Electric Marginal Cost of Service Study

December 9, 2025

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Purpose

This document describes the electric Marginal Cost of Service ("MCOS") Study prepared by PSEG Long Island on behalf of the Long Island Power Authority ("LIPA" or "the Authority"), in reference to the August 19, 2024 *Order Addressing Marginal Cost of Service Studies* of the New York State Public Service Commission ("Commission") in Cases 19-E-0283 and 15-E-0751 ("MCOS Order").[1]

The purpose of a marginal cost of service study is to determine the incremental cost to provide an incremental megawatt ("MW") of capacity on the LIPA's distribution system. Marginal cost includes capital costs and operating costs. The costs are presented as an annual revenue requirement; that is, once the initial capital cost and the ongoing operating costs are determined, the annual revenue requirement needed to provide a return on capital and operating costs can be determined.

Consistent with the MCOS Order, PSEG Long Island, on behalf of LIPA, performed a marginal cost study to develop location specific avoided distribution costs. PSEG Long Island utilized its latest 8-year, fiscal year ("FY") 2025 to 2032, capital investment plan. PSEG Long Island's planned capital expenditures were based on its forecasted load requirements. The load forecasts utilize PSEG Long Island's 8-year Electric Peak Forecast, developed annually, with the most recent forecast issued for the 2025 budget process.

Capital Projects

The MCOS Study base input is the capital investment plan for the period of time between 2025 and 2032. PSEG Long Island identified the capacity enabled by each project and the corresponding total cost including risk and contingency. This resulted in a portfolio of 30 discrete substation and line projects. In many instances, projects need to be executed in conjunction with one another to enable any expansion of system capacity. Assets were put into four (4) "Asset Classes" including Transmission Station ("T-Station"), Transmission Line ("T-Line"), Distribution Station ("D-Station") and Distribution Line ("D-Line"). The portfolio of projects included in this analysis totals $600 million.

[1] Cases 19-E-0283 et al., *Proceeding on Motion of the Commission to Examine Utilities' Marginal Cost of Service Studies*, Order Addressing Marginal Cost of Service Studies (issued August 19, 2024) ("MCOS Order").

Capital Cost per Capacity Added MW

For each of the assets identified, the individual projects were summarized, as provided in Exhibit 1, to determine the following:

- Location
- Asset Class
- In service date
- Capacity Added for the project.
- Capital spending for those projects and the spending for those projects with risk and contingency.
- Cost per MVA
- Total Capital spending over the period, broken out by asset class: T-Station, T-Line, D-Station, D-Line

This information was used to compute capital cost per MW of Capacity Added for each component (T-Station, T-Line, D-Station, D-Line), These values are equal to Total Capital spending for each component, divided by Capacity Added.

Marginal Cost: Revenue Requirement per Capacity Added MW

PSEG Long Island multiplied i) capital cost per MVA of Capacity Added by component by the Economic Carrying Charge Rate ("ECCR") for that component

The ECCR is a rate that is applied to a capital cost in order to determine the annual revenue requirement needed to provide return on capital, return of capital, and operating costs.

The following inputs are used in computing the ECCR:

- Return on capital and return of capital:
  - Weighted average cost of capital and weighted return on equity
  - Book: Depreciation life
- Operating costs:
  - Revenue Taxes
  - Insurance as a percentage of Plant

The rate base applicable to the asset is determined for each year, based on original cost, depreciation, and accumulated. A return on rate base is determined cost of capital. Annual depreciation expenses are computed. Finally, operating expenses are computed. The annual revenue requirement is the sum of return on and of capital and operating expenses.

The ECCRs for each component of assets included in the MCOS are shown below. The percentages are multiplied by the original capital cost to determine annual revenue requirement.

Transmission	4.79%
Distribution	5.02%

Other Revenue Requirement Loaders.

The Cost of Capital multiplied by ECCR is then load for other Revenue Requirement component, such as O&M, A&G and General Plant.

