

# NYCA IRM Requirement Study 2026-2027 Preliminary Base Case (PBC) Model Assumptions Matrix

Draft V2.0

NYSRC

**Installed Capacity Subcommittee Meeting #303**

April 29, 2025

# Load Forecast

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
1a	Peak Load Forecast (Preliminary Base Case – Parametric & Sensitivities)	2024 Gold Book <sup>1</sup> NYCA: 31,832.2 MW NYC: 11,227.5 MW LI: 5077.9 MW G-J: 15,298.5 MW (Attachment A1-a)			
1b	Winter Peak Load Forecast	NA	New for 2026-2027 IRM study (Attachment A1-b)		
2	Peak Load Forecast (Final Base Case)	October 2024 Fcst NYCA: 31,649.7 MW <sup>1</sup> NYC: 11,043.9 MW LI: 5,092.1 MW G-J: 15,205.1 MW			
3	Load Shape (Multiple Load Shape)	Bin 1-2: 2013 Bin 3-4: 2018 Bin 5-7: 2017			
4	Load Forecast Uncertainty (LFU)	Zonal Model to reflect current data with input from Con Ed and LIPA. (Attachment A2)			
5	LFU Winter	Attachment A3			

<sup>1</sup> Behind-the-Meter Net Generation (BTM:NG) resource loads have been incorporated into these numbers.

<sup>2</sup> The loads associated with the BTM:NG program need to be added to these values.

# Generation Parameters

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
6	Existing Generating Unit Capacities	2024 Gold Book Values. Use min. (DMNC vs. CRIS) capacity value			
7	Proposed New Units (Thermal) and re-ratings	47.0 MW summer re-rating for Thermal resources (Attachment B1)			
8	Deactivations and Removals	165.4 MW unit deactivations (Attachment B2)	100.9 MW generator deactivations and removals (Attachment B2)		
9	Forced and Partial Outage Rates	Five-year (2019-2023) GADS data for each unit represented. Those units with less than five years – use representative data. (Attachment C)			
10	Planned Outages	Planned Outages are removed from the IRM study			

# Generation Parameters

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
11	Summer Maintenance	Nominal 50 MW – divided equally as 2 negative 25MW units in Load Zones J and K			
12	Combustion Turbine Derates	Derate based on temperature correction curves provided			
13	Existing and Proposed New Wind Units	0 MW of offshore wind capacity additions 2,566.20 MW of qualifying wind. (Attachments G and B3)			
14a	Land-Based Wind Shape	Actual hourly plant output over the period 2019-2023. New units will use zonal hourly averages or nearby units.	Actual hourly plant output over the period 2020-2024. New units will use zonal hourly averages or nearby units.		
14b	Offshore Wind Shape	Normalized offshore wind shapes as published by NYISO over the period 2017-2021			
15	Existing and Proposed New Solar Resources	267 MW of utility-scale solar capacity additions totaling 571.4 MW of qualifying solar capacity. (Attachment B3)			
16	Solar Shape	Actual hourly plant output over the period 2019-2023. New units will use zonal hourly averages or nearby units.	Actual hourly plant output over the period 2020-2024. New units will use zonal hourly averages or nearby units.		

# Generation Parameters

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
17	BTM:NG Program	No new BTM:NG resources, total of 170.6 MW (Attachment B5)			
18	Small Hydro Resources	Actual hourly plant output over the period 2019-2023	Actual hourly plant output over the period 2020-2024		
19	Large Hydro	Probabilistic model based on five years of GADS data (2019-2023)			
20	Landfill Gas (LFG)	Actual hourly plant output over the period 2019-2023	Actual hourly plant output over the period 2020-2024		
21	New Energy Storage Resources (ESRs)	0 MW of new battery storage scheduled.  20 MW of total battery storage modeled.			
22	Energy Limited Resources (ELRs)	Based upon elections made by August 1 <sup>st</sup> , 2024  ES and small EL3 output limitations lifted at HB14	(Updated elections expected by August 1, 2025)  ES and small EL3 output limitations lifted at HB14		

