COMMONWEALTH EDISON COMPANY

Load Forecast for Five-Year Planning Period
June 2021 – May 2026

July 15, 2020

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I. INTRODUCTION AND SUMMARY

The Public Utilities Act ("PUA") provides that beginning in 2008 electric utilities in Illinois shall provide a range of load forecasts to the Illinois Power Agency ("IPA") by July 15th of each year. The PUA further provides that these load forecasts shall cover the 5-year planning period for the next procurement plan and shall include hourly data representing high-load, low-load and expected-load scenarios for the load of eligible retail customers ("Eligible Retail Customers"). The electric utility is also to provide supporting data and assumptions (220 ILCS 5/16-111.5(d)(2)). This document presents Commonwealth Edison Company's ("ComEd") load forecast for the planning period of June 2021 through May 2026.

ComEd's 5-year hourly load forecast ("Forecast") is based on the PUA's definition of Eligible Retail Customers. Eligible Retail Customers include residential and non-residential customers who purchase power and energy from ComEd under fixed-price bundled service ("Blended Service") tariffs, other than those customers whose service has been declared competitive. Because service to certain classes of customers has been declared competitive either by statute or by the Illinois Commerce Commission ("ICC"), only residential and non-residential customers below 100 kW in size are eligible for Blended Service.[1]

The Forecast includes the effects of energy efficiency, demand response and renewable energy resources programs. The Forecast anticipates that these programs will be observed in full compliance with the PUA's requirements, subject to the defined rate impact test.

II. LOAD FORECAST

A. Purpose and Summary

This section of the Forecast provides forecasted energy usage for the Eligible Retail Customers within ComEd's service territory for the 5-year procurement planning period beginning on June 1, 2021. In accordance with Section 16-111.5(b) of the PUA, the Forecast includes a multi-year historical analysis of hourly loads, a review of switching trends and competitive retail market development, a discussion of known and projected changes to future loads and growth forecasts by customer classes. The Forecast also addresses the impacts of demand response and energy efficiency programs on the forecast. Lastly, this Forecast discusses any supply side needs that are projected to be offset by the purchase of renewable energy resources.

B. Development of the Five-Year Load Forecast (June 1, 2021 – May 31, 2026)

The hourly load analysis provides the means to determine the on-peak and off-peak quantities needed in the procurement process. In presenting the Forecast, this document focuses on average usage or load during the 12 monthly on-peak and off-peak periods during a year. For the purposes of this Forecast, the definitions of the on-peak and off-peak periods are consistent

[1] There is one exception to this statement. The common area accounts for the condominium associations are exempted from this competitive declaration (see Section 16-103.1 of the PUA).

with those commonly used in the wholesale power markets, and on trading platforms such as the New York Mercantile Exchange ("NYMEX") and the Intercontinental Exchange, Inc. ("ICE"). The on-peak period consists of the weekday period from 6 a.m. to 10 p.m. CPT excluding NERC holidays (this is referred to as the 5X16 peak period). The off-peak period consists of all other hours (this is referred to as the off-peak "wrap" period). The Forecast therefore has been summarized as load requirements using the 24 different time periods covered by these standard products. This is the same approach that was presented in past forecasts and approved by the ICC. The hourly load data is being supplied with the supporting data and assumptions materials.

1. Hourly Load Analysis

a. Multi-year historical analysis of hourly load

The 2020 multi-year historical analysis of hourly load is very similar to the approach used in past procurement filings. The expanding deployment of Advanced Metering Infrastructure ("AMI") within ComEd's service territory has provided the Company with the ability to enhance its standard hourly load profiles. Data from AMI meters were utilized to develop delivery class hourly load profiles for 2015 to 2019. This data was used in the typical hourly models that have been developed and refined over the past few years. These models are performing well.

The 2019 multi-year historical analysis of load during the 24 monthly on-peak and off-peak periods is based on hourly profile data for the period from January 2015 to December 2019. These are the same profiles used in ComEd's cost of service studies. As discussed in greater detail below, the profiles show distinct and stable weather-related usage patterns that are indicative of how residential and small non-residential customers use electricity. The customer load profiles provide reliable information on the historical hourly usage of customers.

Using the hourly load profiles and actual customer aggregate usage, Table II-1 depicts the historical on-peak and off-peak hourly usage of the major customer groups within the Eligible Retail Customers for the period from January 2017 to December 2019.