- Plant Loaders:
    - General Plant Adder as a percentage of Plant Additions at 2.9%
- Operating costs Loaders:
    - Operation & Maintenance (“O&M"), which includes working capital and administrative and general (“A&G”) expenses as percent of Plant at:
        - 3.4% for Transmission
        - 8.9% for Distribution

Exhibits

Exhibit 1	MCOS Results
Exhibit 2	Capital Spending and Cost per MW
Exhibit 3	Economic Carrying Charge Rates
Exhibit 3-OM	O&M Costs
Exhibit 3-Tax	Other Taxes Applicable to Plant

Exhibit 1 MCOS Results

PSEG LONG ISLAND LLC
Marginal Cost of Service Study
Demand Investment

	Rate Class	Rate Code	Transmission/ Subtransmission (1)	Primary/ Secondary Distribution (1)	O&M + Economic Carrying Charge Rate (2) - Transmission	O&M + Economic Carrying Charge Rate (2) - Distribution	Marginal Cost of Serice for New Growth Projects
	(A)	(B)	(C) per kW	(D) per kW	(F)	(G)	(C*F + D*G)
1	Residential Non Time of Use (TOU)	SC No. 1	$ 563.17	$ 721.12	8.2%	13.9%	
2	Residential Heat	SC No. 1	$ 563.17	$ 721.12	8.2%	13.9%	
3	Residential Time of Day (TOD)	SC No. 1 VMRP	$ 563.17	$ 721.12	8.2%	13.9%	
4	Small Commercial	SC No. 2 & No. 2 VMRP	$ 563.17	$ 721.12	8.2%	13.9%	
5	Large Commercial	SC No. 2-L, SC No. 2-H & SC No. 2L-VMRP	$ 563.17	$ 721.12	8.2%	13.9%	
6	Mandatory Large Demand Metered Service with Multiple Rate Periods (below 500KW)	SC No. 2 MRP	$ 563.17	$ 721.12	8.2%	13.9%	
7	Mandatory Large Demand Metered Service with Multiple Rate Periods (above 500KW)	SC No. 2 MRP	$ 563.17	$ 721.12	8.2%	13.9%	**$146.90**
8	Cost of the Next System kW						
9	Note:						
10	(1) Costs are Escalated into 2025 using a ten year Compound Growth Rate of the Handy-Whitman Index						
11	(2) Ecomomic Carrying Charge Model includes, O&M, Taxes, and Insurance						