# Transactions- Imports and Exports

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
23	Capacity Purchases	Existing Rights: PJM – 1,013 MW HQ – 1,190 MW All contracts modeled as equivalent contracts.			
24	Capacity Sales	Long Term firm sales Summer 266.6 MW			
25	Forward Capacity Market (FCM) Sales from a Locality <sup>4</sup>	No sales modeled within study period			
26	Wheels through NYCA	300 MW HQ to NE equivalent contract			
27	New Unforced Capacity Deliverability Rights (UDRs)	No new UDRs Identified			
28	New External Deliverability Rights (EDRs)	No new EDRs Identified			

<sup>3</sup> Final FCM sales that will materialize are unknowable at the time of the IRM study. To reflect the impact these sales have on reliability, the NYISO applies a Locality Exchange Factor in the market.

# Topology

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
29	Interface Limits	Updates to the Central East forward limits, and West-Central reverse limit			
30	New Transmission	None Identified			
31	AC Cable Forced Outage Rates	All existing Cable EFORds for NYC and LI to reflect most recent ten - year history (2014-2023) (Attachment E4)			
32	UDR Line Unavailability	Ten-year history of forced outages (2014-2023)			

# Emergency Operating Procedures

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
33	Special Case Resources (SCRs)	July 2024 – 1,486.7 MW based on registrations and modeled with maximum capacity of 1,280.8 MW derated by hourly response rates. Utilize a new energy limited resource (ELR) functionality to model SCRs as duration limited resources with hourly response rates and limited to one call per day. Monthly variation based on historical experience.	July 2024 – 1,486.7 MW (preliminary) based on registrations and modeled with maximum capacity of 1,269.7 MW derated by hourly response rates. Utilize a new energy limited resource (ELR) functionality to model SCRs as duration limited resources with hourly response rates and limited to one call per day. Monthly variation based on historical experience.	Summer values calculated from July 2024 registrations accounting for updated historical performance.	N
34	Other Emergency Operating Procedures (EOPs)	400 MW of 10-min reserves maintained at load shedding  Voluntary Curtailment and Public Appeals limited to 3 calls per year  804.6 MW of non-SCR/non-EDRP resources (Attachment D)			
35	EOP Structure	10 EOP steps modeled			



# External Control Areas

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
36	PJM	Load and capacity data will be provided by PJM/NPCC CP-8 Data may be adjusted per NYSRC Policy 5. (Attachment E)			
37	ISONE, Quebec, IESO	Load and capacity data will be provided by ISONE/NPCC CP-8 Data may be adjusted per NYSRC Policy 5. (Attachment E)			
38	External Adjustments per Policy 5	If needed, add load to externals proportional to existing excess capacity.			
39	Reserve Sharing	All NPCC Control Areas indicate that they will initially share reserves equally among all members and then non-members.			
40	Emergency Assistance	Statewide emergency assistance allowed from neighbors: Bin 1: 1,470 MW Bin 2: 2,600 MW Bin 3-7: 3,500 MW  Individual interface limits and PJM cables are also reduced by Bin (Attachment E5)			

# Miscellaneous

#	Parameter	2025 Model Assumptions	2026 Model Assumptions	Basis for Recommendation	Model Change
41	MARS Model Version	4.14.2179			
42	Environmental Initiatives	No new rules for 2025-2026 Capability Year			

NYCA Summer Load Forecast Coincident and Non-Coincident Peak:  
2025-2026 Final Base Case (FBC) and 2026-2027 Preliminary Base Case (PBC)

Delta													
Area	A	B	C	D	E	F	G	H	I	J	K	NYCA	G_J
NCP - Forecast													
CP - Forecast													
G-J Peak - Forecast													

# Attachment A1-b

## NYCA Winter Load Forecast Coincident and Non-Coincident Peak: 2025-2026 FBC and 2026-2027 PBC

2025-2026 FBC*													
Area	A	B	C	D	E	F	G	H	I	J	K	NYCA	G_J
NCP - Forecast	2,308.5	1,647.5	2,548.6	1,043.0	1,316.3	1,934.0	1,535.0	519.0	895.0	7,498.3	3,349.4		
CP - Forecast	2,283.5	1,634.5	2,543.6	1,022.0	1,293.3	1,922.0	1,524.0	508.0	885.0	7,428.3	3,336.4	24,380.6	
G-J Peak - Forecast							1,521.0	506.0	885.0	7,472.3			10,384.3

