2022 Retail Electricity and Natural Gas Market Annual Report

prepared on behalf of REAL Retail Energy Advancement League

Submitted by:

Guy Sharfman
Vice President, Market Analytics
intelometry
5373 W Alabama St.
Suite 400
Houston, Texas 77056
Phone: (281) 773-9371
Email: guy.sharfman@intelometry.com
Website: www.intelometry.com

Craig Hardy
Manager, Markets & Tariffs
intelometry
5373 W Alabama St.
Suite 400
Houston, Texas 77056
Phone: (832) 353-9900
Email: craig.hardy@intelometry.com
Website: www.intelometry.com

June 2023

Table of Contents

I. Introduction

Intelometry Inc. ("Intelometry"), a Texas based retail energy software, data, and consulting company, has been tasked by the Retail Energy Advancement League ("REAL") to conduct an assessment ("Study") of select U.S. retail electric and natural gas markets. The Study's aim is threefold:

1) Provide a general breakdown by state of the number of customers on competitive supply as well as renewable requirements by state.
2) Analyze whether savings opportunities for residential customers existed in 2022 across competitive retail markets.
3) Forecast utilities tariff prices to assess whether the high residential electric and gas price thus far seen in 2022 and 2023 are expected to abate and whether customers are likely to achieve savings with competitive supply in the future.

To analyze residential customer savings opportunities in 2022 the Study compared utility default service rates in 2022 to competitive supplier offers for the same year. We note that since we did not start collecting gas supply offers until 2023, the historical savings opportunity analysis omits gas savings figures in the 2022 report. The gas utilities covered by the study will be added to the historical analysis in the 2023 report for since we will have gas offers for that year. We also did not have 2022 competitive offers for the full list of electric utilities covered by this study. As with gas, any electric utilities omitted from the historical analysis section of this document due to a lack of 2022 competitive offers will be added to this section in the 2023 report.

Unlike the historical analysis, the utility tariff forecast analysis encompassed the full list of electric and gas utilities covered by the study. The forecasts provided run through 2026 for both commodities. The states and electric and gas utility service areas included as part of the study are listed in **Table 1.0** below.

Table 1.0

2022 Annual Report
State and Utilities Included

State	Utility	Utility Type	Included in Historical Analysis
Connecticut	Eversource - CL&P	Electric	Yes
	United Illuminating	Electric	Yes
District of Columbia	Pepco D.C.	Electric	No
Delaware	Delmarva DE	Electric	No
Illinois	Ameren I - CIPS	Electric	Yes
	Ameren II - CILCO	Electric	Yes
	Ameren III - IP	Electric	Yes
	ComEd	Electric	Yes
Maine	BHE	Electric	No
	CMP	Electric	No
Massachusetts	NSTAR BECO	Electric	Yes

	NSTAR CAMB	Electric	Yes
	NSTAR COMM	Electric	Yes
	Unitil - FGE	Electric	Yes
	NGRID - MECO	Electric	Yes
	NGRID - Nantucket	Electric	Yes
	Eversource - WMECO	Electric	Yes
Maryland	BGE	Electric	Yes
	Delmarva MD	Electric	Yes
	Potomac Edison	Electric	Yes
	Pepco MD	Electric	Yes
New Jersey	AECO	Electric	No
	JCPL	Electric	No
	PSEG	Electric	No
New Hampshire	Liberty	Electric	No
	Unitil	Electric	No
	PSNH	Electric	No
New York	ConEd	Electric	No
	NMPC	Electric	No
	NYSEG	Electric	No
Ohio	AEP Columbus Southern	Electric	Yes
	AEP Ohio Power	Electric	Yes
	AES Ohio	Electric	Yes
	Cleveland Electric Illuminating	Electric	Yes
	Duke	Electric	Yes
	Ohio Edison	Electric	Yes
	Toledo Edison	Electric	Yes
Pennsylvania	Duquesne	Electric	Yes
	MetEd	Electric	Yes
	PECO	Electric	Yes
	Penelec PA	Electric	Yes
	Penn Power	Electric	Yes
	PPL	Electric	Yes
	West Penn Power	Electric	Yes
Rhode Island	Narragansett	Electric	No
California	PG&E	Natural Gas	No
	SoCalGas	Natural Gas	No
Washington D.C.	Washington Gas	Natural Gas	No
Georgia	Liberty	Natural Gas	No
Illinois	Nicor Gas	Natural Gas	No
Indiana	NIPSCO Gas	Natural Gas	No
Massachusetts	Eversource (EGMA)	Natural Gas	No
	National Grid (Boston Gas)	Natural Gas	No

Maryland	BGE	Natural Gas	No
	Washington Gas MD	Natural Gas	No
Michigan	Consumers	Natural Gas	No
	DTE Gas	Natural Gas	No
Nebraska	Black Hills Nebraska Gas	Natural Gas	No
New Jersey	New Jersey Natural Gas	Natural Gas	No
	PSEG	Natural Gas	No
New York	Con Edison	Natural Gas	No
	NFGD	Natural Gas	No
	NMPC	Natural Gas	No
Massachusetts	Eversource (EGMA)	Natural Gas	No
	National Grid (Boston Gas)	Natural Gas	No
Ohio	Columbia Gas OH	Natural Gas	No
	Dominion East of Ohio (DEO)	Natural Gas	No
	Duke (OH)	Natural Gas	No
Pennsylvania	Columbia Gas PA	Natural Gas	No
	PECO	Natural Gas	No

Historical Analysis Findings

The Study compared 2022 utility default rates to competitive supplier offers for 31 electric utilities. Of the 31 utilities surveyed, 22 showed that residential customers could save money across the entire year. Further, the Study found that if all residential customers took advantage of available competitive supply savings opportunities in 2022, total net savings across the year would have exceeded $2.0 billion. The Study also found that value-added services provided as compliments to competitive energy products offered hundreds of dollars of additional value to an individual residential customer across the year and that green offers benefit society at large, as every additional ton of carbon dioxide emitted into the atmosphere costs society $185 according to a recent multi-year study.

Forecast Analysis Findings

The Study's forecast analysis also found that utility tariff rates will likely remain at levels where residential customers could achieve savings with competitive supply. This view is further enforced by the fact that we have seen competitive savings opportunities in every month of 2023 thus far.

The remainder of this report provides the results of the market study along with analysis methodologies and data sources employed. The report is broken into the following sections:

Section II: State Level Data

- ❖ Provides the estimated number of residential, commercial, industrial, and aggregated choice customers in each utility or state, the number that are enrolled with competitive suppliers, and the related percentage of customers enrolled with competitive suppliers.
- ❖ Provides the current electric renewable supply minimum requirements by state.

Section III: 2022 Competitive Electric Supply Product Value Assessment

- ❖ Provides the 2022 savings that residential customers and the residential market in total would have achieved had residential customers taken advantage of the lowest fixed priced supplier offers available in that year.
- ❖ Provides the estimated value of select addon services that retail suppliers offer as compliments to many of their products.

Section IV: Electric and Natural Gas Utility Tariff Forecast Analysis

- ❖ Provides a forecast for residential electric utility price to compare ("PTC") through 2026.
- ❖ Provides a forecast for residential gas utility tariff prices through 2026.

Appendix

- ❖ Provides sources used to prepare the study as well as additional data tables.

II. State Level Data

A. Number of Customers on Competitive Supply by State & Utility

Our data shows that many residential customers across competitive utility service areas continue to opt for competitive supply regardless of the efforts by certain groups to prevent them from doing so. This finding is important since residential customers opt for competitive supply options over their electric or gas utility by their own choice; reinforcing the importance to maintaining and fostering competition in the energy space. **Tables 2.0** and **2.1** below provide the number of customers on competitive supply for electric and natural gas markets respectively.

Table 2.0

Number of Customers of Alternative Supply by State & Utility
Electric

State	Utility	Reporting Date	Customer Type	Eligible Customers in Utility	Customers on Competitive Supply *	Customers on Aggregated Choice	% of Customers on Competitive Supply
CT	Eversource - CL&P	Feb 2023	Residential	1,160,293	149,295	N/A	12.9%
			Commercial	124,801	39,483	N/A	31.6%
	United Illuminating	Mar 2023	Residential	309,046	46,066	N/A	14.9%
			Commercial	38,529	22,486	N/A	58.4%

D.C.	Pepco DC	Mar 2023	Residential	312,506	35,580	N/A	11.4%
			Commercial	29,128	7,811	N/A	26.8%
IL	Ameren	Mar 2023	Residential	1,061,848	428,654	Unavailable	40.4%
			25 kW or Less	163,274	71,631	Unavailable	43.9%
			25 kW - 100 kW	2,406	1,352	Unavailable	56.2%
			100 kW - 400 kW	4,721	3,574	Unavailable	75.7%
			400 kW - 1 MW	1,110	910	Unavailable	82.0%
			1 MW - 3 MW	403	344	Unavailable	85.4%
			3 MW - 6 MW	81	73	Unavailable	90.1%
			6 MW or More	96	89	Unavailable	92.7%
	ComEd	Mar 2023	Residential	3,676,102	677,037	Unavailable	18.4%
			Watt Hour	82,110	42,070	Unavailable	51.2%
			Small (0 - 100 kW)	284,334	97,081	Unavailable	34.1%
			Med (100 - 400kW)	15,907	11,693	Unavailable	73.5%
			Lg (400 - 1000 kW)	3,924	3,401	Unavailable	86.7%
			Very Lg (1000-10,000 kW)	1,743	1,633	Unavailable	93.7%
			Extra Large (>10,000 kW)	44	41	Unavailable	93.2%
			High Voltage	95	57	Unavailable	60.0%
ME	BHE	Mar 2023	Res / Sm Com (<25 kW)	126,984	9,678	N/A	7.6%
			Med Class (25- 500 kW)	1,686	835	N/A	49.5%
			Large Class (>500 kW)	55	36	N/A	65.5%
	CMP	Mar 2023	Res / Sm Com (<20 kW)	651,450	66,214	N/A	10.2%
			Med Class (20 - 400 kW)	11,220	5,539	N/A	49.4%
			Large Class (>400 kW)	405	352	N/A	86.9%
MD	BGE	Mar 2023	Residential	1,207,394	214,356	Unavailable	17.8%
			Small C & I	107,811	32,237	Unavailable	29.9%
			Med C & I	25,039	15,164	Unavailable	60.6%
			Large C & I	517	488	Unavailable	94.4%
	Delmarva MD	Mar 2023	Residential	184,464	16,419	Unavailable	8.9%
			Small C & I	27,336	7,983	Unavailable	29.2%
			Med C & I	6,387	3,202	Unavailable	50.1%
			Large C & I	70	67	Unavailable	95.7%
	Potomac Edison	Mar 2023	Residential	252,934	18,671	Unavailable	7.4%
			Small C & I	30,833	8,019	Unavailable	26.0%
			Med C & I	6,329	3,697	Unavailable	58.4%
			Large C & I	116	107	Unavailable	92.2%
	Pepco MD	Mar 2023	Residential	547,402	77,176	Unavailable	14.1%
			Small C & I	32,408	9,234	Unavailable	28.5%
			Med C & I	18,458	9,403	Unavailable	50.9%
			Large C & I	537	446	Unavailable	83.1%
MA	Eversource - NSTAR	Dec 2022	Residential	1,070,308	145,532	612,051	70.8%
			Small C & I	123,665	30,587	66,414	78.4%
			Med C & I	32,070	13,253	11,334	76.7%
			Large C & I	4,478	3,423	630	90.5%
	Eversource - WMECO	Dec 2022	Residential	190,943	26,558	40,788	35.3%
			Small C & I	21,845	6,018	4,918	50.1%
			Med C & I	968	694	110	83.1%
			Large C & I	233	207	6	91.4%

	NGRID - MECO	Dec 2022	Residential	1,137,007	190,280	350,441	47.6%
			Small C & I	147,124	40,190	41,202	55.3%
			Med C & I	9,994	6,560	1,348	79.1%
			Large C & I	2,758	2,350	177	91.6%
	NGRID - Nantucket	Dec 2022	Residential	12,344	375	10,136	85.2%
			Small C & I	1,603	309	1,065	85.7%
			Med C & I	69	29	36	94.2%
			Large C & I	9	7	1	88.9%
	Unitil - FGE	Dec 2022	Residential	30,610	7,290	4,353	38.0%
			Small C & I	2,511	605	171	30.9%
			Med C & I	1,700	615	169	46.1%
			Large C & I	29	25	0	86.2%
NH	Liberty	Dec 2022	Residential (D, D-10, T)	37,965	2,418	Unavailable	6.4%
			G-3 (<20 kW)	5,822	1,315	Unavailable	22.6%
			G-2 (20 - 199 kW)	974	371	Unavailable	38.1%
			G-1 (200 kW or more)	156	109	Unavailable	69.9%
	PSNH	Mar 2023	Residential	454,757	91,478	Unavailable	20.1%
			Small C&I Rate G	78,474	26,364	Unavailable	33.6%
			Medium C&I Rate GV	1,456	1,246	Unavailable	85.6%
			Large C&I Rate LG	118	104	Unavailable	88.1%
	Unitil	Apr 2023	Domestic	67,543	7,780	Unavailable	11.5%
			Regular General	11,141	3,222	Unavailable	28.9%
			Large General	167	135	Unavailable	80.8%
NJ**	AECO	Apr 2023	Residential	502,740	36,988	0	7.4%
			C & I (< 500 kW)	66,840	12,424	0	18.6%
			C & I (500 - 750 kW)	84	70	0	83.3%
			C & I (750 - 1,000 kW)	38	27	0	71.1%
			C & I (>1,000 kW)	87	75	0	86.2%
	JCPL	Apr 2023	Residential	1,028,115	67,878	20,523	8.6%
			C & I (< 500 kW)	131,937	35,133	1	26.6%
			C & I (500 - 750 kW)	322	250	0	77.6%
			C & I (750 - 1,000 kW)	142	115	0	81.0%
			C & I (>1,000 kW)	260	226	0	86.9%
	PSEG	Apr 2023	Residential	2,318,056	129,480	12,067	6.1%
			C & I (< 500 kW)	3,549	7	2	0.3%
			C & I (500 - 750 kW)	586	391	0	66.7%
			C & I (750 - 1,000 kW)	275	193	0	70.2%
			C & I (>1,000 kW)	529	426	0	80.5%
NY	ConEd	Dec 2021	Residential	2,959,666	434,865	Unavailable	14.7%
			NonRes- Small & St Light	546,137	119,975	Unavailable	22.0%
			Non-Res - Large TOU	459	410	Unavailable	89.3%
	NMPC	Dec 2021	Residential	1,535,346	168,710	Unavailable	11.0%
			NonRes- Small & St Light	189,114	63,641	Unavailable	33.7%
			Non-Res - Large TOU	233	175	Unavailable	75.1%
	NYSEG	Dec 2021	Residential	782,305	94,608	Unavailable	12.1%
			NonRes- Small & St Light	130,370	41,485	Unavailable	31.8%
			Non-Res - Large TOU	3,071	1,911	Unavailable	62.2%
OH	AEP - CS & OPC	Mar 2023	Residential	1,328,768	201,088	312,407	38.6%
			Commercial	182,386	62,518	35,563	53.8%

			Industrial	9,209	5,097	0	55.3%
	AES OH	Mar 2023	Residential	475,480	157,763	88,838	51.9%
			Commercial	53,308	25,293	9,349	65.0%
			Industrial	1,684	1,359	0	80.7%
	Cleveland Electric Illuminating	Mar 2023	Residential	674,653	126,149	28,338	22.9%
			Commercial	81,085	32,203	1,997	42.2%
			Industrial	644	437	0	67.9%
	Duke	Mar 2023	Residential	721,803	113,863	181,967	41.0%
			Commercial	61,991	20,941	12,787	54.4%
			Industrial	2,436	1,736	1	71.3%
	Ohio Edison	Mar 2023	Residential	952,953	149,736	298,712	47.1%
			Commercial	112,322	40,759	27,835	61.1%
			Industrial	1,358	1,010	0	74.4%
	Toledo Edison	Mar 2023	Residential	277,834	32,708	144,923	63.9%
			Commercial	35,441	11,379	14,815	73.9%
			Industrial	597	441	0	73.9%
	Duquesne	Apr 2023	Residential	549,614	113,770	N/A	20.7%
			Commercial	62,148	22,684	N/A	36.5%
			Industrial	1,042	673	N/A	64.6%
	MetEd	Apr 2023	Residential	518,615	96,981	N/A	18.7%
			Commercial	68,071	26,820	N/A	39.4%
			Industrial	1,989	1,774	N/A	89.2%
	PECO	Apr 2023	Residential	1,529,888	327,396	N/A	21.4%
			Commercial	168,832	64,325	N/A	38.1%
			Industrial	3,146	2,750	N/A	87.4%
PA	Penelec	Apr 2023	Residential	502,299	82,377	N/A	16.4%
			Commercial	85,220	32,213	N/A	37.8%
			Industrial	2,030	1,894	N/A	93.3%
	Penn Power	Apr 2023	Residential	149,518	24,521	N/A	16.4%
			Commercial	20,733	8,853	N/A	42.7%
			Industrial	642	584	N/A	91.0%
	PPL	Apr 2023	Residential	1,284,320	485,473	N/A	37.8%
			Commercial	189,419	92,247	N/A	48.7%
			Industrial	1,319	1,206	N/A	91.4%
	West Penn Power	Apr 2023	Residential	637,159	100,034	N/A	15.7%
			Commercial	116,296	35,005	N/A	30.1%
			Industrial	2,148	1,871	N/A	87.1%
RI	Narragansett	Mar 2023	Res (A-16, A-60)	Unavailable	28,579	Unavailable	Unavailable
			Sm Com (C-06/C-08)	Unavailable	10,149	Unavailable	Unavailable
			Gen Com (G-02)	Unavailable	3,717	Unavailable	Unavailable
			Lg Dem (G-32/B-32)	Unavailable	854	Unavailable	Unavailable
			Utility Total	492,379	43,402	Unavailable	8.8%

* Number of Customers on Competitive Supply excludes the number of Customers on Aggregated Choice if the Aggregated Choice numbers are provided.

** NJ Customers on Competitive Supply reduced by number of customers on GEA (Aggregated Choice) to sync with switching %'s.

N/A – designates Aggregated Choice is not applicable, or available, to customers in that state.
Unavailable - designates Aggregated Choice is available to customers but the migration statistics did not separately record the customer counts.