Table II-1
Load Forecast Table (Historical Detail 2017-2019)

ComEd Historical Actual Usage

Historical Energy Usage in MWh for Eligible Retail Customers (Line Loss Adjusted)

		Residential Load		Watthour		Small Load (0 to 100kW)		Street Lighting Load		Total Load (MWh)	
Year	Month	On-Peak	Off-Peak	On-Peak	Off-Peak	On-Peak	Off-Peak	On-Peak	Off-Peak	On-Peak	Off-Peak
2017	1	736,292	841,838	8,094	8,545	226,028	200,116	531	1,140	970,946	1,051,639
2017	2	595,580	629,146	6,841	6,625	201,578	161,107	510	1,137	804,509	798,015
2017	3	642,583	626,298	7,524	6,730	223,921	165,137	449	1,162	874,478	799,326
2017	4	480,645	580,767	6,014	6,588	181,285	160,471	322	1,101	668,266	748,927
2017	5	566,144	563,412	6,402	6,073	200,829	151,967	278	1,374	773,653	722,827
2017	6	935,850	880,441	7,129	6,141	236,945	166,904	242	1,243	1,180,166	1,054,729
2017	7	1,017,864	1,093,139	7,251	7,611	243,011	213,415	222	1,112	1,268,349	1,315,277
2017	8	967,433	782,539	7,843	6,419	253,847	168,179	219	834	1,229,342	957,971
2017	9	776,055	887,157	6,392	6,625	212,702	180,551	240	712	995,389	1,075,045
2017	10	592,001	602,052	6,591	6,269	212,751	161,511	403	938	811,747	770,770
2017	11	669,686	726,486	6,841	6,779	192,246	156,749	413	874	869,187	890,888
2017	12	716,721	902,240	7,537	8,694	208,687	201,487	384	715	933,329	1,113,136
	Totals	**8,696,855**	**9,115,516**	**84,461**	**83,100**	**2,593,829**	**2,087,594**	**4,214**	**12,342**	**11,379,360**	**11,298,552**
2018	1	845,446	908,000	9,125	8,910	238,589	199,127	404	837	1,093,564	1,116,875
2018	2	675,912	725,536	7,737	7,580	204,344	169,455	360	786	888,353	903,357
2018	3	666,262	717,153	7,846	7,675	213,551	175,574	359	922	888,018	901,323
2018	4	575,775	650,242	7,077	7,119	199,371	165,462	259	865	782,482	823,688
2018	5	692,495	747,914	6,902	6,533	215,360	163,818	228	1,022	914,985	919,287
2018	6	883,802	930,057	7,168	6,858	227,497	180,814	165	764	1,118,633	1,118,493
2018	7	1,131,273	1,118,199	8,099	7,770	255,622	207,653	182	855	1,395,175	1,334,477
2018	8	1,158,528	1,097,459	8,651	7,258	269,255	191,479	218	886	1,436,652	1,297,082
2018	9	734,834	870,535	6,582	7,390	211,985	194,183	232	700	953,632	1,072,807
2018	10	634,924	588,775	6,702	5,930	202,351	142,468	373	871	844,349	738,043
2018	11	689,654	731,598	7,313	7,248	197,373	163,574	348	759	894,688	903,178
2018	12	691,785	864,464	7,814	9,115	210,773	209,572	416	774	910,788	1,083,926
	Totals	**9,380,690**	**9,949,932**	**91,015**	**89,386**	**2,646,071**	**2,163,178**	**3,544**	**10,040**	**12,121,320**	**12,212,536**
2019	1	830,679	859,668	8,629	8,391	233,125	192,170	408	839	1,072,841	1,061,068
2019	2	717,754	761,529	7,891	7,780	209,252	171,508	897	1,942	935,793	942,760
2019	3	665,359	793,227	7,868	8,413	214,800	190,316	-163	-430	887,864	991,525
2019	4	563,763	563,665	7,230	6,594	202,848	149,423	245	764	774,085	720,445
2019	5	564,786	595,083	7,129	6,739	200,269	150,686	204	913	772,388	753,422
2019	6	707,371	791,817	6,579	6,794	197,517	165,836	174	857	911,641	965,304
2019	7	1,252,621	1,207,143	8,853	8,036	272,227	203,739	181	788	1,533,882	1,419,707
2019	8	1,011,566	920,696	8,429	7,614	253,554	188,402	205	850	1,273,754	1,117,563
2019	9	771,483	806,075	6,918	7,215	205,625	171,871	254	765	984,279	985,926
2019	10	673,281	618,514	7,451	6,576	202,540	141,896	326	745	883,598	767,731
2019	11	672,180	791,537	7,773	8,572	191,493	172,318	356	753	871,801	973,181
2019	12	747,045	845,208	8,389	9,056	213,918	193,618	409	748	969,762	1,048,629
	Totals	**9,177,888**	**9,554,163**	**93,138**	**91,782**	**2,597,168**	**2,091,782**	**3,496**	**9,534**	**11,871,689**	**11,747,261**

Table II-2 carries forward the total load in MWh from Table II-1 and then provides the average load for each period in MW, which is useful in determining the required volume of standard wholesale energy products.

