load	1450	4460	6467
2035 Winter Load	1880	900	1692
2035 Total			12,310
2040 Summer Load	1320	900	1188
2040 Light Load	1185	2500	2963
2040 Shoulder Load	1470	4460	6556
2040 Winter Load	1890	900	1701
2040 Total			12,410

Table 70: Ithaca Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	1305	900	1175
2030 Light Load	1110	2500	2775
2030 Shoulder Load	1160	4460	5174
2030 Winter Load	1540	900	1386
2030 Total			10,510
2035 Summer Load	1290	900	1161
2035 Light Load	1255	2500	3138
2035 Shoulder Load	1405	4460	6266
2035 Winter Load	1625	900	1463
2035 Total			12,030
2040 Summer Load	1145	900	1031
2040 Light Load	1270	2500	3175
2040 Shoulder Load	1430	4460	6378
2040 Winter Load	1650	900	1485
2040 Total			12,070

Table 71: Lancaster Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	1465	900	1319
2030 Light Load	1160	2500	2900
2030 Shoulder Load	1240	4460	5530
2030 Winter Load	1475	900	1328
2030 Total			11,080
2035 Summer Load	1470	900	1323
2035 Light Load	1340	2500	3350
2035 Shoulder Load	1410	4460	6289
2035 Winter Load	1515	900	1364
2035 Total			12,330
2040 Summer Load	1525	900	1373
2040 Light Load	1350	2500	3375
2040 Shoulder Load	1410	4460	6289
2040 Winter Load	1525	900	1373
2040 Total			12,410

Table 72: Liberty Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	365	900	329
2030 Light Load	280	2500	700
2030 Shoulder Load	320	4460	1427
2030 Winter Load	380	900	342
2030 Total			2,800
2035 Summer Load	380	900	342
2035 Light Load	295	2500	738
2035 Shoulder Load	345	4460	1539
2035 Winter Load	415	900	374
2035 Total			2,990
2040 Summer Load	405	900	365
2040 Light Load	305	2500	763
2040 Shoulder Load	360	4460	1606
2040 Winter Load	435	900	392
2040 Total			3,120

Table 73: Lockport Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	410	900	369
2030 Light Load	315	2500	788
2030 Shoulder Load	355	4460	1583
2030 Winter Load	405	900	365
2030 Total			3,100
2035 Summer Load	410	900	369
2035 Light Load	275	2500	688
2035 Shoulder Load	330	4460	1472
2035 Winter Load	440	900	396
2035 Total			2,920
2040 Summer Load	425	900	383
2040 Light Load	280	2500	700
2040 Shoulder Load	340	4460	1516
2040 Winter Load	455	900	410
2040 Total			3,010

Table 74: Oneonta Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	985	900	887
2030 Light Load	735	2500	1838
2030 Shoulder Load	835	4460	3724
2030 Winter Load	900	900	810
2030 Total			7,260
2035 Summer Load	1010	900	909
2035 Light Load	810	2500	2025
2035 Shoulder Load	925	4460	4126
2035 Winter Load	1205	900	1085
2035 Total			8,140
2040 Summer Load	1045	900	941
2040 Light Load	820	2500	2050
2040 Shoulder Load	955	4460	4259
2040 Winter Load	1305	900	1175
2040 Total			8,420

Table 75: Plattsburgh Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	465	900	419
2030 Light Load	385	2,500	963
2030 Shoulder Load	435	4,460	1,940
2030 Winter Load	625	900	563
2030 Total			3,880
2035 Summer Load	480	900	432
2035 Light Load	365	2,500	913
2035 Shoulder Load	445	4,460	1,985
2035 Winter Load	650	900	585
2035 Total			3,910
2040 Summer Load	490	900	441
2040 Light Load	375	2,500	938
2040 Shoulder Load	450	4,460	2,007
2040 Winter Load	665	900	599
2040 Total			3,980

Table 76: Rochester Energy Headroom (GWh)

Load Level	Optimal Transfer (MW)	Applicable Hours	Energy Headroom (GWh)
2030 Summer Load	1695	900	1526
2030 Light Load	1645	2,500	4113
2030 Shoulder Load	1670	4460	7448
2030 Winter Load	1590	900	1431
2030 Total			14,520
2035 Summer Load	1565	900	1409
2035 Light Load	1535	2500	3838
2035 Shoulder Load	1315	4460	5865
2035 Winter Load	1570	900	1413
2035 Total			12,520
2040 Summer Load	1350	900	1215
2040 Light Load	1540	2500	3850
2040 Shoulder Load	1260	4460	5620
2040 Winter Load	1640	900	1476
2040 Total			12,160

D. Base Case Generation

The following generation and storage was set to 100% of its nameplate in order to determine the remaining headroom available in each District. Fossil generation in the area was turned off.