2026-2027 IRM PBC													
Area	A	B	C	D	E	F	G	H	I	J	K	NYCA	G_J
NCP - Forecast													
CP - Forecast													
G-J Peak - Forecast													

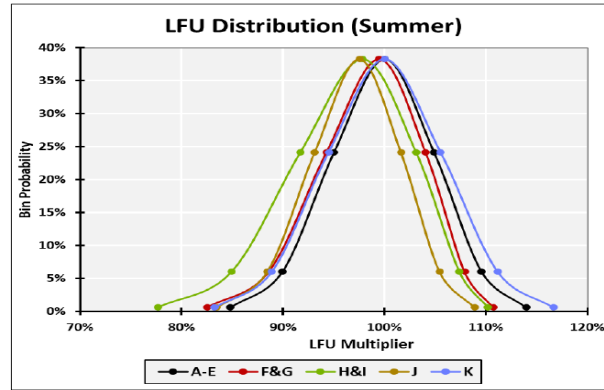
Delta													
Area	A	B	C	D	E	F	G	H	I	J	K	NYCA	G_J
NCP - Forecast													
CP - Forecast													
G-J Peak - Forecast													

\*With the proposed implementation of the Enhanced Load Modeling (ELM) for the 2026-2027 IRM study, the winter forecast was not part of the 2025-2026 IRM study. The values are based on the information contained in the load forecast for the 2025-2026 FBC.

# Attachment A2

## NYCA Summer Load Forecast Uncertainty Model: 2025 and 2026

Load Forecast 2025



Load Forecast 2026

Bin	Bin z	Bin Probability	A-E	F&G	H&I	J	K
Bin 1	2.74	0.62%	113.93%	110.69%	110.18%	108.88%	116.62%
Bin 2	1.79	6.06%	109.54%	107.86%	107.34%	105.42%	111.14%
Bin 3	0.89	24.17%	104.86%	104.04%	103.09%	101.61%	105.52%
Bin 4	0.00	38.29%	100.00%	99.46%	97.81%	97.51%	100.00%
Bin 5	-0.89	24.17%	95.00%	94.29%	91.70%	93.12%	94.48%
Bin 6	-1.79	6.06%	89.91%	88.61%	84.93%	88.45%	88.89%
Bin 7	-2.74	0.62%	84.79%	82.53%	77.65%	83.48%	83.27%

# Attachment A3

## NYCA Winter Load Forecast Uncertainty Model: 2026

NYCA Winter LFU Model (2025)

Bin	Bin z	Bin Probability	NYCA
Bin 1	2.74	0.62%	110.37%
Bin 2	1.79	6.06%	106.37%
Bin 3	0.89	24.17%	102.75%
Bin 4	0.00	38.29%	99.42%
Bin 5	-0.89	24.17%	96.29%
Bin 6	-1.79	6.06%	93.30%
Bin 7	-2.74	0.62%	90.41%

# Attachment B1

## New Thermal Units and Unit Re-Ratings

New Thermal Units and Unit Re-ratings (summer ratings)					
Project or Generator Name	Zone	2025 Gold Book (MW) CRIS	2025 Gold Book (MW) DMNC	New or Incremental (MW)	2026 MARS Model (MW)
New Units					
Total New Units and Upgrades (MW)					

# Attachment B2

## Deactivations and Removals

Unit Removal since 2025-2026 IRM Study			
Generator Name	Type	Zone	SUMMER CRIS (MW)
Madison Wind Power	WT	E	11.5
Warrensburg	HY	F	2.9
Coxsackie GT	GT	G	19.7
Gowanus 3-6*	TH	J	15.6
Narrows 2-1*	TH	J	18.8
Narrows 2-7*	TH	J	18.5
59th Street	DS	J	13.9
<b>Total Removals</b>			<b>100.9</b>

\* ICAP Ineligible Forced Outage (IIFO)



# Attachment B3

## New Intermittent Resources

New Intermittent Units				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	MARS Modeled Capacity
Wind				
Total Wind				
Solar				
Total Solar				

# Attachment B4

## New Energy Storage Resources

Energy Storage				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	Lesser of Summer Capability VS CRIS
New Battery Units				
Total New Energy Storage				

# Attachment B5

## Resources in the Behind-the-Meter Net Generation (BTM:NG) Resource Program

Attachment B5 - Units in the Behind-the-Meter Net Generation Resource Program*			
Generator Name	Zone	Resource Value (MW) <sup>5</sup>	Peak Load Adjustment (MW) <sup>6</sup>
Existing:			
<b>Total BTM-NG</b>			

\*The IRM study independently models the generation and load components of BTM:NG Resources.