Table II-2

Load Forecast Table (Historical Summary 2017-2019)

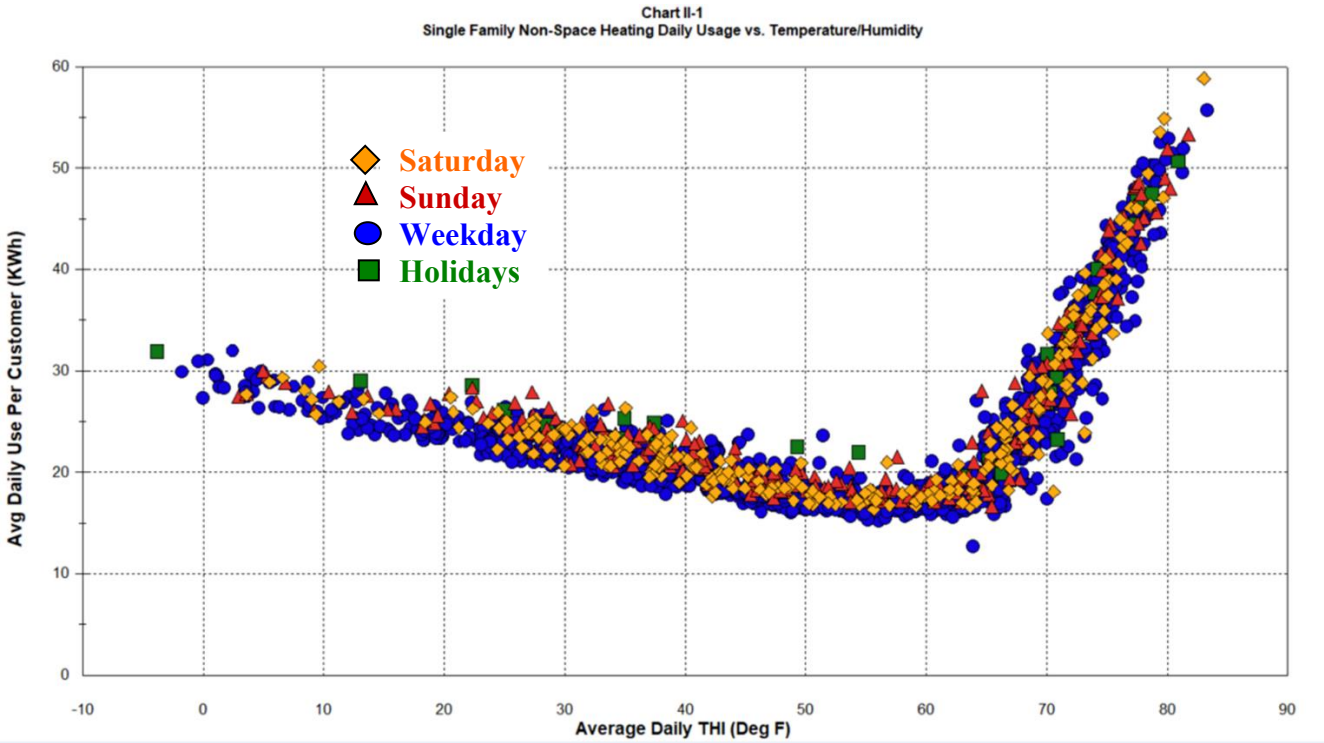
ComEd Historical Actual Usage
Historical Energy Usage for Eligible Retail Customers
(Line Loss Adjusted)