Capital Project List Screened

SOS ID	Location	Category	Voltage Level or T or D	Asset Class	In-Service Date	Load Capacity (MVA)	Total Project Cost w/out R&C	Total Project Cost w/ R&C	Cost per MVA
2446	Locust Grove	Load Growth	D	D-Feeders	11/27/2024	2.5	$ 2,523,022	$ 2,523,022	$ 1,009,209
2226	Elwood	Load Growth	D	D-Feeders	12/31/2024	30.0	$ 11,884,196	$ 11,884,196	$ 396,140
2235	Woodmere	Load Growth	D	D-Feeders	12/31/2024	5.0	$ 2,841,567	$ 2,841,567	$ 568,313
2069	Bridgehampton	Load Growth	D	D-Substation	3/31/2025	33.0	$ 13,465,283	$ 13,465,283	$ 408,039
1545	Hither Hills	Load Growth	T&D	T-Substation	5/30/2025	13.0	$ 20,664,012	$ 20,664,012	$ 1,589,539
2238	Arverne	Load Growth	D	D-Feeders	6/2/2025	10.0	$ 4,862,714	$ 4,862,714	$ 486,271
2143	Belmont	Load Growth	T&D	T-Substation	6/30/2025	157.0	$ 53,557,134	$ 53,557,134	$ 341,128
2316	Syosset	Load Growth	D	D-Feeders	8/1/2025	10.0	$ 10,518,324	$ 10,518,324	$ 1,051,832
2334	Tech Park	Load Growth	D	D-Feeders	12/1/2025	10.0	$ 12,132,295	$ 12,132,295	$ 1,213,230
1940	Miller Place	Load Growth	T&D	T-Substation	12/9/2025	33.0	$ 19,534,126	$ 19,652,864	$ 595,541
1476	Bridgehampton	Load Growth	T&D	T-Substation	12/15/2025	125.0	$ 53,120,906	$ 63,071,819	$ 504,575
2086	Ocean Beach	Load Growth	D	D-Feeders	12/31/2025	3.5	$ 8,415,793	$ 8,415,793	$ 2,404,512
1540	North Bellmore	Load Growth	T&D	T-Substation	6/3/2026	33.0	$ 22,503,469	$ 26,143,099	$ 792,215
1986	Southampton	Load Growth	T&D	T-Substation	12/31/2026	145.0	$ 57,538,676	$ 68,483,565	$ 472,300
2486	Port Jefferson	Load Growth	D	D-Feeders	12/31/2026	10.0	$ 10,705,531	$ 13,313,539	$ 1,331,354
2589	Locust Grove	Load Growth	D	D-Feeders	6/1/2027	10.0	$ 2,300,000	$ 2,300,000	$ 230,000
2583	Moriches	Load Growth	T&D	T-Substation	6/15/2027	14.0	$ 1,574,039	$ 2,099,058	$ 149,933
1822	Deerfield	Load Growth	T&D	T-Substation	6/30/2027	112.0	$ 2,785,220	$ 2,976,112	$ 26,572
2510	East Hampton Village	Load Growth	D	D-Feeders	6/1/2028	10.0	$ 10,213,670	$ 13,078,838	$ 1,307,884
2245	Arverne	Load Growth	D	D-Feeders	6/15/2028	10.0	$ 5,421,450	$ 6,734,361	$ 673,436
1041	New South Road	Load Growth	T&D	T-Substation	6/30/2028	33.0	$ 18,741,050	$ 20,819,535	$ 630,895
2588	Lindbergh	Load Growth	T&D	T-Substation	6/30/2028	46.6	$ 60,000,000	$ 60,000,000	$ 1,287,554
1103	Wildwood	Load Growth	D	D-Substation	6/1/2029	19.0	$ 13,211,835	$ 17,734,835	$ 933,412
2512	Quogue Substation	Load Growth	T&D	T-Substation	6/1/2029	41.0	$ 19,010,340	$ 24,847,421	$ 606,035
1102	Peconic	Load Growth	T&D	T-Substation	6/1/2029	39.5	$ 9,892,660	$ 13,396,950	$ 339,163
2244	Arverne	Load Growth	D	D-Feeders	6/30/2025	10.0	$ 3,092,668	$ 3,092,668	$ 309,267
2330	Arverne	Load Growth	T&D	T-Substation	6/28/2030	56.0	$ 61,088,880	$ 80,775,477	$ 1,442,419
2138	Belmont	Load Growth	D	D-Feeders	12/3/2029	10.0	$ 4,381,381	$ 5,401,196	$ 540,120
2358	Moriches	Load Growth	T&D	T-Substation	6/16/2031	67.0	$ 4,043,081	$ 5,036,075	$ 75,165
2370	Deerfield	Load Growth	T&D	T-Substation	6/16/2032	112.0	$ 78,178,834	$ 100,846,704	$ 900,417
						1,210.1	**$ 598,202,154**	**$ 690,668,455**	**$ 570,753**

T-Substation	1,027.1	$ 482,232,426	$ 562,369,825	
D-Substation	52.0	$ 26,677,118	$ 31,200,118	
D-Feeders	131.0	$ 89,292,610	$ 97,098,512	
Transmission	1,027.1	$ 482,232,426	$ 562,369,825	$547,532
Distribution	183.0	$ 115,969,728	$ 128,298,630	$701,085
	1,210.1	**$ 598,202,154**	**$ 690,668,455**	

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Marginal Cost of Service Study
Economic Carrying Charge Rate Information

	Account Title	N.M. ACCT NO.	Weighting	Book Life	Salvage Value	Economic Charge Rate
1	Transmission Plant	350-359		47.37	0.0%	4.79%
2						
3	Weighted Primary/Secondary Plant	362-367		42.17	0.0%	5.02%
4						
5	Line Transformers	368		27.17	0.0%	6.28%
6						
7	OH Services	369		36.63	0.0%	5.34%
8						
9	Meters	370		12.66	0.0%	10.64%
10						
11						

Annual Economic Carrying Charge Rate Parameters

		Weighted Cost of Capital	O & M Expense	Insurance	Revenue Taxes
18	LIPA's Cost of Capital	6.33%			
19	Transmission	6.33%	3.44%	0.10%	0.58%
20					
21	Primary/Secondary	6.33%	8.92%	0.10%	0.58%
22					
23	Transformers	6.33%	8.92%	0.10%	0.58%
24					
25	Service	6.33%	0.00%	0.10%	0.00%
26					
27	Meters	6.33%	14.98%	0.10%	0.00%

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Marginal Cost of Service Study
O&M Rates for Marginal Cost of Services ($000s)