<sup>4</sup> Based on adjusted Dependable Maximum Gross Capability (DMGC) value.

<sup>5</sup> Based on Average Coincident Host Load (ACHL).

# Attachment C1

NYCA Five Year Derating Factors – All Resources

# Attachment C2

## NYCA Five Year Derating Factors - Intermittent Power Resources

# Attachment D

## Emergency Operating Procedures

Step	Procedure	2025 IRM MW Value	2026 IRM MW Value
1	Special Case Resources – Load, Gen	1,486.7 MW Enrolled / 1,280.8 MW Modeled	1,486.7 MW Enrolled (preliminary) / 1,269.7 MW Modeled
2	5% manual voltage Reduction	63.38 MW	
3	Thirty-minute reserve to zero	655 MW	
4	Voluntary industrial curtailment	260.74 MW Limited to 3 calls per year	
5	General Public Appeals	74 MW Limited to 3 calls per year	
6	5% remote voltage reduction	406.49 MW	
7	Emergency Purchases	Varies	
8	Ten-minute reserves to zero	910 MW (400 MW maintained at load shedding)	
9	Customer disconnections	As needed	
10	Adjustment used if IRM is lower than technical study margin	As needed	

# Attachment E1

## IRM Topology

# Attachment E2

ISO-NE 14 Bubble Model



# Attachment E3

PJM Bubble Model

# Attachment E4

Cable Outage Rate	
2018-22* (5-year average)	2014-23 (10-year average)
5.36%	5.31%

The facilities included in these averages are VFT, HTP, Dunwoodie-South, Y49/Y50, CSC, Neptune, Norwalk-Northport and A-Line.

\*The 10-year average data is not available for the 2024-2025 IRM study

# Attachment E5

2025-2026 IRM Dynamic Emergency Assistance (EA) Interface Group Limits (MW)							
Area	Bin 1	Bin 2	Bin 3	Bin 4	Bin 5	Bin 6	Bin 7
IESO	550	660	750	860	Maximum EA (1,950)		
ISONE	50	540	1,000	1,530	Maximum EA (1,804)		
PJM*	580	1,110	Maximum EA (1,415)				
HQ	Maximum EA (280)						
Total EA**	1,470	2,600	Maximum EA (3,500)				

Dynamic EA PJM Cable Limits (MW)***							
Area	Bin 1	Bin 2	Bin 3	Bin 4	Bin 5	Bin 6	Bin 7
HTP	90	173	Maximum EA (660)				
Neptune	90	173	Maximum EA (660)				
VFT	43	83	Maximum EA (315)				
A Line	14	28	Maximum EA (105)				

\* PJM ties limits are only applicable to A, C, and G ties, and individual cables are derated separately, in proportion to the Bin 1 and Bin 2 PJM interface group limits listed above

\*\* The total EA limit from all ties are derived from a separate regression analysis and may not match the sum of all group tie limits in each LFU bin

\*\*\* Limiting EA, does not affect contract capacity over UDRs

# Attachment F

## SCR Determinations 2025-2026 and 2026-2027 IRM Studies

SCR Performance for 2026-2027 IRM Study									
Super Zones	SCR Enrollments (MW) (Preliminary – To be updated for FBC)	Response Rate (%) by Hour of SCR Activation							Superzonal ACL to CBL Translation Factor (%)
		Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7	
A - E	783.4	82.33%	85.85%	85.54%	79.20%	75.61%	-	-	91.85%
F	103.5	72.95%	79.54%	82.43%	83.29%	83.40%	70.40%	66.99%	89.18%
G - I	90.6	61.08%	69.85%	72.12%	73.52%	74.47%	71.50%	-	83.46%
J	478.7	57.53%	62.61%	66.97%	70.70%	72.29%	66.09%	-	72.92%
K	30.6	51.20%	57.99%	63.12%	65.49%	64.82%	63.35%	52.63%	75.13%
All Zones	1,486.7	66.77%	72.08%	74.61%	74.35%	73.83%	66.38%	58.14%	