Table 77: Existing Generation in Avangrid Footprint

District	Name	Type	Nearest POI	MW
Berkshire	KCE NY 1-Stillwater	Energy Storage	Luther Forest 34 kV	+/- 22.3
Berkshire	Q735	Solar	Luther Forest 115 kV	20.3
Berkshire	Q807	Solar	Eastover Rd	40
Binghamton	Queue 768	Solar	Willet 34 kV	40
Elmira	Queue 617	Solar	Bath 115 kV	54
Genesee Valley	Queue 863	Solar	Station 158 34.5 kV	20
Geneva	Queue 720	Solar	Border City 115 kV	80
Hornell	Canandaigua	Wind	Canandaigua 230 kV	125
Hornell	Howard Wind	Wind	Spencer Hill 115 kV	55.4
Hornell	Marsh Hill	Wind	Marsh Hill 34 kV	16.2
Hornell	High Sheldon	Wind	High Sheldon 230 kV	118.1
Hornell	Stoney Creek	Wind	Stoney Creek 230 kV	93.9
Hornell	Wethersfield	Wind	Wethersfield 230 kV	126
Hornell	Eight Point Wind	Wind	Bennett 115 kV	111.2
Hornell	Queue 519	Wind	Bennett 115 kV	302.4
Lancaster	Queue 759	Energy Storage	Gardenville 115 kV	+/- 20
Lancaster	Queue 505	Wind	Dunkirk 230 kV	100
Lancaster	Queue 596	Wind	East Stolle 345 kV	340.2
Lancaster/Rochester	Queue 721	Solar	Station 255 345 kV	280.3
Lockport	Queue 704	Solar	Lockport 115 kV	103
Oneonta	Queue 706	Wind	East Norwich 115 kV	25.2
Oneonta	Queue 784	Energy Storage	East Norwich 115 kV	+/- 5
Oneonta	Munnsville	Wind	Munnsville 46 kV	34.5
Oneonta	Madison Wind	Wind	County Line 115 kV	11.6
Oneonta	Queue 579	Wind	Stilesville 115 kV	46
Plattsburgh	Queue 769	Energy Storage	Willis 115 kV	+/- 20
Rochester	Ginna Nuclear	Nuclear	Ginna 115	580

Long Island Power Authority (LIPA)

A. Revised Headroom Study Assumptions

LIPA’s headroom calculation methodology for this filing was broadly consistent with that used in the February 1, 2023 filing. Several LIPA Local non-BES projects have been added to the base cases. These Projects and descriptions are indicated below in Table 78.

Table 78: Summary of LIPA local, non-BES projects included for this assessment

Local Area	Project Name
Central	New 69kV Brooklyn Ave Substation
East of Holbrook	New 69kV circuit between Terryville and Flowerfield Substations.
	East of Buell 23 kV to 33 kV Conversion
	New 69 kV Bridgehampton to Buell Circuit
	69kV Canal to Deerfield Double Circuit Reconfiguration
	New 138 kV (operating at 69 kV) Southampton to Deerfield Circuit

In addition, Shore Road 138kV and Pilgrim 138kV substations have also been included in this assessment. For this filing, the analysis also considered the Sunrise Wind project in service, a 924 MW offshore wind farm currently planned to interconnect to LIPA’s 138kV Holbrook substation (East of Holbrook Region).

B. Existing Capacity Headroom within LIPA’s System

The headroom capacity calculations were done in accordance with the methodology discussed in the Appendix of the straw proposal for assessing local transmission capability headroom for on-ramp needs.²¹ The analysis is presented for four local transmission areas of the LIPA system and illustrated below in Table 79, Table 80, Table 81, and Table 82.

²¹ See *supra*, note 7.