	C. TRANSMISSION PLANT		Balances as of Dec-2024			Transmission	
1	Transmission Plant	350	1,972,223,665			1,972,223,665	
2	Subtotal - TRANSMISSION PLANT	350-359	1,972,223,665			1,972,223,665	
3							
4							Primary/Secondary
5	**D. DISTRIBUTION PLANT**						Distribution
6	Land and land rights	360	60,403,758				
7	Structures and improvements	361	19,005,577				19,005,577
8	Station equipment	362	829,915,573				829,915,573
9	Poles, towers, and fixtures	364	746,174,167				746,174,167
10	Overhead Conductors and Devices Primary	365	429,487,393				429,487,393
11	Overhead Conductors and Devices Secondary	365	218,820,649				218,820,649
12	Underground conduit	366	293,139,089				293,139,089
13	Underground Conductors and Devices Primary	367	630,363,856				630,363,856
14	Underground Conductors and Devices Secondary	367	257,227,923	63.2%			257,227,923
15	Line transformers-OH TRANSFORMERS	368	569,533,000				
16	Line transformers-OH PROTECT EQUIPT	368	280,660,825				
17	Line transformers-UG TRANSFORMERS	368	384,376,028				
18	Line transformers-UG PROTECT EQUIPT	368	103,764,502	32.9%			
19	Services-OU	369	171,014,148				
20	Services-UG	369	136,036,731				
21	Meters	370	159,077,173	3.9%			
22	Installations on customers' premises (Outdoor Lights)	371	13,354,269				13,354,269
23	Leased assets on customers' property	372	701,703				
24	Street lighting and signal systems	373	0				
25	Subtotal - DISTRIBUTION PLANT	360-373	5,303,056,364				3,437,488,496
26							
27	Plant Value Identified					1,972,223,665	3,437,488,496
28							
29	**C. DISTRIBUTION EXPENSE**			~FERC	Allocated Costs	Transmission	Primary/Secondary
30							Distribution/Transformers
31	Transmission & Distribution O&M						
32	Transmission			44,700,711	15.56%	44,700,711	
33	Load dispatch - Monitor and operate transmission syster	561		8,845,684	3.08%		
34	Station expenses	562		11,781,133	4.10%		11,781,133
35	Overhead line expenses	563,583		13,428,891	4.67%		13,428,891
36	Underground line expenses	564, 584		5,343,428	1.86%		5,343,428
37	Meter expenses	586		18,202,370	6.33%		
38	Customer installation expenses	587		(11,102)	0.00%		
39	Misc. distribution expenses-Labor	588		29,567,892	10.29%		18,696,450
40	Misc. distribution expenses-Materials	588			0.00%		
41	Maintenance supervision and engineering	590		212,822	0.07%		134,572
42	Maintenance of Structures	591		443,875	0.15%		443,875
43	Maintenance of station equipment	592		19,955,374	6.94%		19,955,374
44	Maintenance of overhead lines	593		114,455,004	39.83%		114,455,004
45	Maintenance of underground lines	594		17,315,217	6.03%		17,315,217
46	Maintenance of line transformers	595		1,699,488	0.59%		
47	Maintenance of line meters	597		981,217	0.34%		
48	Maintenance of Misc. distribution plant	598		438,941	0.15%		277,552
49	Sub-total			287,360,943	100.00%	44,700,711	201,831,495
50							
51							
52							
53	Total - OPER. AND MAINT. EXP.	560-598				44,700,711	201,831,495
54	Working Capital					353,694	1,596,992
55	Administrative and General Percentage					51%	51%
56	Total Loaded O&M					67,926,062	306,698,004
57	O&M Rates					3.4%	8.9%
58	A&G Allocated to Plant			142,505,688		22,871,657	103,269,517

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Marginal Cost of Service Study
Other Tax Rate Calculation

VII. TAXES OTHER THAN INCOME TAXES

	A. General Taxes	Balances as of Dec-2024	Revenue Taxes
1	PILOTs - Revenue-Based Taxes	43,198,304	43,198,304
2	PILOTs - Property-Based Taxes	301,612,762	
3	Other taxes-NYSA	9,439,660	
4	Subtotal - General Taxes	354,250,727	43,198,304
5			
6			
7	Net Plant Summary		
8	Net Services Plant	307,050,878	307,050,878
9	Net Meters	159,077,173	159,077,173
10	Net General - Non Property Taxes Plant	182,724,606	182,724,606
11	Net Other Plant	6,840,399,223	6,840,399,223
12	Plant for Tax Bases	7,489,251,879	7,489,251,879
13			
14	Tax Rates		0.577%