Year	Month	Total Load (MWh)		Average Load (MW)	
		On-Peak	Off-Peak	On-Peak	Off-Peak
2017	1	970,946	1,051,639	2,890	2,578
2017	2	804,509	798,015	2,514	2,267
2017	3	874,478	799,326	2,376	2,126
2017	4	668,266	748,927	2,088	1,872
2017	5	773,653	722,827	2,198	1,844
2017	6	1,180,166	1,054,729	3,353	2,866
2017	7	1,268,349	1,315,277	3,964	3,102
2017	8	1,229,342	957,971	3,341	2,548
2017	9	995,389	1,075,045	3,111	2,688
2017	10	811,747	770,770	2,306	1,966
2017	11	869,187	890,888	2,587	2,320
2017	12	933,329	1,113,136	2,917	2,625
Totals		**11,379,360**	**11,298,552**		
2018	1	1,093,564	1,116,875	3,107	2,849
2018	2	888,353	903,357	2,776	2,566
2018	3	888,018	901,323	2,523	2,299
2018	4	782,482	823,688	2,329	2,145
2018	5	914,985	919,287	2,599	2,345
2018	6	1,118,633	1,118,493	3,329	2,913
2018	7	1,395,175	1,334,477	4,152	3,271
2018	8	1,436,652	1,297,082	3,904	3,450
2018	9	953,632	1,072,807	3,137	2,579
2018	10	844,349	738,043	2,294	1,963
2018	11	894,688	903,178	2,663	2,352
2018	12	910,788	1,083,926	2,846	2,556
Totals		**12,121,320**	**12,212,536**		
2019	1	1,072,841	1,061,068	3,048	2,707
2019	2	935,793	942,760	2,924	2,678
2019	3	887,864	991,525	2,642	2,430
2019	4	774,085	720,445	2,199	1,958
2019	5	772,388	753,422	2,194	1,922
2019	6	911,641	965,304	2,849	2,413
2019	7	1,533,882	1,419,707	4,358	3,622
2019	8	1,273,754	1,117,563	3,619	2,851
2019	9	984,279	985,926	3,076	2,465
2019	10	883,598	767,731	2,401	2,042
2019	11	871,801	973,181	2,724	2,433
2019	12	969,762	1,048,629	2,886	2,570
Totals		**11,871,689**	**11,747,261**		

ComEd analyzed the hourly load profiles for all the major customer groups within the Eligible Retail Customers. As a result of that analysis, ComEd developed hourly load models for those major customer groups that determined the average percentage of monthly usage that each customer group used in each hour of that month. Those hourly models were then used to develop the monthly on-peak and off-peak usage percentages for the planning periods. These percentages were applied to ComEd's forecasted monthly usage to obtain the forecasted procurement quantities. In the following section, the hourly analysis of the residential single-family non-space heating customer segment is described. This class represents approximately half of the annual usage of the Eligible Retail Customer segment and provides a good example of how the hourly load profile data were analyzed and modeled.

(i) Residential Single-Family Hourly Load Profile Analysis

One of the most significant and easily understood determinants of residential energy usage is weather. The "scatter plot" shown below (Chart II-1) demonstrates the significant relationship that exists between weather and usage for the single-family non-space heating residential customer segment.



A scatter plot shows the relationship between two variables. Each point represents a single observation (a day in this case). In this chart, the values shown on the vertical or Y-axis are daily usage per customer ("UPC"). The values shown on the horizontal or X-axis are the daily average temperature-humidity index ("THI"). The graph shows daily UPC based on observations from January 2015 to December 2019 and the average THI on those days. THI, rather than temperature alone, is used because residential usage is sensitive to humidity. Different geometric shapes and colors are used to distinguish points representing weekdays from those depicting Saturday, Sunday or holiday usage.

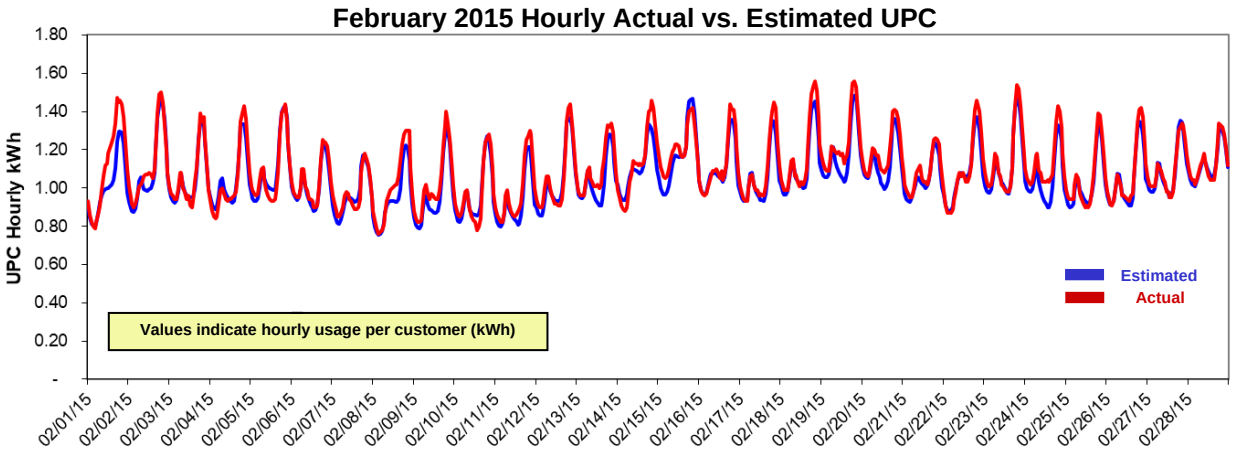
The scatter plot is very useful in understanding the relationship between customer usage and weather. If a relationship between usage and weather did not exist, then the graph would not display a clear pattern. The right side of the graph at the high end of the horizontal axis shows the days on which THI was the highest. The points at that end of the graph indicate that the highest UPC occurred when THI levels were at their peak of 75 plus degrees. Moving to the left, the points show UPC declining rapidly as the THI decreases until the 60-degree level is reached at which a base usage level appears. From that base level, UPC gradually increases as colder temperatures are experienced.