Table 79: Capacity Headroom in the Far Rockaway Area (MW)

Substation	2030				2035				2040			
	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load
Far Rockaway 69kV	170	190	150	70	180	250	110	130	140	10	30	140

Table 80: Capacity Headroom in the West of Newbridge Area (MW)

Substation	2030				2035				2040			
	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load
Glenwood 69kV	200	90	0	0	240	130	10	0	220	30	0	0
Whiteside 69kV	140	0	10	10	140	0	0	0	60	0	30	0
East Garden City 138kV	0	0	0	0	0	330	0	0	60	520	0	0
Shore Road 138kV	0	0	0	0	0	0	0	0	110	0	0	0
Total	340	90	10	10	380	460	10	0	450	550	30	0

Table 81: Capacity Headroom in the Central Area (MW)

Substation	2030				2035				2040			
	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load
West Babylon 69kV	0	0	0	0	0	0	0	0	0	0	0	0
Pulaski 69kV	0	0	0	0	0	0	0	0	0	0	0	0
Ruland Road 138kV	0	160	360	0	160	730	0	0	230	520	0	0
Pilgrim 138kV	350	0	50	0	480	70	170	10	470	220	0	0
Total	350	160	410	0	640	800	170	10	700	740	0	0

Table 82: Capacity Headroom in the East of Holbrook Area (MW)

Substation	2030				2035				2040			
	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load	Summer Peak	Winter Peak	Shoulder	Light Load
Shoreham 138kV	0	0	0	0	0	0	0	0	0	0	0	0
Port Jeff 138kV	0	0	0	0	0	0	0	0	0	0	0	0
Holtsville GT 69kV	0	0	0	0	0	0	0	0	0	0	0	0
West Bus 138kV	0	0	0	0	0	0	0	0	0	0	0	0
Canal 138kV	0	0	0	0	0	0	0	0	0	0	0	0
Eastport 69kV	0	0	0	0	0	0	0	0	0	0	0	0
Wildwood 69kV	0	0	0	0	0	0	0	0	0	0	0	0
Navy Road 33kV	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0

C. Existing Energy Headroom within LIPA’s System

The headroom energy calculations were done in accordance with the methodology discussed in the Addendum to the Staff Straw Proposal for Conducting Energy Headroom.²² The analysis is presented for four local transmission areas of the LIPA system.

Table 83: Energy Headroom in the Far Rockaway Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	170	900	153
Winter Peak 2030	190	900	171
Shoulder 2030	150	4460	669
Light Load 2030	70	2500	175
Total			1,024
Summer Peak 2035	180	900	162
Winter Peak 2035	250	900	225
Shoulder 2035	110	4460	491
Light Load 2035	130	2500	325
Total			1,050
Summer Peak 2040	140	900	126
Winter Peak 2040	10	900	9
Shoulder 2040	30	4460	134
Light Load 2040	140	2500	350
Total			619

Table 84: Energy Headroom in the West of Newbridge Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	340	900	306
Winter Peak 2030	90	900	81
Shoulder 2030	10	4460	45
Light Load 2030	10	2500	25
Total			457
Summer Peak 2035	380	900	342
Winter Peak 2035	460	900	414
Shoulder 2035	10	4460	45
Light Load 2035	0	2500	0
Total			801
Summer Peak 2040	450	900	405

²² See *supra*, note 7.

	Optimal Transfer (MW)	Applicable Hours	GWh
Winter Peak 2040	550	900	495
Shoulder 2040	30	4460	134
Light Load 2040	0	2500	0
Total			1,034

Table 85: Energy Headroom in the Central Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	350	900	315
Winter Peak 2030	160	900	144
Shoulder 2030	410	4460	1829
Light Load 2030	0	2500	0
Total			2,288
Summer Peak 2035	640	900	576
Winter Peak 2035	800	900	720
Shoulder 2035	170	4460	758
Light Load 2035	10	2500	25
Total			2,079
Summer Peak 2040	700	900	630
Winter Peak 2040	740	900	666
Shoulder 2040	0	4460	0
Light Load 2040	0	2500	0
Total			1,296

Table 86: Energy Headroom in the East of Holbrook Area (GWh)

	Optimal Transfer (MW)	Applicable Hours	GWh
Summer Peak 2030	0	900	0
Winter Peak 2030	0	900	0
Shoulder 2030	0	4460	0
Light Load 2030	0	2500	0
Total			0
Summer Peak 2035	0	900	0
Winter Peak 2035	0	900	0
Shoulder 2035	0	4460	0
Light Load 2035	0	2500	0
Total			0
Summer Peak 2040	0	900	45
Winter Peak 2040	0	900	0
Shoulder 2040	0	4460	0
Light Load 2040	0	2500	0
Total			0