Table 2.1

Number of Customers of Alternative Supply by State & Utility
Natural Gas

State	Utility	Reporting Date	Customer Type	Eligible Customers in Utility	Customers on Competitive Supply	% of Customers on Competitive Supply
CA	Statewide*	Dec 2021	Residential	11,232,552	408,607	3.6%
			Commercial	444,760	40,856	9.2%
			Industrial	35,498	4,263	12.0%
D.C.	Washington Gas	Apr 2023	Residential	151,632	16,526	10.9%
			Commercial	13,010	4,136	31.8%
GA	Statewide*	Dec 2021	Residential	1,881,936	1,548,517	82.3%
			Commercial	126,651	93,744	74.0%
			Industrial	2,772	1,574	56.8%
IL	Nicor Gas	Dec 2021	Residential	2,061,952	171,142	8.3%
			Commercial	Unavailable	Unavailable	Unavailable
IN	Statewide*	Dec 2021	Residential	1,812,881	61,563	3.4%
			Commercial	165,411	16,911	10.2%
			Industrial	4,684	2,220	47.4%
MA	Eversource - EGMA	Dec 2022	Residential	581,429	3,125	0.5%
			Small C & I	49,807	5,603	11.2%
			Med C & I	11,046	4,188	37.9%
			Large C & I	1,467	1,035	70.6%
	NGRID - Boston Gas	Dec 2022	Residential	849,201	15,065	1.8%
			Small C & I	53,338	5,636	10.6%
			Med C & I	12,843	3,245	25.3%
			Large C & I	9,154	3,923	42.9%
MD	BGE	Dec 2022	Residential	655,373	113,439	17.3%
			Firm Service C&I	44,045	12,999	29.5%
	Washington Gas (MD)	Dec 2022	Residential	478,185	72,299	15.1%
			Firm Service C&I	31,850	12,046	37.8%
MI	Consumers	Apr 2023	Residential	Unavailable	123,684	Unavailable
			C & I	Unavailable	21,991	Unavailable
	DTE Gas	Apr 2023	Residential	Unavailable	86,356	Unavailable
			C & I	Unavailable	11,626	Unavailable
NE	Black Hills Nebraska Gas		Residential	55,338	Unavailable	Unavailable
			Commercial	8,468	Unavailable	Unavailable
NJ	New Jersey Natural Gas	Mar 2023	Residential	534,080	17,173	3.2%
			C & I	40,490	7,685	19.0%
	PSEG	Mar 2023	Residential	1,735,986	41,492	2.4%
			C & I	167,223	23,812	14.2%
NY	ConEdison	Dec 2022	Residential	919,154	55,645	6.1%
			Small C & I	147,239	25,849	17.6%
			LG Transport	550	390	70.9%
	National Fuel Gas	Dec 2022	Residential	505,802	27,878	5.5%
			Small C & I	34,016	10,924	32.1%
			LG Transport	1,839	1,839	100.0%
	NGRID - NIMO	Dec 2022	Residential	590,914	32,912	5.6%
			Small C & I	46,065	10,593	23.0%
			LG Transport	899	897	99.8%
OH	Columbia Gas (OH)	Oct 2022	Residential	1,352,976	552,143	40.8%
			C & I	109,289	57,627	52.7%
	Dominion East of Ohio	Oct 2022	Residential	1,121,421	854,254	76.2%
			C & I	84,800	67,843	80.0%
	Duke (OH)	Oct 2022	Residential	470,202	84,392	17.9%
			C & I	28,384	10,560	37.2%
PA	Columbia Gas (PA)	Apr 2023	Residential	409,235	48,364	11.8%
			Commercial	Unavailable	Unavailable	Unavailable

PECO	Apr 2023	Residential	503,711	71,364	14.2%
		Commercial	Unavailable	Unavailable	Unavailable

* *Statewide were figures obtained from the Energy Information Administration ("EIA") because utility specific data could not be found.*

B. Renewable Requirements

Across the majority of U.S. states, renewable portfolio standards ("RPS") mandate that renewable energy be sourced to provide power to customers in ever increasing amounts. Competitive suppliers have been instrumental helping states meat their RPS mandates by offering many green options to their customers that go beyond the state minimum requirement. **Table 2.2** below summarizes the renewable requirements of the electricity markets included in this study from 2022 to 2026.

Table 2.2

Renewable Requirements

		Current Minimum Requirement				
State	**Renewable Type**	**2022**	**2023**	**2024**	**2025**	**2026**
Connecticut	Class I	24.00%	26.00%	28.00%	30.00%	32.00%
	Class II or Class I (additional)	4.00%	4.00%	4.00%	4.00%	4.00%
	Class III	5.00%	5.00%	5.00%	4.00%	4.00%
	Total RPS	**33.00%**	**35.00%**	**37.00%**	**38.00%**	**40.00%**
District of Columbia	Tier I	32.50%	38.75%	45.00%	52.00%	59.00%
	Solar	2.60%	2.85%	3.15%	3.45%	3.75%
	Total RPS	**35.10%**	**41.60%**	**48.15%**	**55.45%**	**62.75%**
Delaware	Solar Carve-Out	2.50%	2.75%	3.00%	3.25%	3.50%
	New Non-Solar	18.50%	19.25%	20.00%	20.75%	21.50%
	Total RPS	**21.00%**	**22.00%**	**23.00%**	**24.00%**	**25.00%**
Illinois	**Total RPS**	**19.00%**	**20.50%**	**22.00%**	**23.50%**	**25.00%**
Maine	Class I/New	10.00%	10.00%	10.00%	10.00%	10.00%
	Class IA	8.00%	11.00%	15.00%	19.00%	23.00%
	Thermal	0.80%	1.20%	1.60%	2.00%	2.40%
	Class II (Existing)	30.00%	30.00%	30.00%	30.00%	30.00%
	Total RPS	**48.80%**	**52.20%**	**56.60%**	**61.00%**	**65.40%**
Maryland	Solar	5.5%	6.0%	6.5%	7.0%	8.0%
	Tier I	30.1%	31.9%	33.7%	35.5%	38.0%
	Tier II	2.5%	2.50%	2.5%	2.50%	2.50%
	Total RPS	**32.6%**	**34.40%**	**36.20%**	**38.00%**	**40.50%**
Massachusetts	Class I	14.37%	17.15%	24.00%	27.00%	30.00%
	Class I Solar Carve-out I	1.54%	0.93%	TBD	N/A	N/A
	Class I Solar Carve-out II	4.09%	3.92%	TBD	TBD	TBD
	CES Other	4.00%	4.00%	4.00%	3.00%	6.00%
	Class II Renewables	3.60%	3.47%	3.60%	TBD	TBD
	Class II Waste	3.70%	3.70%	3.70%	3.70%	3.50%

	CES-E	20.00%	26.00%	27.00%	26.00%	TBD
	Total RPS	**51.30%**	**59.17%**	**62.30%**	**TBD**	**TBD**
New Hampshire	Class I Non-Thermal	10.30%	11.00%	11.90%	12.80%	12.80%
	Class I Thermal	2.00%	2.20%	2.20%	2.20%	2.20%
	Class II	0.70%	0.70%	0.70%	0.70%	0.70%
	Class III	0.50%	8.00%	8.00%	8.00%	8.00%
	Class IV	1.50%	1.50%	1.50%	1.50%	1.50%
	Total RPS	**15.00%**	**23.40%**	**24.30%**	**25.20%**	**25.20%**
New Jersey	Solar Carve-Out	5.10%	5.10%	4.90%	4.80%	4.50%
	Class I Non-Solar	21.00%	22.00%	27.00%	35.00%	38.00%
	Class II	2.50%	2.50%	2.50%	2.50%	2.50%
	Total RPS	**23.50%**	**24.5%**	**29.5%**	**37.5%**	**40.5%**
New York	Tier 1 REC	3.25%	6.16%	6.45%	TBD	TBD
	Tier 2	LSE's proportion of statewide load each compliance year				
	ZEC	LSE's proportion of statewide load each compliance year				
	2030 Statewide Goal	70%				
	2040 Statewide Goal	100% zero-emissions associated with electrical demand				
Ohio	**Total RPS**	**6.50%**	**7.00%**	**7.50%**	**8.00%**	**8.50%**
Pennsylvania	Solar Carve-Out	0.50%	0.50%	0.50%	0.50%	0.50%
	Tier I Non-Solar	7.50%	7.50%	7.50%	7.50%	7.50%
	Tier II	10.00%	10.00%	10.00%	10.00%	10.00%
	Total RPS	**18.00%**	**18.00%**	**18.00%**	**18.00%**	**18.00%**
Rhode Island	New Resources	17.00%	21.00%	26.00%	32.00%	39.00%
	Existing or New Resources	2.00%	2.00%	2.00%	2.00%	2.00%
	Total RPS	**19.00%**	**23.00%**	**28.00%**	**34.00%**	**41.00%**

III. 2022 Competitive Electric Supply Product Value Assessment

The 2022 competitive electric supply product value assessment incorporated two analyses. The first compared 2022 electric utility historical PTC values to 2022 supplier offers and the second estimated values of additional services contained in the 2022 supplier offers surveyed. The results of each analysis along with the methodologies employed are provided in the remainder of this section. The historical analysis entailed comparing the prevailing residential PTC for each month in 2022 to the lowest supplier offer available to determine whether residential customers could attain savings over utility rates with competitive supply.

A. Historical Analysis Results

Analysis results indicate that if residential customers took advantage of the lowest supplier offers available in each utility covered by the analysis, residential customers would have saved money across 2022 in 22 out of 31 utilities. In the 22 utilities where savings were available, customers could have

saved anywhere between $7 dollars and $452 per year depending on the utility. Of the utilities covered, if all residential customers took advantage of the lowest priced offers, the total net savings would have been $2.1 billion in 2022. **Table 3.0** below provides a breakdown of the historical analysis results.

Table 3.0

2022 Annual Available Savings
Assuming Customers Took Advantage of the Lowest Supplier Offer and Remained on That Offer for the Offer Term

State	Utility	Residential Savings (in Total $)	Market Savings (in $ Total $)
Connecticut	Eversource - CL&P	$138.39	$158,946,518
	United Illuminating	($71.20)	($21,866,615)
Illinois	Ameren I - CIPS	$422.97	$136,225,774
	Ameren II - CILCO	$416.11	$78,844,824
	Ameren III - IP	$393.46	$215,832,959
	ComEd	$188.58	$683,857,167
Massachusetts	NSTAR BECO	$396.01	
	NSTAR CAMB	$258.45	$360,222,985
	NSTAR COMM	$452.75	
	Unitil - FGE	($134.36)	($3,497,588)
	NGRID - MECO	$198.24	$202,300,527
	NGRID - Nantucket	$176.75	
	Eversource - WMECO	$98.01	$14,753,869
Maryland	BGE	$7.39	$8,834,440
	Delmarva MD	$32.62	$5,929,236
	Potomac Edison	($10.07)	($2,488,976)
	Pepco MD	($15.96)	($8,602,282)
Ohio	AEP Columbus Southern	$14.59	$19,151,477
	AEP Ohio Power	$14.59	
	AES Ohio	($88.49)	($59,498,322)
	Cleveland Electric Illuminating	$246.53	$116,415,536
	Duke	$27.28	$17,917,543
	Ohio Edison	($12.31)	($11,795,907)
	Toledo Edison	($46.31)	($12,857,190)
Pennsylvania	Duquesne	$70.95	$38,419,436
	MetEd	($17.52)	($8,942,466)
	PECO	$11.58	$17,523,148
	Penelec PA	$33.94	$16,977,357
	Penn Power	($3.41)	($513,961)
	PPL	$138.92	$176,749,090
	West Penn Power	$48.10	$30,328,821
Total - All Markets			**$2,169,167,402**

B. Retail Supply Product Value-Added Services

In addition to offering savings over utility PTC prices as well as locking in prices for longer terms than the PTC, competitive suppliers also offer value-added services that accompany many of their products. A sample of select value-added service types accompanying 2022 supplier offers is provided in **Table 3.1**.

Table 3.1

2022 Annual Report
Competitive Electric Product Addons and Values

Addon Service	Description	Value	Source of Valuation
Green Products	Products that provide renewable energy beyond the state minimum requirement contained in the utility PTC	A multi-year study of the social cost of carbon, a critical input for climate policy analysis, finds that every additional ton of carbon dioxide emitted into the atmosphere costs society $185	https://www.rff.org/publications/journal-articles/comprehensive-evidence-implies-a-higher-social-cost-of-co2/
Home Warranty Coverage	Home warranty provided when signing up for the product	$450 to $600 annually	https://www.consumeraffairs.com/homeowners/home-warranty-cost.html
Rewards Programs	Save on shopping, dining, travel, movies, etc.	Up to $1,200 annually	Product description
Rebate, cash back and bonus offers	Bonus and % cash-back offers	$107 to $229 annually depending on utility	Derived using product description and 2022 historical PTCs multiplied by residential customer load
Free EV Charging	Free EV charging on weekends with monthly kWh limits	$172 to $505 annually depending on utility	Derived using product description and 2022 historical PTCs multiplied by residential customer load

C. Historical Analysis Methodology

The historical savings analysis consisted of three tasks including:

1) Utility price to compare ("PTC") derivation.
2) Competitive supplier offer analysis.
3) PTC v supplier offer comparison.

The methodology employed for each task is provided in the remainder of this section.

1. Utility Price to Compare ("PTC") Derivation

The Price to Compare, generally referred to as the PTC, is a standard industry term in restructured electric markets. It refers to a given utility's bypassable default service rate that competitive electric suppliers compete against to earn the business of their customers. The term "bypassable" refers to utility service rate charge(s) that customers avoid or bypass when opting for competitive electric

service. A utility's residential PTC is generally derived by calculating applicable residential tariff charges against residential load and then dividing the total by that same residential load to formulate a dollar per kWh PTC.

As part of the analysis performed for this report, monthly PTCs for each utility were derived by calculating applicable residential tariff charges against the utility standard residential load profile for each month in 2022. Weighted average PTCs for each month were then derived from the result. The tariffs, tariff charges, and residential load profiles utilized for the PTC derivation along with the monthly PTCs derived are provided in the Appendix section.

2. Competitive Supplier Offers Analysis

Competitive supply offers include fixed, variable, and green products options that enable electric customers to take electric generation service from numerous competitive suppliers operating in choice states. Competitive supply offers in many choice states are posted on websites operating under the jurisdiction of utility commissions where residential customers can both view as well as sign up for a given offer.

For purposes of the analysis, competitive supply offers were extrapolated from each associated offer website for each month in 2022. This exercise included collecting competitive offers posted in a $ per kWh format as well as associated offer details provided with each offer price. Such additional details included offer term, percentage of green energy included, value added services, associated fees, and other related items.

Because most offer websites do not enable access of historical offers, offer data was collected for one day in each month of 2022. Collected offers were then used as a proxy for all offers posted in that month. It should be noted that since only offers posted in a single day in the month were analyzed, it may very well be the case that even lower offers were posted in other days. As such, it's highly likely that the savings analysis results presented in this document **underreport** the full savings potential available to residential customers via competitive supply.

Offers extrapolated for each utility were scrubbed so only '*clean*' offers were utilized in comparisons to the prevailing PTC. *Clean* offers are defined as those where the price per kWh was clearly defined in the offer literature and remained fixed for the full offer term. Offers where the fixed price per term was either not clearly defined or changed at any point throughout the term were excluded. Excluded offers comprised of the following:

- offers containing enrollment fees,
- offers containing monthly fees,
- offers with introductory rates that did not remain fixed for the full offer term,
- duplicate offers at the utility parent level, and
- customized offers requiring the customer to contact their utility.

Price comparisons were run between clean offers and utility PTCs to determine savings potential.

3. Tariff v Supply Price Comparison

To estimate residential customer potential savings, the lowest competitive clean offers were compared to the PTC on a term basis. This meant that a foundational assumption of the analysis was

that residential customers understood the terms of service and remained on the competitive offer for the full fixed price term of the product. For example, if an Eversource – Connecticut Light & Power ("Eversource - CL&P") customer took service under the lowest 18-month competitive offer posted in January 2022, that customer would remain on that offer for the full 18-month term. Since PTC rates for Eversource - CL&P are set in January and July of each year, potential customer savings (or loss) was derived by comparing the 18-month offer rate to the Eversource - CL&P PTC price valid from January through June 2022 and then to the new PTC rate valid from July through December 2022 (see **Table 3.3**).

Table 3.3

Eversource - CL&P Example			
Price Comparison Period	**PTC** *(in $ per kWh)*	**Lowest Competitive Offer** ***18-Month Term*** *(in $ per kWh)*	**Available Savings** *(in $ per kWh)*
Jan '22 - Jun '22	$0.11485	$0.10190	$0.01295
Jul '22 - Dec '22	$0.12050	$0.10190	$0.01860

In addition to deriving $ per of kWh savings, potential monthly and term savings for an individual residential customer as well as the entire residential class in each utility were also derived. Derivation of total potential savings incorporated the same estimations of residential monthly kWh usage utilized in the PTC derivation previously described. For the total market savings, residential customer counts, as well as residential class kWh usage for each utility were also obtained from various sources. These sources are provided as part of the Appendix section.

To calculate total potential savings for the residential class in each utility the delta between the PTC and applicable competitive offers were calculated against the total class kWh for 2022. Taking the Eversource - CL&P example in **Table 3.3** above, the $ per kWh *Available Savings* is multiplied against the total kWh for the Eversource - CL&P residential class spanning the analysis terms (see **Table 3.4**).

Table 3.4

Eversource - CL&P Example					
Price Comparison Period	**PTC** *(in $ per kWh)*	**Lowest Competitive Offer** ***18-Month Term*** *(in $ per kWh)*	**Available Savings** *(in $ per kWh)*	**Total Residential Class kWh**	**2022 Available Savings for Residential Class** *(in $)*
Jan '22 - Jun '22	$0.11485	$0.10190	$0.01295	4,676,075,092	$60,545,171
Jul '22 - Dec '22	$0.12050	$0.10190	$0.01860	5,291,974,619	$98,430,728
Total Available Savings for 2022					**$158,939,140**

IV. Electric and Natural Gas Utility Tariff Forecast Analysis

Electricity and natural gas utility tariff forecasts run as part of the Study to gauge whether residential customer energy costs will continue to remain at the high 2022 and 2023 levels. For electricity forecast residential PTCs were forecasted through 2026. For gas, residential utility tariff prices were

also forecasted through 2026. Analysis results and methodologies employed are provided in the remainder of this section. More detailed data tables and sources are provided in the Appendix section.