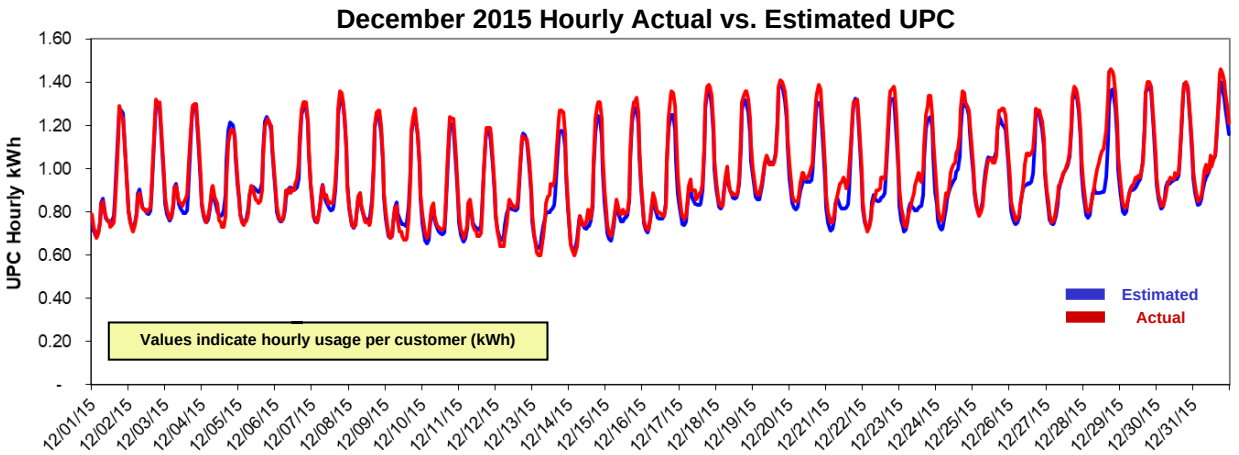
Hourly models were developed to account for the strong weather relationship shown in the graph and to account for numerous other factors that influence residential usage. The models explicitly account for the differing effects of energy use at various temperatures. Variables are included to allow for seasonal usage patterns in water heating, refrigeration and other seasonal uses. Weekend and holiday variables are included to allow for behavioral differences on those days relative to weekdays. Weather variables for prior days are included in the model to account for the dynamic effects of temperature buildup. The full list of variables included in the residential single-family model is shown in Appendix A-1.