SCR Performance for 2025-2026 IRM Study									
Super Zones	SCR Enrollments (MW)	Response Rate (%) by Hour of SCR Activation							Superzonal ACL to CBL Translation Factor (%)
		Event Hour 1	Event Hour 2	Event Hour 3	Event Hour 4	Event Hour 5	Event Hour 6	Event Hour 7	
A - E	783.4	77.85%	83.57%	82.28%	70.24%	69.18%	0%	0%	93.45%
F	103.5	75.94%	82.20%	85.24%	86.18%	85.54%	70.40%	66.99%	90.58%
G - I	90.6	58.45%	67.53%	70.20%	71.94%	73.63%	71.48%	0%	84.07%
J	478.7	55.04%	60.60%	65.47%	67.78%	68.80%	66.09%	0%	74.29%
K	30.6	49.71%	56.72%	62.12%	64.63%	64.66%	63.36%	52.65%	76.11%
All Zones	1,486.7	62.01%	68.39%	71.35%	69.61%	69.93%	66.38%	58.14%	

6. These values represent no growth from July ICAP based enrollments for the previous year. Differences in data in this column are due to software rounding updates since the 2023-2024 IRM study. Updated data aligns with 2023 Gold Book values.

7. Performance Factor based on ACL methodology.

8. The SCR Adjustment factor captures two different performance derates: (1) Calculated Translation Factor (TF) between ACL and CBL values and (2) the Fatigue Factor (FF=1.00).

# Attachment G

Wind Units Modeled

To be updated for 2026-2027 IRM Study

29

Wind				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	MARS Modeled Capability**
Arkwright Summit Wind Farm [WT]	A	78.4	78.4	78.4
Ball Hill Wind [WT]	A	100.0	107.5	100.0
Bliss Wind Power [WT]	A	100.5	100.5	100.5
Baron Winds [WT]	C	300.0	121.8	121.8
Canandaigua Wind Power [WT]	C	125.0	125.0	125.0
Eight Point Wind Energy Center [WT]	C	101.2	111.2	101.2
High Sheldon Wind Farm [WT]	C	112.5	118.1	112.5
Howard Wind [WT]	C	57.4	55.4	55.4
Orangeville Wind Farm [WT]	C	94.4	93.9	93.9
Wethersfield Wind Power [WT]	C	126.0	126.0	126.0
Altona Wind Power [WT]	D	97.5	97.5	97.5
Chateaugay Wind Power [WT]	D	106.5	106.5	106.5
Clinton Wind Power [WT]	D	100.5	100.5	100.5
Ellenburg Wind Power [WT]	D	81.0	81.0	81.0
Jericho Rise Wind Farm [WT]	D	77.7	77.7	77.7
Marble River Wind [WT]	D	215.2	215.2	215.2
Bluestone Wind [WT]	E	124.2	111.8	111.8
Hardscrabble Wind [WT]	E	74.0	74.0	74.0
Maple Ridge Wind [WT01]	E	231.0	231.0	231.0
Maple Ridge Wind [WT02]	E	90.7	90.8	90.7
Munnsville Wind Power [WT]	E	34.5	34.5	34.5
Number 3 Wind Energy [WT]	E	105.8	103.9	103.9
Roaring Brook [WT]	E	79.7	79.7	79.7
South Fork Wind Farm (Offshore)	K	136.0	136.0	136.0
<b>Total</b>		<b>2,749.7</b>	<b>2,577.9</b>	<b>2,554.7</b>

# Attachment G1

## Wind Units Not Currently Participating in ICAP Market

Wind					
Resource	Zone	Nameplate (MW)	CRIS (MW)	Summer Capability (MW)	MARS Modeled Capacity
Cassadaga Wind [WT]	A	126.5	126.0	0.0	0.0
Erie Wind [WT]	A	15.0	0.0	0.0	0.0
Steel Wind [WT]	A	20.0	0.0	0.0	0.0
Fenner Wind [WT]	C	30.0	30.0	0.0	0.0
Marsh Hill Wind Farm [WT]	C	16.2	0.0	0.0	0.0
Copenhagen Wind [WT]	E	79.9	79.9	0.0	0.0
Total		<b>287.6</b>	<b>235.9</b>	<b>0.0</b>	<b>0.0</b>