A. Residential Electric PTC Forecast

The residential electric PTC forecast analysis entailed generating monthly and annual forecasts for 2023, 2024, 2025 and 2026. Forecast prices were then compared to 2022 to determine if utility PTC price relief may be in store for residential customers across markets who've witnessed their PTC based electric bills rise substantially in 2022 and 2023. Analysis results indicate that PTC prices are expected to remain high through 2026 and will remain above 2022 PTC price levels for all four years in the in the majority of markets surveyed. As such, we expect the competitive market to continue to offer both savings opportunities to customers as well as long term fixed product offerings that shield residential customers from the traditionally high PTC volatility. **Table 4.0** below provides annual weighted average PTC actuals for 2022 as well as annual weighted average forecast PTCs for 2023 through 2026. **Table 4.1** illustrates the percentage difference between 2022 weighted average PTC actuals and weighted average PTC forecasts for each forecast year. The monthly PTC forecasts are provided in the Appendix section.

Table 4.0

2022 Annual Report
2022 Annual Weighted Average PTC Actuals v 2023 - 2026 Annual Weighted Average PTC Forecasts
(in $ per kWh)

State	Utility	2022	2023	2024	2025	2026
Connecticut	Eversource - CL&P	$0.11784	$0.24172	$0.20906	$0.19655	$0.18698
	United Illuminating	$0.10643	$0.21943	$0.18979	$0.17843	$0.16974
Washington DC	Pepco DC	$0.07573	$0.08392	$0.08802	$0.08774	$0.08526
Illinois	Ameren I - CIPS	$0.08783	$0.11979	$0.11992	$0.11477	$0.10985
	Ameren II - CILCO	$0.09003	$0.12039	$0.12052	$0.11535	$0.11040
	Ameren III - IP	$0.08964	$0.11867	$0.11880	$0.11370	$0.10882
	ComEd	$0.09326	$0.10034	$0.09645	$0.08664	$0.08047
Massachusetts	NSTAR BECO	$0.16871	$0.25776	$0.22294	$0.20959	$0.19939
	NSTAR CAMB	$0.16871	$0.25776	$0.22294	$0.20959	$0.19939
	NSTAR COMM	$0.16871	$0.25776	$0.22294	$0.20959	$0.19939
	FGE	$0.14914	$0.21429	$0.18534	$0.17425	$0.16576
	MECO	$0.15957	$0.21050	$0.18206	$0.17117	$0.16283
	Nantucket	$0.15957	$0.21050	$0.18206	$0.17117	$0.16283
	WMECO	$0.14537	$0.21991	$0.19020	$0.17882	$0.17011
Maryland	BGE	$0.08399	$0.09786	$0.10264	$0.10232	$0.09942
	Delmarva MD	$0.08303	$0.09340	$0.09796	$0.09765	$0.09489
	Potomac Edison	$0.06980	$0.06537	$0.06856	$0.06835	$0.06642
	Pepco MD	$0.07754	$0.09934	$0.10420	$0.10387	$0.10093
Ohio	AEP Columbus Southern	$0.06421	$0.07273	$0.07094	$0.06351	$0.06224
	AEP Ohio Power	$0.06421	$0.07273	$0.07094	$0.06351	$0.06224
	AES Ohio	$0.06387	$0.05852	$0.05708	$0.05111	$0.05008
	Cleveland Electric Illuminating	$0.08025	$0.10910	$0.10641	$0.09528	$0.09336

	Duke	$0.06036	$0.06432	$0.06274	$0.05617	$0.05504
	Ohio Edison	$0.05767	$0.05806	$0.05663	$0.05071	$0.04969
	Toledo Edison	$0.05886	$0.05869	$0.05724	$0.05125	$0.05022
Pennsylvania	Duquesne	$0.09039	$0.11256	$0.11806	$0.11769	$0.11436
	MetEd	$0.08128	$0.10044	$0.10535	$0.10502	$0.10205
	PECO	$0.07787	$0.09746	$0.10222	$0.10190	$0.09902
	Penelec PA	$0.08053	$0.09621	$0.10091	$0.10059	$0.09775
	Penn Power	$0.08656	$0.10452	$0.10963	$0.10928	$0.10619
	PPL	$0.11214	$0.14612	$0.15326	$0.15278	$0.14846
	West Penn Power	$0.07204	$0.08280	$0.08685	$0.08657	$0.08413
Maine	BHE	$0.11684	$0.16438	$0.14217	$0.13366	$0.12716
	CMP	$0.11816	$0.17631	$0.15249	$0.14336	$0.13638
New Jersey	AECO	$0.10875	$0.11250	$0.11799	$0.11762	$0.11430
	JCPL	$0.09155	$0.09434	$0.09895	$0.09864	$0.09585
	PSEG	$0.11788	$0.12912	$0.13543	$0.13500	$0.13119
Delaware	Delmarva DE	$0.06652	$0.07498	$0.07864	$0.07839	$0.07618
Rhode Island	Narragansett	$0.10744	$0.12113	$0.10477	$0.09850	$0.09370
New Hampshire	Liberty	$0.15339	$0.22031	$0.19054	$0.17914	$0.17042
	Unitil	$0.13963	$0.25397	$0.21966	$0.20651	$0.19646
	PSNH	$0.10875	$0.11250	$0.11799	$0.11762	$0.11430
New York	ConEd - Zone H	$0.10415	$0.09932	$0.11797	$0.10946	$0.09728
	ConEd - Zone I	$0.10424	$0.09931	$0.11796	$0.10945	$0.09727
	ConEd - Zone J	$0.11528	$0.11705	$0.13902	$0.12900	$0.11464
	NMPC Zone A	$0.06179	$0.05979	$0.06544	$0.06179	$0.05491
	NMPC Zone F	$0.08831	$0.08556	$0.09366	$0.08843	$0.07858
	NYSEG West	$0.07403	$0.06822	$0.07468	$0.07051	$0.06266
	NYSEG East	$0.09885	$0.10404	$0.11389	$0.10753	$0.09555
	NYSEG LHV	$0.10401	$0.10867	$0.11896	$0.11232	$0.09981

Table 4.1

2022 Annual Report
% Increase of 2023 - 2026 Forecast Annual Weighted Average PTCs from 2022 Annual Weighted Average PTC Actuals (in %)

State	Utility	2023	2024	2025	2026
Connecticut	Eversource - CL&P	105.12%	77.41%	66.79%	58.67%
	United Illuminating	106.16%	78.31%	67.64%	59.48%
Washington DC	Pepco DC	10.81%	16.22%	15.85%	12.58%
Illinois	Ameren I - CIPS	36.40%	36.54%	30.68%	25.08%
	Ameren II - CILCO	33.72%	33.86%	28.11%	22.62%
	Ameren III - IP	32.39%	32.53%	26.84%	21.40%
	ComEd	7.59%	3.42%	(7.10%)	(13.72%)
Massachusetts	NSTAR BECO	52.78%	32.14%	24.23%	18.18%

	NSTAR CAMB	52.78%	32.14%	24.23%	18.18%
	NSTAR COMM	52.78%	32.14%	24.23%	18.18%
	FGE	43.68%	24.27%	16.83%	11.14%
	MECO	31.92%	14.10%	7.27%	2.05%
	Nantucket	31.92%	14.10%	7.27%	2.05%
	WMECO	51.28%	30.84%	23.01%	17.02%
Maryland	BGE	16.51%	22.20%	21.81%	18.37%
	Delmarva MD	12.49%	17.99%	17.62%	14.29%
	Potomac Edison	(6.34%)	(1.76%)	(2.07%)	(4.84%)
	Pepco MD	28.11%	34.37%	33.95%	30.16%
Ohio	AEP Columbus Southern	13.27%	10.48%	(1.08%)	(3.07%)
	AEP Ohio Power	13.27%	10.48%	(1.08%)	(3.07%)
	AES Ohio	(8.37%)	(10.63%)	(19.98%)	(21.59%)
	Cleveland Electric Illuminating	35.96%	32.60%	18.73%	16.34%
	Duke	6.56%	3.93%	(6.94%)	(8.81%)
	Ohio Edison	0.68%	(1.80%)	(12.07%)	(13.84%)
	Toledo Edison	(0.29%)	(2.75%)	(12.92%)	(14.67%)
Pennsylvania	Duquesne	24.52%	30.61%	30.20%	26.52%
	MetEd	23.58%	29.61%	29.21%	25.56%
	PECO	25.16%	31.27%	30.86%	27.16%
	Penelec PA	19.47%	25.31%	24.91%	21.38%
	Penn Power	20.75%	26.64%	26.25%	22.68%
	PPL	30.30%	36.67%	36.24%	32.39%
	West Penn Power	14.94%	20.55%	20.18%	16.78%
Maine	BHE	40.69%	21.68%	14.40%	8.83%
	CMP	49.21%	29.05%	21.33%	15.42%
New Jersey	AECO	3.45%	8.50%	8.16%	5.11%
	JCPL	3.05%	8.08%	7.74%	4.70%
	PSEG	9.53%	14.89%	14.52%	11.29%
Delaware	Delmarva DE	12.71%	18.22%	17.84%	14.51%
Rhode Island	Narragansett	12.74%	(2.49%)	(8.33%)	(12.79%)
New Hampshire	Liberty	43.63%	24.23%	16.79%	11.10%
	Unitil	81.89%	57.32%	47.90%	40.70%
	PSNH	3.45%	8.50%	8.16%	5.11%
New York	ConEd - Zone H	(4.63%)	13.27%	5.10%	(6.59%)
	ConEd - Zone I	(4.73%)	13.16%	5.00%	(6.69%)
	ConEd - Zone J	1.53%	20.59%	11.90%	(0.55%)
	NMPC Zone A	(3.24%)	5.92%	0.01%	(11.13%)
	NMPC Zone F	(3.11%)	6.06%	0.13%	(11.02%)
	NYSEG West	(7.84%)	0.88%	(4.75%)	(15.36%)
	NYSEG East	5.25%	15.21%	8.78%	(3.34%)
	NYSEG LHV	4.48%	14.37%	7.99%	(4.04%)

Average % Increase from 2022 Actuals Across All Markets	**22.51%**	**20.59%**	**14.83%**	**8.89%**

B. Residential Electric PTC Forecast Methodology

Utility PTC forecasts were generated using 2022 PTCs, 2023 PTC actuals available at the time or drafting and forecast escalators derived from EIA long-run regional forecasts of residential electric prices. The latest EIA long-run residential electric price forecasts were pulled for the Midcon Central, New England, PJM East, PJM West, PJM ComEd, New York City and & Long Island, and Upstate New York EIA regions. The mapping of each regional forecast to the associated state and utility included as part of the PTC forecast exercise is provided in **Table 4.2** below.

Table 4.2

2022 Annual Report
EIA Electricity Region to U.S. State and Utility Mapping

EIA Region	STATE	Utility
Midcon Central	Illinois	Ameren I - CIPS
		Ameren II - CILCO
		Ameren III - IP
New England	Connecticut	Eversource - CL&P
		United Illuminating
	Maine	BHE
		CMP
		PSNH
	Massachusetts	NSTAR BECO
		NSTAR CAMB
		NSTAR COMM
		Unitil - FGE
		NGRID - MECO
		NGRID - Nantucket
		Eversource - WMECO
	New Hampshire	Liberty
		Unitil
	Rhode Island	Narragansett
New York City & Long Island	New York	ConEd
Upstate New York	New York	NMPC
		NYSEG
PJM East	Delaware	Delmarva DE
	Maryland	BGE
		Delmarva MD
		Potomac Edison
		Pepco MD
	New Jersey	AECO
		JCPL
		PSEG
	Pennsylvania	Duquesne
		MetEd
		PECO
		Penelec PA
		Penn Power
		PPL
		West Penn Power
	Washington D.C.	Pepco DC
PJM West	Ohio	AEP Columbus Southern
		AEP Ohio Power
		AES Ohio
		Cleveland Electric Illuminating
		Duke
		Ohio Edison
		Toledo Edison
PJM ComEd	Illinois	ComEd

Derived forecast escalators were applied to monthly 2022 and 2023 PTCs to generate monthly PTC forecasts from the period of 2023 through 2026. Monthly PTC forecasts were then load weighted to generate annual PTC forecasts.

C. Natural Gas Tariff Forecast Analysis

The residential natural gas tariff forecast analysis entailed generating monthly and annual forecasts for 2023, 2024, 2025 and 2026. Forecast prices were then compared to 2022 to determine if utility natural gas tariff price relief may be in store for residential customers across markets who've witnessed their tariff bills rise substantially in 2022 and 2023. Analysis results indicate that natural gas prices are expected to remain high through 2026 and will remain above 2022 PTC price levels for all four years in the in many markets surveyed. As such, we expect the competitive market to continue to offer both savings opportunities to customers as well as long term fixed product offerings that shield residential customers from the volatility of gas rates. **Table 4.3** below provides annual weighted average gas tariff price actuals for 2022 as well as annual weighted average gas tariff price forecasts for 2023 through 2026. **Table 4.4** illustrates the percentage difference between 2022 weighted tariff price actuals and weighted average tariff price forecasts for each forecast year. The monthly forecast values are provided in the Appendix section.

Table 4.3

2022 Annual Report
2022 Annual Weighted Average Utility Residential Gas Tariff Actuals v 2023 - 2026 Annual Weighted Average Tariff Forecasts
(in $ per MCF)

State	Utility	2022	2023	2024	2025	2026
California	PG&E	$23.00	$26.52	$28.58	$26.16	$23.78
	SoCalGas	$17.45	$25.23	$27.19	$24.89	$22.63
Washington DC	Washington Gas DC	$14.93	$15.75	$15.89	$15.95	$16.00
Georgia	Liberty	$18.38	$21.54	$21.72	$21.81	$21.88
Illinois	Nicor Gas	$12.28	$11.40	$9.93	$9.47	$9.12
Indiana	NIPSCO Gas	$10.98	$12.31	$10.73	$10.23	$9.85
Massachusetts	Eversource (EGMA)	$23.37	$23.82	$22.42	$22.10	$22.12
	National Grid (Boston Gas)	$25.39	$29.00	$27.30	$26.91	$26.93
Maryland	BGE	$17.85	$19.61	$19.78	$19.86	$19.93
	Washington Gas MD	$14.70	$15.61	$15.74	$15.81	$15.86
Michigan	Consumers	$11.32	$14.09	$12.27	$11.70	$11.27
	DTE Gas	$10.09	$11.50	$10.02	$9.55	$9.20
Nebraska	Black Hills Nebraska Gas	$14.84	$18.05	$16.57	$16.05	$15.67
New Jersey	New Jersey Natural Gas	$13.63	$15.03	$13.78	$13.35	$13.02
	PSEG	$11.61	$13.74	$12.60	$12.21	$11.91
New York	Con Edison	$28.76	$31.24	$28.64	$27.75	$27.07
	NFGD	$9.92	$11.64	$10.67	$10.34	$10.09
	NMPC	$12.39	$13.18	$12.09	$11.71	$11.43
Ohio	Columbia Gas OH	$12.60	$10.77	$9.38	$8.94	$8.62
	Dominion East of Ohio (DEO)	$12.16	$11.14	$9.70	$9.25	$8.92

	Duke (OH)	$13.13	$15.14	$13.19	$12.58	$12.12
Pennsylvania	Columbia Gas PA	$19.09	$21.74	$19.93	$19.31	$18.84
	PECO	$12.04	$16.72	$15.33	$14.85	$14.49

Table 4.4

2022 Annual Report
% Increase of 2023 - 2026 Annual Weighted Average Forecast Gas Tariff Prices from 2022 Annual Weighted Average Actuals (in %)

State	Utility	2023	2024	2025	2026
California	PG&E	15.30%	24.29%	13.76%	3.42%
	SoCalGas	44.58%	55.84%	42.64%	29.68%
Washington DC	Washington Gas DC	5.50%	6.41%	6.82%	7.18%
Georgia	Liberty	17.20%	18.21%	18.67%	19.06%
Illinois	Nicor Gas	(7.16%)	(19.14%)	(22.89%)	(25.71%)
Indiana	NIPSCO Gas	12.11%	(2.35%)	(6.88%)	(10.29%)
Massachusetts	Eversource (EGMA)	1.91%	(4.06%)	(5.45%)	(5.36%)
	National Grid (Boston Gas)	14.23%	7.53%	5.98%	6.07%
Maryland	BGE	9.89%	10.84%	11.27%	11.64%
	Washington Gas MD	6.17%	7.08%	7.50%	7.86%
Michigan	Consumers	24.51%	8.45%	3.41%	(0.37%)
	DTE Gas	13.98%	(0.72%)	(5.33%)	(8.79%)
Nebraska	Black Hills Nebraska Gas	21.63%	11.68%	8.12%	5.56%
New Jersey	New Jersey Natural Gas	10.22%	1.05%	(2.09%)	(4.47%)
	PSEG	18.34%	8.49%	5.12%	2.56%
New York	Con Edison	8.60%	(0.44%)	(3.53%)	(5.88%)
	NFGD	17.30%	7.54%	4.20%	1.67%
	NMPC	6.42%	(2.44%)	(5.46%)	(7.77%)
Ohio	Columbia Gas OH	(14.54%)	(25.56%)	(29.02%)	(31.62%)
	Dominion East of Ohio (DEO)	(8.40%)	(20.22%)	(23.92%)	(26.70%)
	Duke (OH)	15.32%	0.44%	(4.22%)	(7.72%)
Pennsylvania	Columbia Gas PA	13.84%	4.37%	1.13%	(1.33%)
	PECO	38.87%	27.32%	23.37%	20.36%

D. Utility Residential Tariff Price Forecast Methodology

Utility residential tariff price forecasts were derived by first multiplying historical charges of residential tariffs against a residential monthly usage profile. Since utility tariffs provide charges in varying gas units, all charges were converted to dollars per thousand cubic feet ("MCF") to make the dollar values consistent between utilities. The tariffs and charges included in the utility tariff forecast analysis are provided in **Table 4.5** below.

Each charge in **Table 4.5** above was calculated against an associated state residential monthly usage profile derived using EIA data to determine a monthly cost of gas for January 2022 through April 2023. The monthly usage profile was derived in therms, one hundred cubic feet ("CCF") or MCF depending

on the unit price of each tariff. The monthly gas tariff cost for May through December of 2023 was derived by applying the percentage difference between 2022 and 2023 in January through April to the remaining months in 2023. Utility based forecast escalators developed using EIA and AGA data were then used to derive forecasts from 2024 through 2026. Load weighting was then used to convert monthly gas tariff forecasts into annual weighted average forecasts.