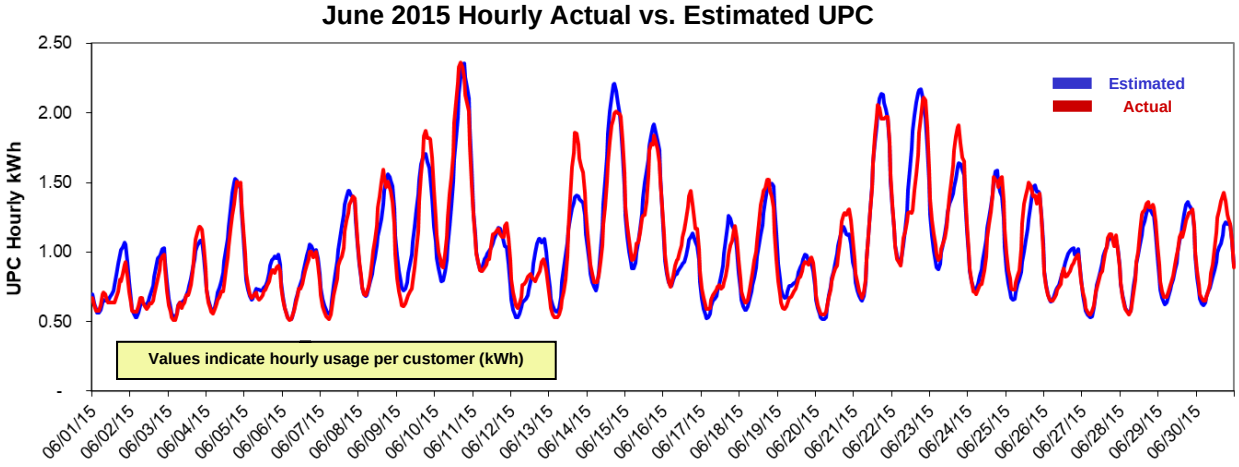
One way to visualize the model's performance is to look at plots of actual and estimated[2] values for the historical estimation period. The following charts demonstrate the performance of the model over four time periods at the hourly level during winter and summer months with warmer or colder than normal weather conditions. The four months are February 2015 (cold winter); December 2015 (warm winter); June 2015 (cool summer) and August 2018 (warm summer). The charts illustrate the model's ability to accurately estimate under varying weather conditions. The heating degree days ("HDD") in February 2015 were 1,405 (above the normal HDD of 1,056) and December 2015 was 800 (below the normal HDD of 1,107). The cooling degree days ("CDD") in June 2015 were 118 (below the normal CDD of 180) and August 2018 was 356 (above the normal CDD of 247).

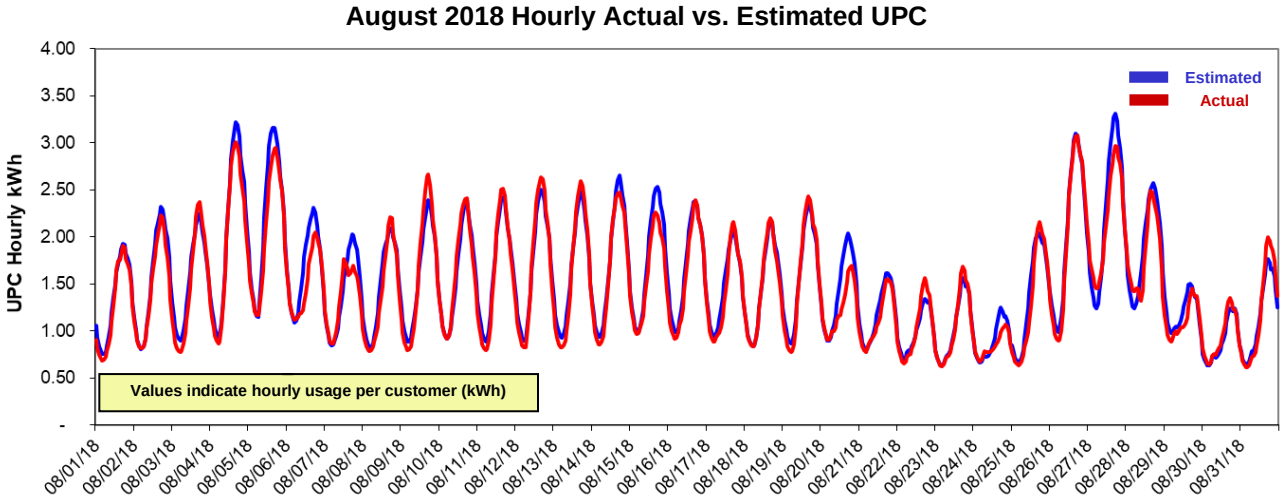
[2] The estimated data in Chart II-2 is based on the actual weather experienced over the relevant period.

Chart II-2
ComEd Single Family Profile: Estimated vs. Actual









In all the graphs above in Chart II-2, the red line indicates the "actual" load data and the blue line indicates the model's estimated values, adjusted for actual weather. The charts demonstrate that the model's estimated usage closely mirrors the actual usage and the model is effective in estimating variations in electrical usage patterns that are significantly influenced by weather conditions.

b. Switching Trends and Competitive Retail Market Analysis

In determining the expected load requirements for which standard wholesale products will be procured, it is important to provide the best possible estimate of the number of Eligible Retail Customers that are likely to be served by Retail Electric Suppliers ("RES"). That issue is considered in the following discussion, which reviews retail development in ComEd's service territory, the entry of RES, the rate of customer switching in the past, future trends affecting customer choice and ComEd's 5-year forecast of the percentage of load from various customer segments that will continue to be served with supply procured by ComEd.