# Attachment G2

## Solar Units Modeled

Solar				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	Lesser of Summer Capability vs. CRIS
Janis Solar [PV]	C	20.0	20.0	20.0
Morris Ridge Solar Energy Center	C	177.0	177.0	177.0
Puckett Solar [PV]	C	20.0	20.0	20.0
Albany County	F	20.0	20.0	20.0
Albany County II	F	20.0	20.0	20.0
Branscomb Solar [PV]	F	20.0	20.0	20.0
Darby Solar [PV]	F	20.0	20.0	20.0
East Point Solar	F	50.0	50.0	50.0
Grissom Solar [PV]	F	20.0	20.0	20.0
High River Solar	F	90.0	90.0	90.0
Pattersonville Solar [PV]	F	20.0	20.0	20.0
Regan Solar [PV]	F	20.0	20.0	20.0
ELP Stillwater Solar [PV]	F	20.0	20.0	20.0
Calverton Solar Energy Center [PV]	K	22.9	22.9	22.9
Long Island Solar Farm [PV]	K	31.5	31.5	31.5
Total		<b>571.4</b>	<b>571.4</b>	<b>571.4</b>

# Attachment G3

## Solar Units Not Modeled

Solar				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	Lesser of Summer Capability vs. CRIS
Shoreham Solar [PV]*	K	25.0	0.0	0.0
<b>Total</b>		<b>25.0</b>	<b>0.0</b>	<b>0.0</b>

\*Unit provides power at the distribution rather than at the transmission level.



# Attachment G4

## Landfill Gas (LFG) Units Modeled

LFG				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	Lesser of Summer Capability VS CRIS
CHAFFEE [IC]	A	6.4	6.4	6.4
Model City Energy LFGE [IC]	A	5.6	5.6	5.6
Modern LFGE [IC]	A	6.4	6.4	6.4
Hyland LFGE [IC]	B	4.8	4.8	4.8
Mill Seat [IC]	B	6.4	6.4	6.4
Broome 2 [IC]	C	2.0	2.1	2.0
Broome LFGE [IC]	C	2.1	2.4	2.1
High Acres Group [IC] (23767)	C	9.6	9.6	9.6
Ontario LFGE [IC]	C	11.2	11.2	11.2
Seneca Energy Group [IC] (23797)	C	17.6	17.6	17.6
Clinton LFGE [IC]	D	6.4	6.4	6.4
DANC LFGE [IC]	E	6.4	6.4	6.4
Oneida-Herkimer LFGE [IC]	E	3.2	3.2	3.2
Colonie LFGTE [IC]	F	6.4	6.4	6.4
Fulton County Landfill [IC]	F	3.2	3.2	3.2
Albany LFGE	F	4.5	5.6	4.5
Totals		102.2	103.7	102.2

# Attachment G5

## Landfill Gas (LFG) Units Not Modeled

LFG				
Resource	Zone	CRIS (MW)	Summer Capability (MW)	Lesser of Summer Capability VS CRIS
Chautauqua LFGE	A	9.6	0.0	0.0
Synergy Biogas	B	2.0	0.0	0.0
Madison County LFGE [IC]	E	1.6	0.0	0.0
<b>Total</b>		<b>13.2</b>	<b>0.0</b>	<b>0.0</b>

# Assumption Matrix History

Date	Ver	Preliminary Base Case	Date	Ver	Final Base Case
02/05/2025	V0.0	Preliminary assumptions without attachments			
04/02/2025	V1.0	Preliminary assumptions (Items 8, 13, and Attachments B2 and G) and addition of Items 1a and 1b and Attachments A1-a and A1-b (pending approval of Enhanced Load Modeling improvements)			
04/29/2025	V2.0	Preliminary assumptions (Items 8, 14a, 16, 18, 20, 22, 33 and Attachments B2, D, and F)			