Forecast Escalator Derivation

EIA produces annual long-run forecasts for residential delivered natural gas prices for nine regions across the country as well as provides historical tables of residential delivered gas prices for each U.S. state. The nine EIA gas forecast regions include New England, Mid Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain and Pacific. Each region encompasses a different set of U.S. states, as shown in **Table 4.6** below.

Table 4.6

2022 Annual Report
EIA Natural Gas Region to U.S. State Mapping

EIA Region	STATE
New England	Connecticut
	Maine
	Massachusetts
	New Hampshire
	Rhode Island
	Vermont
Mid Atlantic	New Jersey
	New York
	Pennsylvania
East North Central	Illinois
	Indiana
	Michigan
	Ohio
	Wisconsin
West North Central	Iowa
	Kansas
	Minnesota
	Missouri
	Nebraska
	North Dakota
	South Dakota
South Atlantic	Delaware
	District of Columbia
	Florida
	Georgia
	Maryland
	North Carolina
	South Carolina
	Virginia
	West Virginia
East South Central	Alabama
	Kentucky
	Mississippi
	Tennessee
West South Central	Arkansas
	Louisiana
	Oklahoma
	Texas
Mountain	Arizona
	Colorado
	Idaho
	Montana
	Nevada
	New Mexico

	Utah
	Wyoming
Pacific	Alaska
	California
	Hawaii
	Oregon
	Washington

EIA regional forecasts were first converted to state-level forecasts by taking a ratio of historical five-year weighted average prices for residential delivered gas each state to the five-year historical weighted average price of bundle of states that comprise each region. The resulting scaling factors were then applied to EIA regional residential delivered natural gas price forecasts to convert them to state-level forecasts.

Next, utility level scaling factors were developed using AGA utility-based data for 2021, the latest year for which this data was available. These scaling factors were developed by taking a ratio of the weighted average 2021 residential delivered gas prices for each gas utility to the residential delivered gas weighted average price of each associated state. Utility level scaling factors were then used to generate utility residential tariff price forecasts for 2024 through 2026.

Appendix

A. Historical Electric Headroom Analysis Tables

Table A1 – Electric PTC Derivation Inputs

State	Utility	Residential PTC Tariff	Residential PTC Tariff Charges
Connecticut	Eversource - CL&P	Rate 1 - Residential Electric Service	Generation Service
			FMCC Generation
	United Illuminating	Residential Rate R	Standard Service Generation
			Net Bypassable FMCC
Illinois	Ameren I - CIPS	BGS-1 - Residential Service	Retail Supply Charges
			Market Value Adjustment
			Supply Cost Adjustment
			Transmission Service
	Ameren II - CILCO	BGS-1 - Residential Service	Retail Supply Charges
			Market Value Adjustment
			Supply Cost Adjustment
			Transmission Service
	Ameren III - IP	BGS-1 - Residential Service	Retail Supply Charges
			Market Value Adjustment
			Supply Cost Adjustment
			Transmission Service
	ComEd	Basic Electric Service (BES)	Residential Non-Electric Space Heating Single
			Transmission and Ancillaries
			Purchased Electricity Adjustment
Massachusetts	NSTAR BECO	Basic Service - R1	Residential Fixed
	NSTAR CAMB	Basic Service - R1	Residential Fixed
	NSTAR COMM	Basic Service - R1	Residential Fixed
	Unitil - FGE	Basic Service - R1	Fixed Basic Service
	NGRID - MECO	Basic Service - R1	Regular Residential Fixed
	NGRID - Nantucket	Basic Service - R1	Regular Residential Fixed
	Eversource - WMECO	Basic Service - R1	Fixed Price Option
Maryland	BGE	Schedule R	Energy
			Transmission
	Delmarva MD	Schedule R	Transmission
			Standard Offer Service
			Procurement Cost Adj
	Potomac Edison	Schedule R	Energy
			Energy Cost Adjustment
			Transmission
	Pepco MD	Schedule R	Transmission
			Energy
			Procurement Cost Adj
Ohio	AEP Columbus Southern	Schedule RS	Generation Energy Rider
			Generation Capacity Rider
			Auction Cost Reconciliation Rider
			Rider AER
	AEP Ohio Power	Schedule RS	Generation Energy Rider
			Generation Capacity Rider
			Auction Cost Reconciliation Rider
			Rider AER
	AES Ohio	D17	Energy
			Transmission Cost Recovery Rider
	Cleveland Electric Illuminating	Rate RS	Generation Service Rider (Rider GEN)
			Alternative Energy Resource (Rider AER)
			Non-Distribution Uncollectible (Rider NDU)
			Transmission and Ancillary Services (Rider TAS)
	Duke	RS - RESIDENTIAL SERVICE	Retail Energy Rider
			Retail Capacity Rider
			Rider AER-R
			Rider SCR
	Ohio Edison	Rate RS	Generation Service Rider (Rider GEN)
			Alternative Energy Resource (Rider AER)
			Non-Distribution Uncollectible (Rider NDU)

			Transmission and Ancillary Services (Rider TAS)
	Toledo Edison	Rate RS	Generation Service Rider (Rider GEN)
			Alternative Energy Resource (Rider AER)
			Non-Distribution Uncollectible (Rider NDU)
			Transmission and Ancillary Services (Rider TAS)
Pennsylvania	Duquesne	Rate Schedules RS	Generation Service Charge
			Transmission Service Charge
	MetEd	Rate RS	Energy Charge
	PECO	Rate R	Energy
			Transmission
	Penelec PA	Rate RS	Energy Charge
	Penn Power	Rate RS	Default Service Charge
	PPL	Schedules RS	Energy
			Transmission
	West Penn Power	Rate RS	Default Service

Table A2 – Historical Supplier Offer and Market Assessment Sources

State	Utility	Rate Schedule	Utility Load Profile Assigned	Sources	Notes
Connecticut	Eversource - CL&P	Residential - Rate 1	RNSH: Residential Non-Space Heat (01)	Rate Schedule: Utility Tariff Offers taken from Connecticut Rate Board: www.energizect.com Number of CL&P Residential Customers: FERC Form1 2019 Q4 Number of UI Residential Customers: FERC Form1 2019 Q4 https://dcpsc.org/Utility-Information/Electric/Historical-and-Analytical-Information-for-Electric.aspx	1) # of Fixed and Green Offers excludes offers not available until the following month 2) Green Offers not included in Fixed offer analysis 3) Green Offers defined as those with green provisions exceeding the state minimum 4) Total Monthly kWh = Number of Residential Customers x Monthly kWh by Profile 5) Offers containing enrollment fees are not included in this analysis 6) Offers containing monthly service fees are not included in this analysis. A few offers now have hidden monthly pass through fees for capacity.
	United Illuminating	Residential - Rate R	R: Residential		
D.C. (1)	Pepco	Residential - Schedule R	RDNS: Residential Non-Space Heating (DC)	Rate Schedule: Utility Tariff Offers: D.C. PSC - History of Electric Gen & Trans Prices https://www.dcpsc.org/Utility-Information/Electric/Historical-and-Analytical-Information-for-Electric/Consumer-Advisory-Electricity-Prices.aspx Pepco's Average Number of Residential Customers and Total Monthly kWh: https://www.dcpsc.org/Utility-Information/Electric/Historical-and-Analytical-Information-for-Electric/Rates-and-Number-of-Customers.aspx	1) D.C. PTC analysis is on a 1 month lag due to the P.S.C. typically publishing the offers late and without a consistent frequency. 2) Green Offers not included in Fixed and Variable offer analysis 3) Green Offers defined as those with green provisions exceeding the state minimum
Illinois	Ameren_IL Zone I	BGS-1 - Residential Service	RESDHL: High summer use; Low winter use	Rate Schedule: Utility Tariff Offers taken from Plug In Illinois website: www.pluginillinois.org Source for Number of Residential Customers and Total Monthly kWh: https://www.icc.illinois.gov/Electricity/SwitchingStatistics.aspx	1) Green Offers, defined as those with green provisions exceeding the state minimum, are not included in Fixed and Variable offer analysis 2) Offers were not considered green in cases where green is mentioned in the offer description but there are no details of what percentage is green 3) Offers showing "Custom Price" as the rate, with no actual value, are not included as part of the analysis 4) Offers containing Monthly fees assessed by the retail suppliers, primarily in ComEd territory, are not included as part of the analysis
	Ameren_IL Zone II	BGS-1 - Residential Service	RESDHL: High summer use; Low winter use		
	Ameren_IL Zone III	BGS-1 - Residential Service	RESDHL: High summer use; Low winter use		
	ComEd	Residential	23: Residential Single Family Without Electric Space Heat		
Massachusetts	NSTAR BECO	Rate A1	R1: Rate R1 Residential	Rate Schedule: Utility Tariff Offers taken from Energy Switch MA: http://energyswitchma.gov Source for Number of Residential Customers and Total Monthly kWh: https://www.mass.gov/service-details/electric-customer-migration-data	1) Green Offers not included in Fixed and Variable offer analysis 2) Green Offers defined as those with green provisions exceeding the state minimum 3) Available Number of Residential Customers and Total Monthly kWh for NSTAR not broken out by utility within the state so state totals for all of NSTAR used 4) Available Number of Residential Customers and Total Monthly kWh for NGRID not broken out by utility within the state so state totals for all of NGRID used 5) Variable offers are those that automatically renew to a variable product
	NSTAR CAMB	Rate A1	R1: Rate R1 Residential		
	NSTAR COMM	Rate A1	R1: Rate R1 Residential		
	FGE	Residential - RD-1	RD1: Residential RD1		
	MECO	Rate R1	R1: Residential - Non-Space Heat		
	Nantucket	Rate R1	R1: Rate R1 Residential Regular		
	WMECO	Residential Electric (Non-heating)	R1: Rate R1 Residential Regular		
Maryland	BGE	Schedule R	R: Residential Service	Rate Schedule: Utility Tariff Offers taken from Maryland PSC: https://www.mdelectricchoice.com/shop Source for Number of Residential Customers: http://www.psc.state.md.us/electricity/electric-choice-monthly-enrollment-reports/#	1) Green Offers not included in Fixed and Variable offer analysis 2) Green Offers defined as those with green provisions exceeding the state minimum 3) Total Monthly kWh = Number of Residential Customers x Monthly kWh by Profile 4) Offers classified by PSC as Variable with Term listed as 'Varies' are assumed to have a term of 1 month
	Delmarva MD	Service Classification - R	MDDRS: Maryland - Residential Service		
	Potomac Edison	Schedule R	RSNH: Residential Service - No Electric Heat		
	Pepco MD	Schedule R	RMNS: Residential Non-Space Heating (MD)		
OH	AEP Columbus Southern	Schedule RS	CSRESA: Residential	Rate Schedule: Utility Tariff Offers taken from PUC: www.energychoice.ohio.gov Source for Number of Residential Customers and Total Monthly kWh: https://app.powerbigov.us/view?r=eyJrIjoiZTliZDEzNGEtZjlhYi00YWEzLThiZjktMGZmNDg4OWE4ZDFkIiwidCI6IjUwZjhmY2M0LTk0ZDgtNGYwNy04NGVlLTM2ZWQ1N2M3YzhhMiJ9	1) Green Offers not included in Fixed and Variable offer analysis 2) Green Offers defined as those with green provisions exceeding the state minimum 3) Offers, Available Number of Residential Customers and Total Monthly kWh for AEP not broken out by utility within the state so state totals for all of AEP used 4) Total Monthly kWh derived by multiplying monthly listed MWh by 1,000 5) Offers containing a monthly service fee are not included in this analysis
	AEP Ohio Power	Schedule RS	OPRESA: Residential		
	Cleveland Electric Illuminating	Residential	RG: Residential-General		
	AES Ohio	Residential	RS00: Residential No Heat Default		
	Duke	Residential	RS0: Residential - Unknown Winter Load		
	Ohio Edison	Residential	RG: Residential-General		
	Toledo Edison	Residential	RG: Residential-General		
Pennsylvania	Duquesne	Rate Schedule RS	RS: Residential Service	Rate Schedule: Utility Tariff Offers taken from PA Power Switch www.papowerswitch.com/ Number of Residential Customers: (Current year statistics are not being provided so previous year used as proxy) https://www.oca.pa.gov/electric-shopping-guide-2/	1) # of Fixed, Variable, and Green Offers for this analysis excludes any offers containing Enrollment Fees, Monthly Service Fees, Daily Service Fees, or are not available until the following month 2) Green Offers not included in Fixed and Variable offer analysis 3) Green Offers defined as those with green provisions exceeding the state minimum 4) GRT embedded in Utility PTC rate and retail offers 5) Total Monthly kWh for DQE = Monthly kWh by Profile 6) Total Monthly kWh for all other utilities = Number of Residential Customers x Monthly kWh by Profile 7) Offers classified by PUC as Variable with Term listed as 'No term length' are assumed to have a term of 1 month
	MetEd	Rate RS	RSNH: Residential Service - No Electric Heat		
	PECO	Rate R	R112: Residential - Average Monthly 451- 800 kWh		
	Penelec PA	Rate RS	RSNH: Residential Service - No Electric Heat		
	Penn Power	Rate RS	RG: Residential-General		
	PPL	Schedule RS	RS-GRS: RESIDENTIAL SERVICE - NON-ELEC HEAT		
	West Penn Power	Rate RS	RSNH: Residential Service - No Electric Heat		

Table A2 – 2022 Historical PTCs

	PTC in $ per kWh											
Utility	1/1/2022	2/1/2022	3/1/2022	4/1/2022	5/1/2022	6/1/2022	7/1/2022	8/1/2022	9/1/2022	10/1/2022	11/1/2022	12/1/2022
Eversource - CL&P	$0.11484	$0.11484	$0.11484	$0.11484	$0.11484	$0.11484	$0.12050	$0.12050	$0.12050	$0.12050	$0.12050	$0.12050
United Illuminating	$0.10673	$0.10673	$0.10673	$0.10673	$0.10673	$0.10669	$0.10620	$0.10620	$0.10620	$0.10620	$0.10620	$0.10620
Pepco DC	$0.07645	$0.07646	$0.07610	$0.07612	$0.07578	$0.07514	$0.07443	$0.07447	$0.07443	$0.07439	$0.07524	$0.08390
Ameren I - CIPS	$0.05276	$0.05358	$0.05250	$0.05598	$0.05723	$0.10842	$0.10579	$0.10661	$0.11027	$0.12361	$0.12161	$0.11798
Ameren II - CILCO	$0.05397	$0.05345	$0.05295	$0.05626	$0.05809	$0.11031	$0.10760	$0.10859	$0.11143	$0.12326	$0.11726	$0.11815
Ameren III - IP	$0.05373	$0.05430	$0.05342	$0.05660	$0.05766	$0.10846	$0.10609	$0.10775	$0.10968	$0.12483	$0.12013	$0.11664
ComEd	$0.07577	$0.08309	$0.08309	$0.07924	$0.07934	$0.06848	$0.11377	$0.11541	$0.11549	$0.09265	$0.09265	$0.09265
NSTAR BECO	$0.15764	$0.15764	$0.15764	$0.15764	$0.15764	$0.15764	$0.17871	$0.17871	$0.17871	$0.17871	$0.17871	$0.17871
NSTAR CAMB	$0.15764	$0.15764	$0.15764	$0.15764	$0.15764	$0.15764	$0.17871	$0.17871	$0.17871	$0.17871	$0.17871	$0.17871
NSTAR COMM	$0.15764	$0.15764	$0.15764	$0.15764	$0.15764	$0.15764	$0.17871	$0.17871	$0.17871	$0.17871	$0.17871	$0.17871
FGE	$0.15298	$0.15298	$0.15298	$0.15298	$0.15298	$0.13436	$0.13436	$0.13436	$0.13436	$0.13436	$0.17859	$0.17859
MECO	$0.14821	$0.14821	$0.14821	$0.14821	$0.11491	$0.11491	$0.11491	$0.11491	$0.11491	$0.11491	$0.33891	$0.33891
Nantucket	$0.14821	$0.14821	$0.14821	$0.14821	$0.11491	$0.11491	$0.11491	$0.11491	$0.11491	$0.11491	$0.33891	$0.33891
WMECO	$0.13731	$0.13731	$0.13731	$0.13731	$0.13731	$0.13731	$0.15348	$0.15348	$0.15348	$0.15348	$0.15348	$0.15348
BGE	$0.08330	$0.08298	$0.08298	$0.08298	$0.08298	$0.07820	$0.07820	$0.07820	$0.07820	$0.09773	$0.09773	$0.09773
Delmarva MD	$0.08267	$0.08224	$0.08224	$0.07960	$0.07917	$0.07854	$0.07871	$0.07846	$0.07760	$0.09381	$0.09331	$0.09338
Potomac Edison	$0.06814	$0.06814	$0.06814	$0.06814	$0.06814	$0.06832	$0.06832	$0.06832	$0.06832	$0.07495	$0.07495	$0.07678
Pepco MD	$0.07912	$0.07932	$0.07932	$0.07684	$0.07688	$0.06640	$0.06670	$0.06638	$0.06806	$0.09848	$0.09808	$0.09895
AEP Columbus Southern	$0.05304	$0.05304	$0.05304	$0.05304	$0.05304	$0.06930	$0.07232	$0.07232	$0.07232	$0.07317	$0.07317	$0.07317
AEP Ohio Power	$0.05304	$0.05304	$0.05304	$0.05304	$0.05304	$0.06930	$0.07232	$0.07232	$0.07232	$0.07317	$0.07317	$0.07317
AES Ohio	$0.04805	$0.04805	$0.04805	$0.04805	$0.04805	$0.10910	$0.10910	$0.06728	$0.05846	$0.05765	$0.05765	$0.05765
Cleveland Electric Illuminating	$0.05905	$0.05784	$0.05832	$0.05801	$0.05820	$0.06725	$0.06728	$0.10910	$0.10910	$0.10910	$0.10910	$0.10910
Duke	$0.05178	$0.05563	$0.05563	$0.05431	$0.05431	$0.06306	$0.06377	$0.06377	$0.06377	$0.06776	$0.06776	$0.06368
Ohio Edison	$0.05252	$0.05252	$0.05252	$0.05349	$0.05349	$0.06713	$0.06608	$0.06608	$0.05726	$0.05629	$0.05629	$0.05629
Toledo Edison	$0.05487	$0.05487	$0.05487	$0.05573	$0.05573	$0.06794	$0.06585	$0.06585	$0.05703	$0.05662	$0.05662	$0.05662
Duquesne	$0.07981	$0.07981	$0.07981	$0.07981	$0.07981	$0.09361	$0.09361	$0.09361	$0.09361	$0.09361	$0.09361	$0.11256
MetEd	$0.07414	$0.07414	$0.06832	$0.06832	$0.06832	$0.07936	$0.07936	$0.07936	$0.09397	$0.09397	$0.09397	$0.10303
PECO	$0.07023	$0.07023	$0.07066	$0.07066	$0.07066	$0.07637	$0.07637	$0.07637	$0.08508	$0.08508	$0.08508	$0.09855
Penelec PA	$0.06507	$0.06507	$0.06232	$0.06232	$0.06232	$0.08443	$0.08443	$0.08443	$0.10021	$0.10021	$0.10021	$0.09889
Penn Power	$0.07593	$0.07593	$0.07082	$0.07082	$0.07082	$0.08694	$0.08694	$0.08694	$0.10348	$0.10348	$0.10348	$0.10511
PPL	$0.08941	$0.08941	$0.08941	$0.08941	$0.08941	$0.12366	$0.12366	$0.12366	$0.12366	$0.12366	$0.12366	$0.14612
West Penn Power	$0.05698	$0.05698	$0.05667	$0.05667	$0.05667	$0.08198	$0.08198	$0.08198	$0.08306	$0.08306	$0.08306	$0.08517