(i) Introduction and Brief Overview of Retail Development

Retail choice is very active within ComEd's service territory as demonstrated in several ways:

1. A very large number of residential customers have participated in customer choice over the past few years. Approximately 1.1 million residential customers in the ComEd service territory were taking RES supply as of May 2020 or 29% of total residential customers. RES participation was higher in the past with a monthly average of approximately 2.4 million residential customers taking RES supply from March 2013 to May 2014, which equates to approximately 69% of total residential customers. This high level of engagement denotes meaningful customer choice activity within the ComEd service territory over the past several years.

2. Municipal Aggregation ("Muni Agg") has been an important factor in the expansion of residential RES supply over time. In total there are approximately 359 governmental entities (i.e., municipalities, townships or counties, hereinafter jointly referred to as "Communities") within the ComEd service territory that had approved a Muni Agg referendum as of June 2020. Approximately 226 of those Communities (or 63% of the total) were being served under a Muni Agg contract as of June 2020. The large number of on-going Muni Agg Communities highlights the continued interest in customer choice within the service territory by community groups.

3. As noted below, there are a very large number of residential retailers in the ComEd service territory.

4. This year a limited number of residential customers will have an additional supply option. The Commission approved Rate RTOUPP (Residential Time of Use Pricing Pilot) on October 2, 2019 in ICC Docket No. 18-1824. This is a four-year pilot program offering an elective time of use residential rate option and is available to no more than 1,900 residential customers. Applicable customers can elect to take service beginning June 1, 2020. While limited in scope and overall impact to procurement volumes, it illustrates the varied supply options available to residential customers.

5. Non-residential customers are actively participating in customer choice including smaller-sized customers. Approximately 92% of ComEd's entire non-residential usage is supplied through either RES or Hourly service as of May 2020. There is also meaningful participation by the smaller-sized non-residential customers as approximately 63% of the 0 to 100 kW non-residential delivery class was taking RES or Hourly supply in May 2020. Both percentages are almost unchanged from last year's report. These large and steady percentages illustrate that customer choice is very active among a variety of non-residential customers within the ComEd service territory.

In summary, customers are actively engaged in retail choice within the ComEd service territory.

(ii) RES Development

There continues to be a large number of RESs within the ComEd service territory. The number of RESs over time is shown in the table below:

Table II-3
RES Development in the ComEd Service Territory

RES Category	May 2014	May 2015	May 2016	May 2017	May 2018	May 2019	May 2020
Number of Active RESs[3]	70	71	74	81	90	90	91
Number of RESs approved to serve Residential customers	55	56	63	64	74	78	74

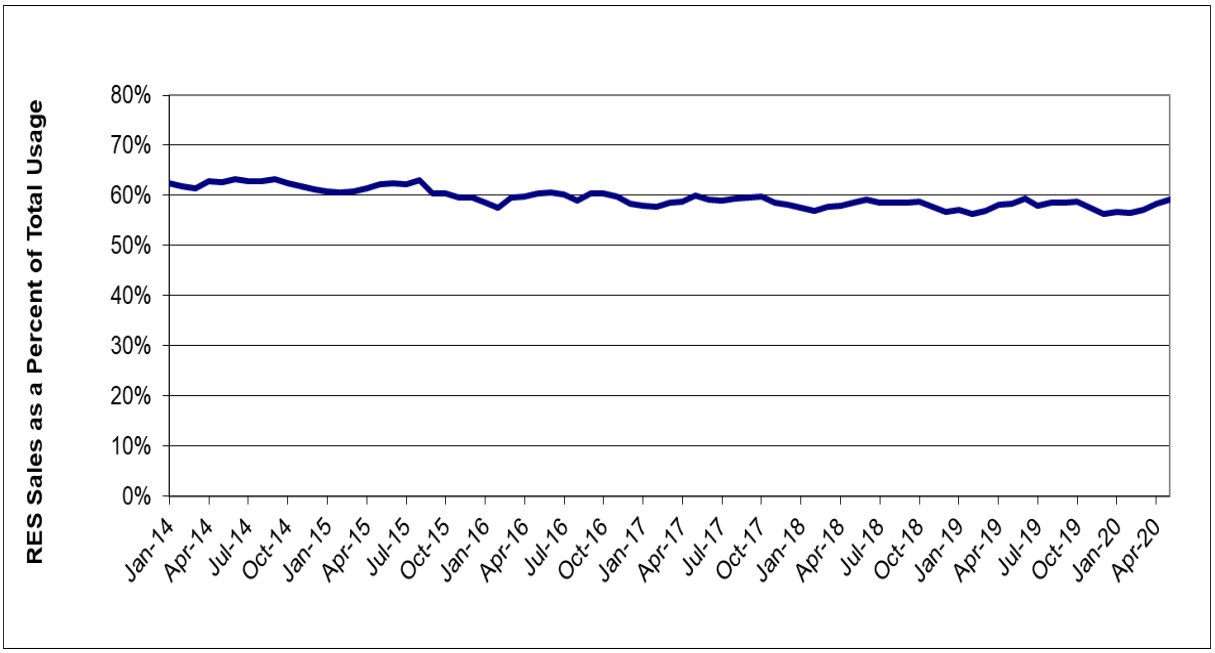
From May 2014 to May 2020 there has been an approximately 30% increase in the number of active RESs in the ComEd service territory. A rather meaningful increase for a market that already had a great deal of switching activity in the year 2013. Also, the increase in number of RESs approved to serve residential customers has shown a substantial increase over time. This large number of RESs and overall growth in the number of RESs highlights the active retail market in ComEd's service territory.