Table A3 – 2022 Historical Supplier Lowest Offer

	Lowest Supplier Offer Continuous for Offer Term (in $ per kWh)											
Utility	1/1/2022	2/1/2022	3/1/2022	4/1/2022	5/1/2022	6/1/2022	7/1/2022	8/1/2022	9/1/2022	10/1/2022	11/1/2022	12/1/2022
Eversource - CL&P	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190	$0.10190
United Illuminating	$0.10290	$0.10290	$0.10290	$0.10290	$0.10290	$0.10290	$0.10290	$0.10290	$0.15190	$0.15190	$0.15190	$0.15190
Ameren I - CIPS	$0.04299	$0.04299	$0.04299	$0.04299	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590
Ameren II - CILCO	$0.04299	$0.04299	$0.04299	$0.04299	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590
Ameren III - IP	$0.04299	$0.04299	$0.04299	$0.04299	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590	$0.05590
ComEd	$0.06399	$0.06399	$0.06399	$0.06399	$0.06690	$0.06690	$0.06690	$0.06690	$0.06690	$0.06690	$0.08768	$0.08768
NSTAR BECO	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771	$0.10771
NSTAR CAMB	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890	$0.12890
NSTAR COMM	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897	$0.09897
FGE	$0.14970	$0.14970	$0.14970	$0.14970	$0.14970	$0.14970	$0.14970	$0.14970	$0.20990	$0.20990	$0.20990	$0.20990
MECO	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190
Nantucket	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490	$0.13490
WMECO	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190	$0.13190
BGE	$0.08030	$0.08030	$0.08030	$0.08200	$0.08200	$0.08200	$0.08200	$0.08200	$0.08200	$0.08990	$0.08990	$0.08990
Delmarva MD	$0.07990	$0.07990	$0.07990	$0.07000	$0.07000	$0.07000	$0.07640	$0.07640	$0.07640	$0.09490	$0.09490	$0.09490
Potomac Edison	$0.07012	$0.07012	$0.07012	$0.06800	$0.06800	$0.06800	$0.06800	$0.06800	$0.06800	$0.07900	$0.07900	$0.07900
Pepco MD	$0.07990	$0.07990	$0.07990	$0.07500	$0.07500	$0.07500	$0.07500	$0.07500	$0.07500	$0.08990	$0.08990	$0.08990
AEP Columbus Southern	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.07690	$0.07690	$0.07690
AEP Ohio Power	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.07690	$0.07690	$0.07690
AES Ohio	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.08980	$0.08980	$0.08980	$0.08980	$0.08980	$0.08980
Cleveland Electric Illuminating	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890
Duke	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800	$0.05800
Ohio Edison	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890
Toledo Edison	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.05890	$0.08180	$0.08180	$0.08180
Duquesne	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890	$0.07890
MetEd	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290	$0.08290
PECO	$0.06890	$0.06890	$0.06890	$0.06890	$0.06890	$0.06890	$0.06890	$0.06890	$0.06890	$0.10490	$0.10490	$0.10490
Penelec PA	$0.06599	$0.06599	$0.06599	$0.07990	$0.07990	$0.07990	$0.07990	$0.07990	$0.07990	$0.07990	$0.07990	$0.07990
Penn Power	$0.06790	$0.06790	$0.06790	$0.06790	$0.06790	$0.06790	$0.10590	$0.10590	$0.10590	$0.10590	$0.10590	$0.10590
PPL	$0.08490	$0.08490	$0.08490	$0.08490	$0.08490	$0.08490	$0.10990	$0.10990	$0.10990	$0.10990	$0.10990	$0.10990
West Penn Power	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590	$0.06590

Table A4 – Typical Residential Customer Monthly Load

	Residential Customer Usage Sample in kWh											
Utility	**1/1/2022**	**2/1/2022**	**3/1/2022**	**4/1/2022**	**5/1/2022**	**6/1/2022**	**7/1/2022**	**8/1/2022**	**9/1/2022**	**10/1/2022**	**11/1/2022**	**12/1/2022**
Eversource - CL&P	740	690	639	576	617	816	1,004	969	626	631	662	710
United Illuminating	483	424	425	360	374	473	584	683	559	453	403	447
Pepco DC	520	589	606	574	405	427	594	767	994	820	535	413
Ameren I - CIPS	1,242	1,212	1,075	714	641	806	1,091	1,124	1,138	852	714	926
Ameren II - CILCO	1,074	1,020	898	665	614	841	1,075	1,110	1,117	850	693	850
Ameren III - IP	1,027	984	872	628	583	781	1,043	1,063	1,079	812	653	794
ComEd	709	658	586	462	445	661	810	857	879	595	469	594
NSTAR BECO	604	579	514	453	413	517	654	650	679	465	449	514
NSTAR CAMB	604	579	514	453	413	517	654	650	679	465	449	514
NSTAR COMM	604	579	514	453	413	517	654	650	679	465	449	514
FGE	665	655	621	457	454	577	641	649	613	454	488	613
MECO	731	660	617	505	432	568	705	694	720	479	474	581
Nantucket	731	660	617	505	432	568	705	694	720	479	474	581
WMECO	712	673	629	530	432	673	673	668	675	474	504	634
BGE	833	764	654	569	664	939	1,147	1,118	780	604	639	676
Delmarva MD	1,295	1,213	916	698	711	971	1,218	1,168	794	668	898	976
Potomac Edison	798	719	695	647	718	984	1,243	1,212	851	694	699	725
Pepco MD	845	772	640	559	625	979	1,158	1,138	813	590	645	713
AEP Columbus Southern	1,167	1,099	964	745	685	850	1,050	1,044	1,056	778	713	980
AEP Ohio Power	1,167	1,099	964	745	685	850	1,050	1,044	1,056	778	713	980
AES Ohio	793	791	708	554	549	657	822	822	866	625	548	647
Cleveland Electric Illuminating	1,237	1,161	1,095	797	670	875	1,068	1,101	1,067	768	726	982
Duke	1,191	1,151	939	733	684	909	1,138	1,145	1,126	801	738	982
Ohio Edison	989	977	874	636	657	777	952	964	984	726	652	814
Toledo Edison	884	868	774	609	588	756	934	960	986	674	587	745
Duquesne	615	568	511	1	483	622	662	711	500	469	494	539
MetEd	965	882	833	732	801	983	1,140	1,150	850	756	836	880
PECO	672	615	564	513	569	842	1,069	1,048	716	567	586	612
Penelec PA	745	680	662	587	604	637	676	706	577	582	636	686
Penn Power	839	765	746	687	694	718	798	811	676	686	729	769
PPL	893	818	734	646	690	912	985	1,014	719	677	735	819
West Penn Power	739	673	643	587	614	659	715	733	583	580	633	677

Table A5 – 2022 Residential Class Load

	Total Residential Class Usage in kWh											
Utility	**1/1/2022**	**2/1/2022**	**3/1/2022**	**4/1/2022**	**5/1/2022**	**6/1/2022**	**7/1/2022**	**8/1/2022**	**9/1/2022**	**10/1/2022**	**11/1/2022**	**12/1/2022**
Eversource - CL&P	844,803,452	787,304,585	734,089,363	662,061,797	709,228,776	938,587,119	1,154,745,927	1,114,162,464	720,045,046	724,925,703	761,454,177	816,641,301
United Illuminating	147,151,190	129,183,040	130,506,682	110,419,827	114,699,041	145,180,231	179,233,656	209,714,925	171,503,630	139,038,373	123,864,066	137,191,062
Ameren I - CIPS	401,042,085	391,196,734	347,241,891	230,577,242	206,418,219	259,742,056	351,338,999	362,044,441	366,139,702	273,652,346	229,889,231	298,276,249
Ameren II - CILCO	203,747,262	193,511,165	170,446,779	126,199,405	116,264,279	159,205,739	203,512,629	210,334,671	211,550,207	160,762,267	131,469,618	161,355,637
Ameren III - IP	562,620,901	539,846,849	478,908,258	345,206,381	319,887,577	428,575,735	570,880,762	583,225,303	591,526,442	444,845,135	358,586,563	436,363,779
ComEd	2,584,818,792	2,404,744,210	2,132,826,196	1,676,778,432	1,608,985,351	2,371,463,154	2,926,094,110	3,098,391,342	3,189,054,832	2,162,766,728	1,709,847,318	2,175,551,927
NSTAR BECO												
NSTAR CAMB	578,827,716	554,775,958	493,473,508	434,626,809	396,885,179	498,568,706	629,861,230	622,930,289	658,013,596	437,804,566	442,524,709	493,710,432
NSTAR COMM												
FGE	17,507,071	17,290,911	16,211,838	11,967,427	11,833,123	15,397,299	17,104,436	17,253,491	15,884,625	11,690,806	12,697,729	15,940,812
MECO	761,913,122	675,760,438	847,368,119	520,200,385	445,890,269	595,059,636	727,564,433	723,665,789	738,650,385	487,656,929	502,566,012	614,215,286
Nantucket												
WMECO	107,318,025	100,831,612	93,803,307	80,912,546	65,480,710	101,568,536	101,568,536	100,691,818	101,348,145	71,173,578	75,511,470	95,528,045
BGE	991,877,700	910,744,670	779,367,122	679,250,063	791,556,318	1,119,293,781	1,368,517,000	1,334,553,127	931,135,531	721,281,370	763,369,342	807,969,351
Delmarva MD	234,967,785	220,196,014	166,340,680	126,931,214	129,253,822	176,729,420	221,816,135	212,843,075	144,679,650	121,838,490	163,862,478	178,137,352
Potomac Edison	195,672,528	176,531,856	170,757,067	159,412,375	176,730,332	242,781,719	307,222,453	299,815,912	210,773,245	172,116,924	173,564,625	180,338,472
Pepco MD	454,717,271	415,864,786	344,735,912	301,377,119	337,265,019	528,560,404	624,824,960	614,799,241	439,236,546	318,559,167	349,087,353	385,838,425
AEP Columbus Southern	1,531,554,000	1,442,077,000	1,267,723,000	979,024,000	898,583,000	1,116,559,000	1,378,350,000	1,370,743,000	1,388,345,000	1,023,531,000	939,228,000	1,289,823,000
AEP Ohio Power												
AES Ohio	532,714,000	531,636,000	476,305,000	372,696,000	368,869,000	441,319,000	551,953,000	552,225,000	581,685,000	419,920,000	368,263,000	434,964,000
Cleveland Electric Illuminating	582,168,000	546,690,000	515,740,000	375,672,000	315,619,000	412,523,000	503,893,000	519,654,000	503,317,000	362,486,000	343,079,000	464,648,000
Duke	779,458,000	753,267,000	617,239,000	480,677,000	448,311,000	595,222,000	744,855,000	749,627,000	737,258,000	526,596,000	485,714,000	645,612,000
Ohio Edison	934,009,000	923,416,000	826,857,000	630,532,000	621,526,000	734,902,000	900,193,000	911,813,000	931,286,000	687,120,000	618,058,000	771,265,000
Toledo Edison	244,901,000	240,688,000	214,586,000	168,936,000	162,825,000	209,323,000	258,607,000	266,006,000	273,285,000	186,813,000	163,011,000	206,838,000
Duquesne	309,448,989	285,935,029	257,345,026	344,815	262,293,834	337,771,358	358,911,791	385,132,219	271,229,584	254,263,890	267,701,317	292,087,575
MetEd	493,127,120	450,776,877	425,759,557	375,081,853	410,371,730	503,569,430	582,998,561	587,866,857	434,261,949	387,402,391	428,305,374	450,867,150
PECO	1,011,852,752	925,209,766	848,571,549	775,887,821	861,503,521	1,274,817,789	1,615,769,829	1,583,697,051	1,082,593,895	855,884,585	884,733,082	924,200,532
Penelec PA	374,948,052	341,976,176	333,208,025	294,752,867	303,366,505	319,738,200	338,620,960	353,531,838	289,073,558	291,590,890	318,716,610	343,572,586
Penn Power	123,743,985	112,799,469	110,030,643	101,664,940	102,673,879	106,283,305	118,116,373	119,972,456	100,111,418	101,797,405	108,268,606	114,182,105
PPL	1,134,498,648	1,039,524,778	932,935,789	821,183,267	876,787,342	1,159,331,536	1,253,970,494	1,290,669,191	914,986,275	862,096,999	936,815,450	1,043,226,891
West Penn Power	464,580,278	422,928,212	404,255,842	370,356,867	387,023,602	415,447,163	450,876,298	461,775,854	367,387,642	364,869,335	398,404,711	426,014,942

B. Residential Electric PTC Forecast Analysis Tables

Table B1 – Electric PTC Derivation Inputs

State	Utility	Residential PTC Tariff	Residential PTC Tariff Charges
Connecticut	Eversource - CL&P	Rate 1 - Residential Electric Service	Generation Service
			FMCC Generation
	United Illuminating	Residential Rate R	Standard Service Generation
			Net Bypassable FMCC
Delaware	Delmarva DE	RESIDENTIAL "R"	Supply Service
			Transmission
			PCA
Illinois	Ameren I - CIPS	BGS-1 - Residential Service	Retail Supply Charges
			Market Value Adjustment
			Supply Cost Adjustment
			Transmission Service
	Ameren II - CILCO	BGS-1 - Residential Service	Retail Supply Charges
			Market Value Adjustment
			Supply Cost Adjustment
			Transmission Service
	Ameren III - IP	BGS-1 - Residential Service	Retail Supply Charges
			Market Value Adjustment
			Supply Cost Adjustment
			Transmission Service
	ComEd	Basic Electric Service (BES)	Residential Non-Electric Space Heating Single
			Transmission and Ancillaries
			Purchased Electricity Adjustment
Maine	BHE	Residential	Energy
	CMP	Residential	Energy
Massachusetts	NSTAR BECO	Basic Service - R1	Residential Fixed
	NSTAR CAMB	Basic Service - R1	Residential Fixed
	NSTAR COMM	Basic Service - R1	Residential Fixed
	Unitil - FGE	Basic Service - R1	Fixed Basic Service
	NGRID - MECO	Basic Service - R1	Regular Residential Fixed
	NGRID - Nantucket	Basic Service - R1	Regular Residential Fixed
	Eversource - WMECO	Basic Service - R1	Fixed Price Option
Maryland	BGE	Schedule R	Energy
			Transmission
	Delmarva MD	Schedule R	Transmission
			Standard Offer Service
			Procurement Cost Adj
	Potomac Edison	Schedule R	Energy
			Energy Cost Adjustment
			Transmission
	Pepco MD	Schedule R	Transmission
			Energy
			Procurement Cost Adj
New Hampshire	Liberty	Rate D	Energy Service
	PSNH	Rate R Residential Standard Service	Energy Service
	Unitil	Schedule D	Power Supply Charge
New Jersey	AECO	Residential Service RS	BGS
			BGS Reconciliation
			Transmission Service
			Transmission Enhancement
	JCPL	RS Residential Service	BGS
			BGS Reconciliation
			Transmission Service
			TEC Surcharge
	PSEG	RS Residential Service	BGS
			BGS Reconciliation
			Transmission
New York	ConEd	SC1 Rate 1	MSC Statement
			MSC Adjustment I
			MSC Adjustment II
			Merchant Function Charge
			Clean Energy Standard
	NMPC	Rate 1	Electric Supply Cost

			Electric Supply Reconciliation Mechanism
			Merchant Function Charge
	NYSEG	Rate 1	NYSEG Supply Service
			Merchant Function Charge
Ohio	AEP Columbus Southern	Schedule RS	Generation Energy Rider
			Generation Capacity Rider
			Auction Cost Reconciliation Rider
			Rider AER
	AEP Ohio Power	Schedule RS	Generation Energy Rider
			Generation Capacity Rider
			Auction Cost Reconciliation Rider
			Rider AER
	AES Ohio	D17	Energy
			Transmission Cost Recovery Rider
	Cleveland Electric Illuminating	Rate RS	Generation Service Rider (Rider GEN)
			Alternative Energy Resource (Rider AER)
			Non-Distribution Uncollectible (Rider NDU)
			Transmission and Ancillary Services (Rider TAS)
	Duke	RS - RESIDENTIAL SERVICE	Retail Energy Rider
			Retail Capacity Rider
			Rider AER-R
			Rider SCR
	Ohio Edison	Rate RS	Generation Service Rider (Rider GEN)
			Alternative Energy Resource (Rider AER)
			Non-Distribution Uncollectible (Rider NDU)
			Transmission and Ancillary Services (Rider TAS)
	Toledo Edison	Rate RS	Generation Service Rider (Rider GEN)
			Alternative Energy Resource (Rider AER)
			Non-Distribution Uncollectible (Rider NDU)
			Transmission and Ancillary Services (Rider TAS)
Pennsylvania	Duquesne	Rate Schedules RS	Generation Service Charge
			Transmission Service Charge
	MetEd	Rate RS	Energy Charge
	PECO	Rate R	Energy
			Transmission
	Penelec PA	Rate RS	Energy Charge
	Penn Power	Rate RS	Default Service Charge
	PPL	Schedules RS	Energy
			Transmission
	West Penn Power	Rate RS	Default Service

Table B2 – Electric PTC Derivation Inputs

2022 Annual Report
Sources Used for PTC Forecast Derivation

Source	Report
2022 & 2023 Utility Tariff Rates	Utility rate books
Energy Information Administration ("EIA")	Table 54.10 PJM East
Energy Information Administration ("EIA")	Table 54.11 PJM West
Energy Information Administration ("EIA")	Table 54.12 PJM ComEd
Energy Information Administration ("EIA")	Table 54.4 Midcon Central
Energy Information Administration ("EIA")	Table 54.8 New York - New York City & Long Island
Energy Information Administration ("EIA")	Table 54.9 New York - Upstate New York

Tables B3.1 – Monthly PTC Forecast Values in $ per kWh for CT, DC, IL, MA & MD Utilities

	Connecticut		D.C.	Illinois				Massachusetts							Maryland			
Month	Eversource - CL&P	United Illuminating	Pepco DC	Ameren I - CIPS	Ameren II - CILCO	Ameren III - IP	ComEd	NSTAR BECO	NSTAR CAMB	NSTAR COMM	FGE	MECO	Nantucket	WMECO	BGE	Delmarva MD	Potomac Edison	Pepco MD
1/1/2023	$0.24172	$0.21943	$0.08398	$0.11307	$0.11564	$0.11556	$0.09165	$0.25776	$0.25776	$0.25776	$0.21429	$0.33891	$0.33891	$0.21991	$0.09773	$0.09420	$0.06537	$0.09967
2/1/2023	$0.24172	$0.21943	$0.08392	$0.11795	$0.11898	$0.11858	$0.09787	$0.25776	$0.25776	$0.25776	$0.21429	$0.33891	$0.33891	$0.21991	$0.09787	$0.09539	$0.06537	$0.10018
3/1/2023	$0.24172	$0.21943	$0.08395	$0.11544	$0.11690	$0.11696	$0.10091	$0.25776	$0.25776	$0.25776	$0.21429	$0.33891	$0.33891	$0.21991	$0.09787	$0.09493	$0.06537	$0.09954
4/1/2023	$0.24172	$0.21943	$0.08389	$0.12206	$0.12167	$0.12193	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.33891	$0.33891	$0.21991	$0.09787	$0.09345	$0.06537	$0.09922
5/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
6/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
7/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
8/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
9/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
10/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
11/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
12/1/2023	$0.24172	$0.21943	$0.08391	$0.12166	$0.12163	$0.11907	$0.10165	$0.25776	$0.25776	$0.25776	$0.21429	$0.14115	$0.14115	$0.21991	$0.09787	$0.09274	$0.06537	$0.09920
1/1/2024	$0.20906	$0.18979	$0.08808	$0.11319	$0.11576	$0.11568	$0.08810	$0.22294	$0.22294	$0.22294	$0.18534	$0.29312	$0.29312	$0.19020	$0.10250	$0.09881	$0.06856	$0.10454
2/1/2024	$0.20906	$0.18979	$0.08802	$0.11808	$0.11910	$0.11871	$0.09389	$0.22294	$0.22294	$0.22294	$0.18534	$0.29312	$0.29312	$0.19020	$0.10265	$0.10005	$0.06856	$0.10507
3/1/2024	$0.20906	$0.18979	$0.08805	$0.11557	$0.11703	$0.11708	$0.09700	$0.22294	$0.22294	$0.22294	$0.18534	$0.29312	$0.29312	$0.19020	$0.10265	$0.09956	$0.06856	$0.10440
4/1/2024	$0.20906	$0.18979	$0.08799	$0.12219	$0.12180	$0.12206	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.29312	$0.29312	$0.19020	$0.10265	$0.09801	$0.06856	$0.10407
5/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
6/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
7/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
8/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
9/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
10/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
11/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
12/1/2024	$0.20906	$0.18979	$0.08801	$0.12179	$0.12176	$0.11920	$0.09771	$0.22294	$0.22294	$0.22294	$0.18534	$0.12208	$0.12208	$0.19020	$0.10265	$0.09727	$0.06856	$0.10404
1/1/2025	$0.19655	$0.17843	$0.08781	$0.10833	$0.11079	$0.11072	$0.07914	$0.20959	$0.20959	$0.20959	$0.17425	$0.27558	$0.27558	$0.17882	$0.10218	$0.09849	$0.06835	$0.10421
2/1/2025	$0.19655	$0.17843	$0.08774	$0.11301	$0.11399	$0.11361	$0.08434	$0.20959	$0.20959	$0.20959	$0.17425	$0.27558	$0.27558	$0.17882	$0.10233	$0.09974	$0.06835	$0.10474
3/1/2025	$0.19655	$0.17843	$0.08777	$0.11061	$0.11201	$0.11206	$0.08714	$0.20959	$0.20959	$0.20959	$0.17425	$0.27558	$0.27558	$0.17882	$0.10233	$0.09925	$0.06835	$0.10408
4/1/2025	$0.19655	$0.17843	$0.08771	$0.11695	$0.11658	$0.11682	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.27558	$0.27558	$0.17882	$0.10233	$0.09771	$0.06835	$0.10374
5/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
6/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
7/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
8/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
9/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
10/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
11/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
12/1/2025	$0.19655	$0.17843	$0.08773	$0.11657	$0.11653	$0.11409	$0.08778	$0.20959	$0.20959	$0.20959	$0.17425	$0.11477	$0.11477	$0.17882	$0.10233	$0.09696	$0.06835	$0.10371
1/1/2026	$0.18898	$0.16974	$0.08532	$0.10389	$0.10604	$0.10597	$0.07350	$0.19939	$0.19939	$0.19939	$0.16576	$0.26216	$0.26216	$0.17011	$0.09929	$0.09571	$0.06642	$0.10127
2/1/2026	$0.18898	$0.16974	$0.08526	$0.10816	$0.10910	$0.10874	$0.07833	$0.19939	$0.19939	$0.19939	$0.16576	$0.26216	$0.26216	$0.17011	$0.09944	$0.09692	$0.06642	$0.10179
3/1/2026	$0.18898	$0.16974	$0.08529	$0.10586	$0.10720	$0.10725	$0.08093	$0.19939	$0.19939	$0.19939	$0.16576	$0.26216	$0.26216	$0.17011	$0.09944	$0.09645	$0.06642	$0.10113
4/1/2026	$0.18898	$0.16974	$0.08524	$0.11193	$0.11158	$0.11181	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.26216	$0.26216	$0.17011	$0.09944	$0.09495	$0.06642	$0.10081
5/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
6/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
7/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
8/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
9/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
10/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
11/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078
12/1/2026	$0.18898	$0.16974	$0.08525	$0.11157	$0.11153	$0.10919	$0.08152	$0.19939	$0.19939	$0.19939	$0.16576	$0.10919	$0.10919	$0.17011	$0.09944	$0.09422	$0.06642	$0.10078

Tables B3.2 – Monthly PTC Forecast Values in $ per kWh for OH, PA, ME & NJ Utilities

				Ohio				Pennsylvania							Maine		New Jersey		
Month	AEP Columbus Southern	AEP Ohio Power	AES Ohio	Cleveland Electric Illuminating	Duke	Ohio Edison	Toledo Edison	Duquesne	MetEd	PECO	Penelec PA	Penn Power	PPL	West Penn Power	BHE	CMP	AECO	JCPL	PSEG
1/1/2023	$0.06742	$0.06742	$0.05715	$0.10910	$0.06141	$0.05629	$0.05681	$0.11256	$0.10303	$0.09855	$0.09889	$0.10511	$0.14612	$0.08517	$0.16438	$0.17631	$0.11107	$0.09297	$0.12486
2/1/2023	$0.06742	$0.06742	$0.05715	$0.10910	$0.06586	$0.05629	$0.05681	$0.11256	$0.10303	$0.09855	$0.09889	$0.10511	$0.14612	$0.08517	$0.16438	$0.17631	$0.11118	$0.09296	$0.12652
3/1/2023	$0.06742	$0.06742	$0.05715	$0.10910	$0.06586	$0.05629	$0.05681	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11118	$0.09478	$0.12992
4/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11118	$0.09478	$0.12992
5/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11067	$0.09411	$0.12992
6/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11136	$0.09408	$0.12992
7/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11369	$0.09640	$0.12992
8/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11344	$0.09619	$0.12992
9/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11230	$0.09384	$0.12992
10/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11454	$0.09274	$0.12992
11/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11454	$0.09309	$0.12992
12/1/2023	$0.07490	$0.07490	$0.05904	$0.10910	$0.06435	$0.05877	$0.05938	$0.11256	$0.09991	$0.09726	$0.09561	$0.10439	$0.14612	$0.08228	$0.16438	$0.17631	$0.11454	$0.09386	$0.12992
1/1/2024	$0.06576	$0.06576	$0.05574	$0.10641	$0.05990	$0.05490	$0.05541	$0.11806	$0.10806	$0.10336	$0.10372	$0.11024	$0.15326	$0.08933	$0.14217	$0.15249	$0.11650	$0.09751	$0.13096
2/1/2024	$0.06576	$0.06576	$0.05574	$0.10641	$0.06423	$0.05490	$0.05541	$0.11806	$0.10806	$0.10336	$0.10372	$0.11024	$0.15326	$0.08933	$0.14217	$0.15249	$0.11661	$0.09750	$0.13270
3/1/2024	$0.06576	$0.06576	$0.05574	$0.10641	$0.06423	$0.05490	$0.05541	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11661	$0.09941	$0.13626
4/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11661	$0.09941	$0.13626
5/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11608	$0.09871	$0.13626
6/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11680	$0.09867	$0.13626
7/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11925	$0.10111	$0.13626
8/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11898	$0.10089	$0.13626
9/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.11778	$0.09843	$0.13626
10/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.12013	$0.09727	$0.13626
11/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.12013	$0.09764	$0.13626
12/1/2024	$0.07305	$0.07305	$0.05758	$0.10641	$0.06277	$0.05732	$0.05792	$0.11806	$0.10479	$0.10201	$0.10028	$0.10949	$0.15326	$0.08630	$0.14217	$0.15249	$0.12013	$0.09845	$0.13626
1/1/2025	$0.05888	$0.05888	$0.04991	$0.09528	$0.05363	$0.04916	$0.04961	$0.11769	$0.10772	$0.10304	$0.10339	$0.10990	$0.15278	$0.08905	$0.13666	$0.14336	$0.11613	$0.09721	$0.13054
2/1/2025	$0.05888	$0.05888	$0.04991	$0.09528	$0.05751	$0.04916	$0.04961	$0.11769	$0.10772	$0.10304	$0.10339	$0.10990	$0.15278	$0.08905	$0.13666	$0.14336	$0.11625	$0.09720	$0.13229
3/1/2025	$0.05888	$0.05888	$0.04991	$0.09528	$0.05751	$0.04916	$0.04961	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11625	$0.09910	$0.13584
4/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11625	$0.09910	$0.13584
5/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11571	$0.09840	$0.13584
6/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11644	$0.09836	$0.13584
7/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11887	$0.10079	$0.13584
8/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11861	$0.10057	$0.13584
9/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11741	$0.09812	$0.13584
10/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11975	$0.09696	$0.13584
11/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11975	$0.09733	$0.13584
12/1/2025	$0.06541	$0.06541	$0.05156	$0.09528	$0.05620	$0.05132	$0.05186	$0.11769	$0.10446	$0.10169	$0.09997	$0.10915	$0.15278	$0.08603	$0.13666	$0.14336	$0.11975	$0.09814	$0.13584
1/1/2026	$0.05770	$0.05770	$0.04891	$0.09336	$0.05255	$0.04817	$0.04862	$0.11436	$0.10468	$0.10013	$0.10047	$0.10679	$0.14846	$0.08653	$0.12716	$0.13638	$0.11285	$0.09446	$0.12686
2/1/2026	$0.05770	$0.05770	$0.04891	$0.09336	$0.05636	$0.04817	$0.04862	$0.11436	$0.10468	$0.10013	$0.10047	$0.10679	$0.14846	$0.08653	$0.12716	$0.13638	$0.11296	$0.09445	$0.12855
3/1/2026	$0.05770	$0.05770	$0.04891	$0.09336	$0.05636	$0.04817	$0.04862	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11296	$0.09630	$0.13200
4/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11296	$0.09630	$0.13200
5/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11244	$0.09562	$0.13200
6/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11315	$0.09558	$0.13200
7/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11551	$0.09794	$0.13200
8/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11526	$0.09773	$0.13200
9/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11409	$0.09534	$0.13200
10/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11637	$0.09422	$0.13200
11/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11637	$0.09458	$0.13200
12/1/2026	$0.06409	$0.06409	$0.05052	$0.09336	$0.05507	$0.05029	$0.05082	$0.11436	$0.10151	$0.09882	$0.09714	$0.10606	$0.14846	$0.08360	$0.12716	$0.13638	$0.11637	$0.09536	$0.13200

Tables B3.3 – Monthly PTC Forecast Values in $ per kWh for DE, RI, NH & NY Utilities

	Delaware	Rhode Island	New Hampshire			New York											
Month	Delmarva DE	Narragansett	Liberty	Unitil	PSNH	ConEd Zone H	ConEd Zone I	ConEd Zone J	NMPC Zone A	NMPC Zone B	NMPC Zone C	NMPC Zone D	NMPC Zone E	NMPC Zone F	NYSEG West	NYSEG East	NYSEG LHV
1/1/2023	$0.07350	$0.17785	$0.22228	$0.25397	$0.22566	$0.16026	$0.15963	$0.19399	$0.06569	$0.06212	$0.06507	$0.04742	$0.06600	$0.10548	$0.08960	$0.21778	$0.22164
2/1/2023	$0.07518	$0.17785	$0.22007	$0.25397	$0.20221	$0.11410	$0.11358	$0.13624	$0.07640	$0.07166	$0.07588	$0.06915	$0.07994	$0.11856	$0.07446	$0.13470	$0.13826
3/1/2023	$0.07584	$0.17785	$0.22007	$0.25397	$0.20221	$0.09286	$0.09252	$0.10801	$0.04973	$0.04872	$0.05375	$0.06380	$0.05159	$0.06123	$0.10269	$0.16591	$0.17045
4/1/2023	$0.07702	$0.10341	$0.22007	$0.25397	$0.20221	$0.07949	$0.07940	$0.09095	$0.04579	$0.04415	$0.04620	$0.04641	$0.04643	$0.06039	$0.03468	$0.03661	$0.03971
5/1/2023	$0.07557	$0.10341	$0.22007	$0.25397	$0.20221	$0.06986	$0.06953	$0.12212	$0.05761	$0.05585	$0.05808	$0.05174	$0.05824	$0.06786	$0.05240	$0.04310	$0.04882
6/1/2023	$0.07486	$0.10341	$0.22007	$0.25397	$0.20221	$0.10231	$0.10268	$0.10718	$0.04650	$0.04262	$0.04557	$0.02795	$0.04683	$0.07600	$0.03240	$0.03421	$0.03960
7/1/2023	$0.07292	$0.10341	$0.22007	$0.25397	$0.20221	$0.07123	$0.07143	$0.08402	$0.05485	$0.05037	$0.05345	$0.03222	$0.05358	$0.08419	$0.08389	$0.10473	$0.10940
8/1/2023	$0.07305	$0.10341	$0.22007	$0.25397	$0.20221	$0.11166	$0.11190	$0.11268	$0.07189	$0.06830	$0.07030	$0.04386	$0.06966	$0.10404	$0.06560	$0.09117	$0.09599
9/1/2023	$0.07574	$0.10341	$0.22007	$0.25397	$0.20221	$0.11150	$0.11180	$0.12170	$0.08633	$0.08237	$0.08433	$0.06946	$0.08549	$0.11490	$0.06629	$0.07912	$0.08484
10/1/2023	$0.07823	$0.10341	$0.22007	$0.25397	$0.20221	$0.10263	$0.10279	$0.09502	$0.08102	$0.07928	$0.07940	$0.06846	$0.07947	$0.08325	$0.06292	$0.08835	$0.09388
11/1/2023	$0.07723	$0.10341	$0.22007	$0.25397	$0.20221	$0.09212	$0.09206	$0.12849	$0.03097	$0.03114	$0.02942	$0.03117	$0.03101	$0.06095	$0.08019	$0.11620	$0.12137
12/1/2023	$0.07488	$0.10341	$0.22007	$0.25397	$0.20221	$0.09092	$0.09126	$0.11987	$0.04474	$0.04213	$0.04373	$0.03505	$0.04447	$0.07689	$0.05995	$0.09814	$0.10184
1/1/2024	$0.07709	$0.15382	$0.19225	$0.21966	$0.19517	$0.19035	$0.18960	$0.23041	$0.07191	$0.06800	$0.07123	$0.05190	$0.07225	$0.11546	$0.09808	$0.23839	$0.24262
2/1/2024	$0.07885	$0.15382	$0.19034	$0.21966	$0.17489	$0.13552	$0.13491	$0.16182	$0.08363	$0.07845	$0.08306	$0.07570	$0.08750	$0.12978	$0.08151	$0.14745	$0.15135
3/1/2024	$0.07954	$0.15382	$0.19034	$0.21966	$0.17489	$0.11029	$0.10989	$0.12829	$0.05444	$0.05333	$0.05884	$0.06983	$0.05647	$0.06703	$0.11241	$0.18161	$0.18659
4/1/2024	$0.08078	$0.08944	$0.19034	$0.21966	$0.17489	$0.09442	$0.09430	$0.10802	$0.05013	$0.04833	$0.05057	$0.05080	$0.05082	$0.06611	$0.03796	$0.04007	$0.04347
5/1/2024	$0.07926	$0.08944	$0.19034	$0.21966	$0.17489	$0.08297	$0.08259	$0.14505	$0.06306	$0.06114	$0.06358	$0.05663	$0.06375	$0.07429	$0.05736	$0.04718	$0.05344
6/1/2024	$0.07851	$0.08944	$0.19034	$0.21966	$0.17489	$0.12152	$0.12196	$0.12730	$0.05090	$0.04665	$0.04989	$0.03060	$0.05127	$0.08319	$0.03546	$0.03745	$0.04334
7/1/2024	$0.07649	$0.08944	$0.19034	$0.21966	$0.17489	$0.08460	$0.08484	$0.09979	$0.06004	$0.05514	$0.05851	$0.03527	$0.05866	$0.09216	$0.09183	$0.11464	$0.11976
8/1/2024	$0.07662	$0.08944	$0.19034	$0.21966	$0.17489	$0.13263	$0.13291	$0.13384	$0.07869	$0.07477	$0.07695	$0.04801	$0.07626	$0.11389	$0.07181	$0.09980	$0.10507
9/1/2024	$0.07944	$0.08944	$0.19034	$0.21966	$0.17489	$0.13243	$0.13279	$0.14455	$0.09450	$0.09017	$0.09231	$0.07603	$0.09358	$0.12577	$0.07257	$0.08661	$0.09287
10/1/2024	$0.08205	$0.08944	$0.19034	$0.21966	$0.17489	$0.12189	$0.12209	$0.11286	$0.08869	$0.08678	$0.08692	$0.07494	$0.08699	$0.09113	$0.06887	$0.09671	$0.10277
11/1/2024	$0.08101	$0.08944	$0.19034	$0.21966	$0.17489	$0.10941	$0.10934	$0.15262	$0.03390	$0.03408	$0.03221	$0.03412	$0.03394	$0.06672	$0.08778	$0.12720	$0.13285
12/1/2024	$0.07853	$0.08944	$0.19034	$0.21966	$0.17489	$0.10800	$0.10839	$0.14237	$0.04897	$0.04612	$0.04787	$0.03837	$0.04868	$0.08417	$0.06562	$0.10743	$0.11148
1/1/2025	$0.07685	$0.14462	$0.18074	$0.20651	$0.18349	$0.17662	$0.17593	$0.21379	$0.06789	$0.06420	$0.06725	$0.04901	$0.06821	$0.10902	$0.09260	$0.22508	$0.22907
2/1/2025	$0.07860	$0.14462	$0.17895	$0.20651	$0.16442	$0.12575	$0.12518	$0.15015	$0.07896	$0.07407	$0.07843	$0.07147	$0.08262	$0.12254	$0.07696	$0.13922	$0.14290
3/1/2025	$0.07929	$0.14462	$0.17895	$0.20651	$0.16442	$0.10234	$0.10196	$0.11904	$0.05140	$0.05035	$0.05556	$0.06593	$0.05332	$0.06329	$0.10613	$0.17147	$0.17617
4/1/2025	$0.08053	$0.08409	$0.17895	$0.20651	$0.16442	$0.08761	$0.08750	$0.10023	$0.04733	$0.04563	$0.04775	$0.04796	$0.04799	$0.06242	$0.03584	$0.03784	$0.04104
5/1/2025	$0.07901	$0.08409	$0.17895	$0.20651	$0.16442	$0.07699	$0.07663	$0.13459	$0.05954	$0.05772	$0.06003	$0.05347	$0.06019	$0.07014	$0.05416	$0.04454	$0.05045
6/1/2025	$0.07827	$0.08409	$0.17895	$0.20651	$0.16442	$0.11276	$0.11317	$0.11812	$0.04806	$0.04405	$0.04710	$0.02889	$0.04840	$0.07854	$0.03348	$0.03536	$0.04092
7/1/2025	$0.07625	$0.08409	$0.17895	$0.20651	$0.16442	$0.07850	$0.07872	$0.09259	$0.05669	$0.05206	$0.05524	$0.03330	$0.05538	$0.08701	$0.08670	$0.10824	$0.11307
8/1/2025	$0.07638	$0.08409	$0.17895	$0.20651	$0.16442	$0.12307	$0.12332	$0.12419	$0.07430	$0.07059	$0.07265	$0.04533	$0.07200	$0.10753	$0.06780	$0.09423	$0.09921
9/1/2025	$0.07919	$0.08409	$0.17895	$0.20651	$0.16442	$0.12288	$0.12321	$0.13413	$0.08922	$0.08514	$0.08715	$0.07179	$0.08835	$0.11875	$0.06852	$0.08177	$0.08769
10/1/2025	$0.08179	$0.08409	$0.17895	$0.20651	$0.16442	$0.11310	$0.11329	$0.10472	$0.08374	$0.08193	$0.08207	$0.07075	$0.08213	$0.08604	$0.06503	$0.09131	$0.09703
11/1/2025	$0.08075	$0.08409	$0.17895	$0.20651	$0.16442	$0.10152	$0.10146	$0.14161	$0.03201	$0.03218	$0.03041	$0.03221	$0.03205	$0.06300	$0.08288	$0.12010	$0.12543
12/1/2025	$0.07829	$0.08409	$0.17895	$0.20651	$0.16442	$0.10021	$0.10058	$0.13211	$0.04624	$0.04355	$0.04520	$0.03623	$0.04596	$0.07947	$0.06196	$0.10143	$0.10525
1/1/2026	$0.07468	$0.13758	$0.17194	$0.19646	$0.17456	$0.15697	$0.15635	$0.19000	$0.06033	$0.05705	$0.05976	$0.04355	$0.06062	$0.09688	$0.08229	$0.20001	$0.20356
2/1/2026	$0.07638	$0.13758	$0.17024	$0.19646	$0.15642	$0.11176	$0.11125	$0.13345	$0.07016	$0.06582	$0.06969	$0.06351	$0.07342	$0.10889	$0.06839	$0.12371	$0.12698
3/1/2026	$0.07705	$0.13758	$0.17024	$0.19646	$0.15642	$0.09095	$0.09062	$0.10579	$0.04568	$0.04474	$0.04937	$0.05859	$0.04738	$0.05624	$0.09431	$0.15237	$0.15655
4/1/2026	$0.07826	$0.07999	$0.17024	$0.19646	$0.15642	$0.07786	$0.07777	$0.08908	$0.04206	$0.04055	$0.04243	$0.04262	$0.04264	$0.05547	$0.03185	$0.03362	$0.03647
5/1/2026	$0.07678	$0.07999	$0.17024	$0.19646	$0.15642	$0.06842	$0.06810	$0.11961	$0.05291	$0.05129	$0.05334	$0.04752	$0.05349	$0.06233	$0.04813	$0.03958	$0.04483
6/1/2026	$0.07605	$0.07999	$0.17024	$0.19646	$0.15642	$0.10021	$0.10057	$0.10498	$0.04271	$0.03914	$0.04186	$0.02567	$0.04301	$0.06980	$0.02975	$0.03142	$0.03637
7/1/2026	$0.07409	$0.07999	$0.17024	$0.19646	$0.15642	$0.06977	$0.06996	$0.08229	$0.05038	$0.04626	$0.04909	$0.02959	$0.04921	$0.07732	$0.07705	$0.09618	$0.10048
8/1/2026	$0.07422	$0.07999	$0.17024	$0.19646	$0.15642	$0.10937	$0.10960	$0.11037	$0.06602	$0.06273	$0.06456	$0.04028	$0.06398	$0.09555	$0.06025	$0.08374	$0.08816
9/1/2026	$0.07695	$0.07999	$0.17024	$0.19646	$0.15642	$0.10921	$0.10950	$0.11920	$0.07929	$0.07566	$0.07745	$0.06379	$0.07852	$0.10552	$0.06089	$0.07267	$0.07792
10/1/2026	$0.07948	$0.07999	$0.17024	$0.19646	$0.15642	$0.10052	$0.10068	$0.09307	$0.07442	$0.07281	$0.07293	$0.06287	$0.07299	$0.07646	$0.05779	$0.08114	$0.08623
11/1/2026	$0.07847	$0.07999	$0.17024	$0.19646	$0.15642	$0.09022	$0.09017	$0.12586	$0.02844	$0.02860	$0.02702	$0.02862	$0.02848	$0.05598	$0.07365	$0.10672	$0.11147
12/1/2026	$0.07607	$0.07999	$0.17024	$0.19646	$0.15642	$0.08906	$0.08939	$0.11741	$0.04109	$0.03870	$0.04016	$0.03219	$0.04084	$0.07062	$0.05506	$0.09013	$0.09353

C. Residential Gas Tariff Forecast Analysis Tables

Table C1 – Gas Tariff Charge Inputs

2022 Annual Report
Included Natural Gas Utilities Tariffs and Charges

STATE	UTILITY	RATE SCHEDULE	CHARGE	UOM
California	PG&E	G-1 - Residential Service	Procurement (Baseline & Non-Baseline - Territory P)	$ / Therm
			Baseline Transportation (Territory P)	
			Summer Apr thru Oct (First .39 therms / day)	$ / Therm
			Winter ON Pk - Dec, Jan (First 2.19 therms / day)	$ / Therm
			Winter OFF Pk - Nov, Feb, Mar (First 1.88 therms / day)	$ / Therm
			Public Purpose Programs Surcharge (Non-CARE customers)	$ / Therm
	SoCalGas	GR - Residential Service	Customer Charge	$ / Day
			Procurement (Baseline & Non-Baseline - Climate zone 1)	$ / Therm
			Baseline Transportation (Climate zone 1)	
			Summer May thru Oct (First .424 therms / day)	$ / Therm
			Winter OnPk - Dec, Jan, Feb (First 1.6 therms / day)	$ / Therm
			Winter Offk - Nov, Mar, Apr (First .874 therms / day)	$ / Therm
			Public Purpose Programs Surcharge (Non-CARE customers)	$ / Therm
Indiana	NIPSCO Gas	Residential	Customer Charge	$ / Month
			Total Delivery	$ / Therm
			Gas Supply	$ / Therm
			Interstate Pipeline Storage & Transmission	$ / Therm
Michigan	Consumers	Residential Service	Monthly Charge	$ / Month
			Total Distribution Charge	$/ Ccf
			Price To Compare - GCR	$/ Ccf
	DTE Gas	Residential Service	Monthly Charge	$ / Month
			Total Distribution Charge	$/ Ccf
			Price To Compare - GCR	$/ Ccf
Massachusetts	Eversource (EGMA)	R-1 - Residential Non-Heating	Customer Charge	$ / Month
			Distribution Charge	$ / Therm
			Distribution Adjustment	$ / Therm
			Revenue Decoupling Adjustment	$ / Therm
			Price To Compare	$ / Therm
	National Grid (Boston Gas)	R-1 - Residential Non-Heating	Customer Charge	$ / 30 Days
			Total Delivery	$ / Therm
			Price To Compare	$ / Therm
New York	Con Edison	S.C. 1 - Residential and Religious	Base Rate (First 3 therms)	$ / Month
			Base Rate (Over 3 therms)	$ / Therm
			System Benefits Charge	$ / Therm
			Revenue Decoupling Mechanism	$ / Therm
			Gas Cost Factor	$ / Therm
			Merchant Function Charge	$ / Therm
			Monthly Rate Adjustment Sales	$ / Therm
			Monthly Rate Adjustment Transportation	$ / Therm
	NFGD	S.C. 1 - Residential Service	Total Delivery (First 4 Ccf)	$ / Month
			Total Delivery (Next 46 Ccf)	$ / Ccf
			Total Delivery (Over 50 Ccf)	$ / Ccf
			Price To Compare	$ / Ccf
	NMPC	S.C. 1 - Residential Service	Base Rate (First 3 therms)	$ / Month
			Base Rate (Next 47 therms)	$ / Therm
			Base Rate (Over 50 therms)	$ / Therm

			Earnings Adjustment Mechanism	$ / Therm
			Gas Safety and Reliability Surcharge	$ / Therm
			Net Revenue Sharing	$ / Therm
			Research and Development Surcharge	$ / Therm
			Revenue Decoupling Mechanism	$ / Therm
			Late Payment Charge and Other Waived Fees Surcharge	$ / Therm
			Arrears Management Program Recovery Surcharge	$ / Therm
			Monthly Cost of Gas	$ / Therm
			System Performance Adjustment	$ / Therm
			Merchant Function Charge	$ / Therm
Washington DC	Washington Gas DC	Rate 1 - Residential Service	Customer Charge	$ / Month
			Distribution Charge	$ / Therm
			Distribution Charge Adjustment	$ / Therm
			Project Pipes	$ / Therm
			RES Surcharge	$ / Therm
			Price To Compare	$ / Therm
Illinois	Nicor Gas	Rate 1 - Residential Service	Monthly Customer Charge	$ / Month
			Distribution Charge	$ / Therm
			Environmental Cost Recovery	$ / Therm
			Energy Efficiency Plan Cost Recovery	$ / Therm
			Volume Balancing Adjustment	$ / Therm
			Price To Compare	$ / Therm
Maryland	BGE	Residential Service - Schedule D	Customer Charge	$ / Month
			Stride Surcharge	$ / Month
			Delivery	$ / Therm
			Monthly Rate Adjustment	$ / Therm
			Price To Compare	$ / Therm
	Washington Gas MD	Rate 1 - Residential Service	System Charge	$ / Month
			Stride Surcharge	$ / Month
			Total Distribution (First 45 therms)	$ / Therm
			Total Distribution (Next 135 therms)	$ / Therm
			Total Distribution (Over 180 therms)	$ / Therm
			EmPower MD Surcharge	$ / Therm
			Price To Compare	$ / Therm
New Jersey	New Jersey Natural Gas	Residential Non-Heat	Customer Charge	$ / Month
			Delivery Charge	$ / Therm
			Sales & Use Tax (SUT) Backout	$ / Therm
			Price To Compare	$ / Therm
	PSEG	RSG - Residential Service	Service Charge	$ / Month
			Distribution Charge	$ / Therm
			Balancing Charge	$ / Therm
			Societal Benefits Charge	$ / Therm
			Margin Adjustment Charge	$ / Therm
			Green Programs Recovery Charge	$ / Therm
			Conservation Incentive Program	$ / Therm
			Price To Compare	$ / Therm
Ohio	Columbia Gas OH	Small General Service (SGS)	Monthly Delivery Charge	$ / Month
			Infrastructure Replacement Rider	$ / Month
			Capital Expenditures Rider	$ / Month
			Infrastructure Development Rider	$ / Month
			PIPP Rider	$ / Ccf
			Uncollectible Expense Rider	$ / Ccf
			Demand Side Mgmt Rider	$ / Ccf

			Excise Tax (First 100 Mcf)	$ / Ccf
			Excise Tax (Next 1900 Mcf)	$ / Ccf
			Excise Tax (Over 2000 Mcf)	$ / Ccf
			Price To Compare	$ / Ccf
	Dominion East of Ohio (DEO)	General Sales Service - Residential (GSS-R)	Total Monthly Charges	$ / Month
			Total Usage Based (First 100 Mcf)	$ / Mcf
			Total Usage Based (Next 1900 Mcf)	$ / Mcf
			Total Usage Based (Over 2000 Mcf)	$ / Mcf
			Price To Compare	$ / Mcf
	Duke (OH)	Rate RS, Residential Service	Fixed Delivery Service	$ / Month
			AMRP Rider	$ / Month
			Delivery Usage Based (First 400 Ccf)	$ / Ccf
			Delivery Usage Based (Additional Ccf)	$ / Ccf
			PIPP Rider	$ / Ccf
			Uncollectible Expense Rider	$ / Ccf
			Price To Compare	$ / Ccf
Pennsylvania	Columbia Gas PA	Residential	Customer Charge	$ / Month
			Usage Charge	$ / Therm
			Distribution System Improvement Chg	$ / Therm
			Energy Efficiency Rider	$ / Therm
			Pass-Through Charge	$ / Therm
			Price To Compare	$ / Therm
	PECO	Rate GR - General Service (Residential)	Fixed Distribution Charge	$ / Month
			Variable Distribution Charge	$ / Ccf
			Distribution System Improvement Chg	$ / Ccf
			Price To Compare	$ / Ccf
Georgia	Liberty	Residential	Monthly Customer Charge	$ / Month
			Volumetric Charge	$ / Ccf
			Purchased Gas Adjustment	$ / Ccf
Nebraska	Black Hills Nebraska Gas	Residential Gas	Customer Charge	$ / Month
			System Safety and Integrity Rider	$ / Month
			High Efficiency Assistance Tool Rider	$ / Month
			Volumetric Charge (First 20 therms)	$ / Therm
			Volumetric Charge (Over 20 therms)	$ / Therm
			Gas Cost Adjustment	$ / Therm
			Polar Vortex Surcharge Rider	$ / Therm

Table C2 –Gas Tariff Forecast Derivation Sources

2022 Annual Report
Sources Used for Natural Gas Utility Tariff and Delivered Gas Forecast Derivation

Source	Report
2022 Utility Tariff Rates	Utility rate books
American Gas Association ("AGA")	Annual Report of Volumes, Revenues, and Customers by Company (2021)
Energy Information Administration ("EIA")	Table 3. United States
Energy Information Administration ("EIA")	Table 3.1. New England
Energy Information Administration ("EIA")	Table 3.2. Middle Atlantic

Energy Information Administration ("EIA")	Table 3.3. East North Central
Energy Information Administration ("EIA")	Table 3.4. West North Central
Energy Information Administration ("EIA")	Table 3.5. South Atlantic
Energy Information Administration ("EIA")	Table 3.6. East South Central
Energy Information Administration ("EIA")	Table 3.7. West South Central
Energy Information Administration ("EIA")	Table 3.8. Mountain
Energy Information Administration ("EIA")	Table 3.9. Pacific
Energy Information Administration ("EIA")	Number of Natural Gas Residential Consumers
Energy Information Administration ("EIA")	Residential Consumption of Natural Gas (Summary)
Energy Information Administration ("EIA")	Average Residential Price

Tables B3.1 – Monthly Gas Tariff Price Forecast Values in $ per MCF by Utility

Year	Month	California		Washington DC	Georgia	Illinois	Indiana	Massachusetts		Maryland		Michigan		Nebraska	New Jersey		New York			Ohio			Pennsylvania	
		PG&E	SoCalGas	Washington Gas DC	Liberty	Nicor Gas	NIPSCO Gas	Eversource (EGMA)	National Grid (Boston Gas)	BGE	Washington Gas MD	Consumers	DTE Gas	Black Hills Nebraska Gas	New Jersey Natural Gas	PSEG	Con Edison	NFGD	NMPC	Columbia Gas OH	Dominion East of Ohio (DEO)	Duke (OH)	Columbia Gas PA	PECO
1/1/2022	1/1/2022	$22.84	$18.04	$12.37	$12.60	$8.72	$8.67	$20.25	$22.16	$14.63	$11.99	$8.78	$8.12	$12.27	$11.91	$9.70	$26.21	$7.59	$8.66	$8.16	$7.66	$8.44	$16.55	$9.48
1/1/2022	2/1/2022	$22.54	$15.67	$12.54	$14.20	$8.32	$9.08	$20.41	$22.29	$15.75	$12.48	$8.98	$8.35	$11.64	$12.04	$10.24	$25.90	$8.02	$9.79	$10.75	$8.99	$8.72	$16.81	$9.59
1/1/2022	3/1/2022	$21.33	$15.19	$13.74	$15.45	$10.16	$10.32	$23.02	$24.64	$14.94	$13.91	$9.66	$8.73	$11.74	$12.33	$10.46	$26.32	$8.20	$9.29	$10.03	$9.88	$10.53	$17.03	$9.87
1/1/2022	4/1/2022	$20.29	$15.43	$15.90	$19.65	$10.93	$12.49	$24.04	$25.47	$16.61	$16.18	$10.60	$9.75	$13.97	$12.68	$10.72	$28.90	$10.08	$12.15	$12.26	$11.35	$13.36	$18.47	$10.68
1/1/2022	5/1/2022	$21.46	$17.13	$19.25	$24.80	$18.38	$13.92	$24.87	$24.43	$22.18	$20.89	$14.29	$13.10	$17.55	$13.94	$11.64	$33.21	$13.13	$17.03	$20.61	$19.98	$21.27	$21.32	$14.16
1/1/2022	6/1/2022	$22.05	$20.17	$22.72	$27.15	$24.89	$18.76	$28.04	$29.75	$27.79	$24.99	$16.73	$15.46	$25.86	$16.99	$14.01	$37.31	$15.77	$20.79	$32.77	$33.33	$32.87	$26.90	$21.66
1/1/2022	7/1/2022	$22.47	$17.33	$23.53	$26.58	$26.76	$20.19	$29.65	$31.06	$31.29	$28.25	$17.81	$16.69	$29.02	$17.76	$14.57	$35.81	$13.77	$20.71	$34.90	$39.31	$38.90	$27.37	$23.03
1/1/2022	8/1/2022	$21.60	$19.57	$24.84	$27.41	$26.25	$17.49	$30.00	$27.51	$36.61	$29.84	$18.60	$17.75	$33.02	$18.98	$15.48	$39.65	$15.05	$25.11	$37.76	$40.70	$36.15	$26.89	$22.64
1/1/2022	9/1/2022	$23.52	$19.52	$23.47	$27.90	$24.40	$18.35	$32.91	$30.55	$31.02	$28.66	$16.85	$16.41	$30.95	$17.60	$14.46	$39.87	$15.96	$25.53	$34.15	$38.83	$34.21	$25.06	$20.99
1/1/2022	10/1/2022	$24.52	$16.22	$21.07	$22.94	$18.43	$13.61	$28.63	$28.71	$19.99	$10.71	$14.88	$12.14	$20.59	$18.82	$14.59	$31.88	$11.35	$18.94	$17.82	$19.24	$20.14	$23.18	$15.92
1/1/2022	11/1/2022	$24.93	$16.13	$14.81	$20.27	$15.32	$10.55	$25.39	$29.60	$18.44	$15.11	$13.28	$11.04	$14.89	$15.40	$13.55	$28.44	$10.39	$12.94	$10.87	$11.07	$13.37	$21.35	$14.43
1/1/2022	12/1/2022	$25.35	$20.30	$14.74	$18.73	$11.46	$11.23	$23.84	$28.23	$18.85	$14.49	$12.44	$10.55	$14.97	$14.65	$13.11	$28.58	$10.88	$12.29	$10.99	$9.97	$12.21	$20.23	$12.68
1/1/2023	1/1/2023	$28.90	$46.32	$15.32	$18.38	$9.60	$11.09	$23.58	$28.02	$18.21	$15.01	$12.15	$10.24	$16.45	$14.58	$13.05	$30.99	$10.66	$10.63	$8.85	$9.12	$12.22	$19.94	$13.52
1/1/2023	2/1/2023	$29.68	$11.72	$15.49	$17.16	$8.78	$11.75	$23.73	$27.14	$18.08	$15.50	$11.75	$10.02	$15.00	$14.69	$11.68	$29.42	$10.21	$10.80	$7.80	$7.84	$11.28	$20.20	$13.74
1/1/2023	3/1/2023	$23.01	$16.36	$11.42	$17.79	$7.82	$10.55	$19.55	$25.24	$17.23	$11.61	$11.87	$9.27	$13.67	$9.46	$11.61	$28.13	$9.95	$10.59	$8.49	$7.91	$11.52	$18.64	$13.93
1/1/2023	4/1/2023	$17.27	$14.66	$13.19	$16.92	$8.46	$10.74	$20.56	$26.07	$12.96	$13.99	$10.85	$9.79	$14.39	$14.73	$11.86	$26.62	$7.96	$9.69	$9.97	$9.23	$10.99	$18.78	$13.63
1/1/2023	5/1/2023	$24.39	$23.71	$19.55	$28.15	$16.71	$15.15	$24.78	$27.51	$23.82	$21.48	$17.52	$14.73	$21.05	$15.21	$13.64	$35.63	$15.03	$17.81	$17.47	$17.99	$23.83	$24.01	$19.55
1/1/2023	6/1/2023	$25.05	$27.92	$23.08	$30.81	$22.63	$20.41	$27.95	$33.49	$29.83	$25.69	$20.51	$17.39	$31.02	$18.54	$16.43	$40.03	$18.04	$21.74	$27.77	$30.00	$36.83	$30.31	$29.91
1/1/2023	7/1/2023	$25.53	$23.98	$23.90	$30.17	$24.33	$21.97	$29.55	$34.97	$33.60	$26.99	$21.84	$18.77	$34.82	$19.37	$17.09	$38.42	$15.76	$21.65	$29.57	$35.39	$43.60	$30.83	$31.80
1/1/2023	8/1/2023	$24.54	$27.09	$26.23	$31.11	$23.87	$19.03	$29.90	$30.97	$39.31	$30.68	$22.81	$19.97	$39.61	$20.71	$18.15	$42.54	$17.22	$26.26	$32.00	$36.64	$40.52	$30.29	$31.26
1/1/2023	9/1/2023	$26.72	$27.01	$23.84	$31.67	$22.19	$19.96	$32.80	$34.39	$33.30	$27.41	$20.66	$18.46	$37.13	$19.20	$16.95	$42.77	$18.28	$26.70	$28.94	$33.15	$38.34	$28.23	$28.97
1/1/2023	10/1/2023	$27.86	$22.45	$21.40	$26.03	$16.76	$14.81	$28.53	$32.32	$21.46	$11.02	$18.22	$13.65	$24.70	$16.35	$17.11	$34.20	$12.99	$17.71	$15.10	$17.32	$22.57	$26.12	$21.98
1/1/2023	11/1/2023	$28.33	$22.32	$15.04	$23.00	$13.93	$11.48	$25.31	$33.32	$19.80	$15.53	$16.28	$12.42	$17.86	$16.80	$15.89	$30.51	$11.89	$13.53	$9.21	$9.97	$14.98	$24.05	$19.92
1/1/2023	12/1/2023	$28.80	$26.10	$14.98	$21.26	$10.42	$12.22	$23.76	$31.79	$20.23	$14.90	$15.26	$11.86	$17.96	$15.98	$15.38	$30.67	$12.45	$12.85	$9.31	$8.97	$13.68	$22.79	$17.50
1/1/2024	1/1/2024	$31.15	$49.93	$15.45	$18.54	$8.36	$9.66	$22.20	$26.38	$18.37	$15.13	$10.58	$8.92	$15.10	$13.35	$11.96	$28.41	$9.78	$9.75	$7.71	$7.94	$10.64	$18.28	$12.40
1/1/2024	2/1/2024	$31.99	$12.63	$15.63	$17.31	$7.65	$10.24	$22.34	$25.55	$18.23	$15.63	$10.24	$8.73	$13.78	$13.46	$10.71	$26.97	$9.36	$9.90	$6.62	$6.83	$9.83	$18.52	$12.60
1/1/2024	3/1/2024	$24.80	$17.64	$11.51	$17.94	$6.81	$9.19	$18.40	$23.76	$17.38	$11.70	$10.34	$8.08	$12.56	$8.68	$10.64	$25.79	$9.12	$9.71	$7.39	$6.89	$10.03	$17.09	$12.78
1/1/2024	4/1/2024	$18.61	$15.80	$13.31	$17.07	$7.37	$9.36	$19.36	$24.54	$13.09	$14.11	$9.45	$8.53	$13.21	$13.50	$10.88	$24.40	$7.30	$8.89	$8.66	$8.04	$9.57	$17.22	$12.50
1/1/2024	5/1/2024	$26.29	$25.55	$19.72	$28.39	$14.55	$13.19	$23.33	$25.90	$24.02	$21.67	$15.26	$12.83	$19.33	$13.94	$12.51	$32.67	$13.78	$16.33	$15.22	$15.67	$20.76	$22.02	$17.93
1/1/2024	6/1/2024	$27.00	$30.09	$23.27	$31.08	$19.71	$17.78	$25.31	$31.53	$30.09	$25.91	$17.87	$15.15	$28.48	$17.00	$15.06	$36.70	$16.54	$19.93	$24.19	$25.13	$32.08	$27.78	$27.42
1/1/2024	7/1/2024	$27.52	$25.85	$24.11	$30.43	$21.19	$19.13	$27.82	$32.92	$33.88	$27.22	$19.03	$16.35	$31.97	$17.76	$15.67	$35.22	$14.45	$19.85	$25.76	$30.82	$37.97	$28.26	$29.15
1/1/2024	8/1/2024	$26.45	$29.20	$25.45	$31.38	$20.79	$16.57	$28.14	$29.16	$39.64	$30.94	$19.87	$17.39	$36.37	$18.99	$16.64	$39.00	$15.79	$24.07	$27.87	$31.91	$35.29	$27.77	$28.66
1/1/2024	9/1/2024	$28.81	$29.12	$24.05	$31.94	$19.32	$17.39	$30.88	$32.38	$33.58	$27.65	$17.99	$16.08	$34.09	$17.60	$15.54	$39.21	$16.76	$24.47	$25.21	$28.87	$33.39	$25.88	$26.56
1/1/2024	10/1/2024	$30.03	$24.20	$21.58	$26.26	$14.59	$12.90	$26.86	$30.42	$21.64	$11.11	$15.87	$11.89	$22.68	$16.82	$15.68	$31.36	$11.91	$16.24	$13.15	$15.09	$19.66	$23.94	$20.15
1/1/2024	11/1/2024	$30.53	$24.06	$15.17	$23.20	$12.13	$10.00	$23.82	$31.37	$19.97	$15.67	$14.18	$10.81	$16.40	$15.41	$14.57	$27.98	$10.90	$12.41	$8.02	$8.68	$13.05	$22.05	$18.26
1/1/2024	12/1/2024	$31.05	$30.29	$15.10	$21.44	$9.07	$10.64	$22.37	$29.92	$20.41	$15.03	$13.29	$10.33	$16.49	$14.55	$14.10	$28.11	$11.42	$11.78	$8.11	$7.81	$11.92	$20.89	$16.05
1/1/2025	1/1/2025	$28.51	$45.70	$15.51	$18.61	$7.97	$9.21	$21.87	$25.99	$18.44	$15.19	$10.09	$8.51	$14.62	$12.93	$11.59	$27.53	$9.47	$9.44	$7.35	$7.57	$10.15	$17.71	$12.01
1/1/2025	2/1/2025	$29.28	$11.56	$15.69	$17.38	$7.30	$9.76	$22.02	$25.18	$18.30	$15.69	$9.76	$8.32	$13.34	$13.05	$10.38	$26.14	$9.07	$9.59	$6.31	$6.51	$9.37	$17.94	$12.21
1/1/2025	3/1/2025	$22.70	$16.14	$11.56	$18.01	$6.50	$8.76	$18.14	$23.42	$17.44	$11.75	$9.86	$7.70	$12.16	$8.41	$10.31	$24.99	$8.84	$9.41	$7.05	$6.57	$9.57	$16.56	$12.38
1/1/2025	4/1/2025	$17.04	$14.40	$13.30	$17.14	$7.03	$8.92	$19.08	$24.19	$13.14	$14.10	$9.01	$8.13	$12.79	$13.08	$10.04	$23.04	$7.07	$8.01	$8.28	$7.07	$9.13	$16.09	$12.11
1/1/2025	5/1/2025	$24.06	$23.39	$19.79	$28.50	$13.88	$12.58	$22.99	$25.52	$24.11	$21.75	$14.56	$12.23	$18.71	$13.51	$12.12	$31.65	$13.35	$15.62	$14.51	$14.94	$19.80	$21.33	$17.37
1/1/2025	6/1/2025	$24.71	$27.54	$23.37	$31.20	$18.80	$16.95	$25.93	$31.07	$30.21	$26.01	$17.04	$14.44	$27.57	$18.47	$14.59	$35.56	$16.03	$19.32	$23.07	$24.92	$30.59	$26.92	$26.57
1/1/2025	7/1/2025	$25.19	$23.66	$24.20	$30.55	$20.21	$18.25	$27.41	$32.45	$34.02	$27.32	$18.14	$15.59	$30.95	$17.21	$15.18	$34.13	$14.00	$19.24	$24.56	$29.39	$36.21	$27.39	$28.25
1/1/2025	8/1/2025	$24.21	$26.73	$25.55	$31.50	$19.82	$15.80	$27.74	$28.74	$39.80	$31.06	$18.95	$16.59	$35.21	$18.40	$16.12	$37.79	$15.30	$23.32	$26.56	$30.43	$33.65	$26.91	$27.77
1/1/2025	9/1/2025	$26.37	$26.65	$24.14	$32.07	$18.43	$16.58	$30.43	$31.91	$33.71	$27.76	$17.16	$15.33	$33.00	$17.06	$15.06	$38.00	$16.24	$23.71	$24.04	$27.53	$31.84	$25.08	$25.74
1/1/2025	10/1/2025	$27.48	$22.15	$21.67	$26.36	$13.92	$12.30	$26.47	$29.98	$21.73	$11.15	$15.13	$11.34	$21.96	$16.30	$15.20	$30.39	$11.54	$15.73	$12.54	$14.39	$18.75	$23.20	$19.53
1/1/2025	11/1/2025	$27.95	$22.02	$15.23	$23.29	$11.57	$9.54	$23.48	$30.92	$20.05	$15.73	$13.52	$10.31	$15.88	$14.93	$14.11	$27.11	$10.56	$12.02	$7.65	$8.28	$12.44	$21.37	$17.70
1/1/2025	12/1/2025	$28.42	$27.72	$15.16	$21.53	$8.65	$10.15	$22.04	$29.49	$20.49	$15.09	$12.67	$9.85	$15.97	$14.20	$13.66	$27.24	$11.06	$11.42	$7.74	$7.45	$11.36	$20.24	$15.55
1/1/2026	1/1/2026	$26.92	$41.55	$15.58	$18.67	$7.68	$8.87	$21.89	$26.02	$18.50	$15.24	$9.72	$8.20	$14.28	$12.62	$11.31	$26.86	$9.24	$9.21	$7.08	$7.30	$9.76	$17.28	$11.72
1/1/2026	2/1/2026	$26.62	$10.51	$15.74	$17.43	$7.03	$9.40	$22.04	$25.21	$18.36	$15.74	$9.40	$8.02	$13.02	$12.73	$10.13	$25.50	$8.85	$9.36	$6.06	$6.27	$9.03	$17.51	$11.91
1/1/2026	3/1/2026	$20.64	$14.68	$11.60	$18.07	$6.26	$8.44	$18.15	$23.44	$17.50	$11.79	$9.50	$7.42	$11.87	$8.20	$10.06	$24.38	$8.62	$9.18	$6.79	$6.33	$9.22	$16.16	$12.08
1/1/2026	4/1/2026	$15.49	$13.15	$13.40	$17.19	$6.77	$8.60	$19.10	$24.21	$13.19	$14.21	$8.68	$7.83	$12.49	$12.77	$10.28	$23.07	$6.90	$8.40	$7.96	$7.39	$8.79	$16.28	$11.81
1/1/2026	5/1/2026	$21.87	$21.26	$19.86	$28.59	$13.37	$12.12	$23.01	$25.54	$24.19	$21.82	$14.02	$11.79	$18.27	$13.18	$11.83	$30.88	$13.02	$15.43	$13.86	$14.40	$19.07	$20.81	$16.95
1/1/2026	6/1/2026	$22.47	$25.04	$23.44	$31.30	$18.11	$16.33	$25.95	$31.10	$30.31	$26.10	$16.42	$13.92	$26.92	$16.07	$14.24	$34.70	$15.64	$18.85	$22.22	$24.01	$29.47	$26.27	$25.92
1/1/2026	7/1/2026	$22.90	$21.51	$24.28	$30.65	$19.47	$17.58	$27.44	$32.47	$34.13	$27.42	$17.48	$15.02	$30.22	$16.79	$14.81	$33.30	$13.66	$18.77	$23.66	$28.32	$34.89	$26.72	$27.56
1/1/2026	8/1/2026	$22.01	$24.30	$25.63	$31.60	$19.10	$15.23	$27.76	$28.76	$39.93	$31.17	$18.26	$15.96	$34.38	$17.95	$15.73	$36.87	$14.93	$22.76	$25.61	$29.32	$32.42	$26.25	$27.09
1/1/2026	9/1/2026	$23.97	$24.23	$24.22	$32.17	$17.75	$15.97	$30.46	$31.94	$33.83	$27.85	$16.53	$14.77	$32.22	$16.64	$14.69	$37.07	$15.84	$23.14	$23.16	$26.53	$30.69	$24.47	$25.11
1/1/2026	10/1/2026	$24.99	$20.14	$21.74	$26.45	$13.41	$11.85	$26.49	$30.01	$21.80	$11.19	$14.58	$10.93	$21.44	$15.90	$14.83	$29.65	$11.26	$15.35	$12.06	$13.86	$18.06	$22.64	$19.05
1/1/2026	11/1/2026	$25.41	$20.02	$15.28	$23.37	$11.15	$9.19	$23.50	$30.95	$20.12	$15.78	$13.03	$9.94	$15.51	$14.56	$13.77	$26.45	$10.30	$11.73	$7.37	$7.96	$11.99	$20.85	$17.27
1/1/2026	12/1/2026	$25.84	$25.20	$15.21	$21.60	$8.34	$9.78	$22.06	$29.52	$20.56	$15.14	$12.21	$9.49	$15.59	$13.85	$13.33	$26.58	$10.79	$11.14	$7.45	$7.18	$10.95	$19.75	$15.17