(iii) Future Trends

The future trends reflect an active retail market for several reasons. First, RES supply to customers in the 0 to 100 kW class continues to be significant. Chart II-3 contains the monthly percentage of usage by RES customers from January 2014 through May 2020. The RES percentage is at a substantial level with an average of 57.9% RES usage from January 2018 to May 2020. In addition, the percentage of RES usage has been very steady over that time period ranging from a high of 59.3% to a low of 56.3%. It is 59.2% as of May 2020.

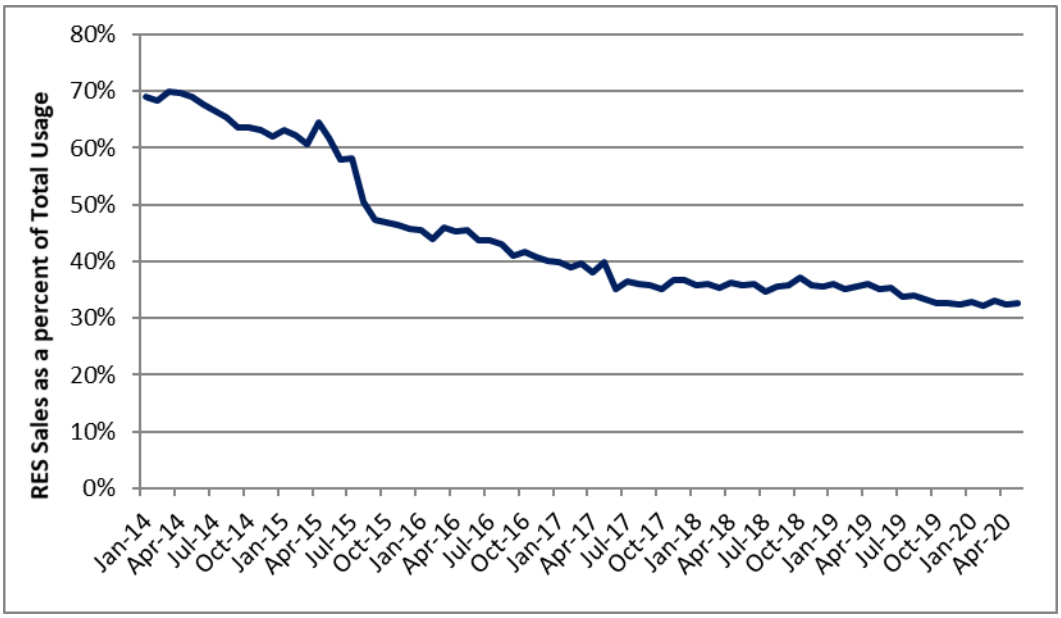
[3] An "Active RES" is defined as an ICC-approved RES that has passed ComEd's certification process.

Chart II-3
0 to 100 kW Switching Statistics



Second, the retail market for residential customers continues to be at a meaningful level. Chart II-4 contains the monthly percentage of usage by RES customers from January 2014 to May 2020. A little under one-third of residential customers (based on usage) are taking RES supply in 2020. This is down from the over two-thirds taking RES supply in late 2013 as various Muni Agg Communities have suspended their programs. However, for the purposes of judging the acceptance and engagement in retail choice by residential customers, Chart II-4 highlights that residential customers have been active participants in the retail markets.

Chart II-4
Residential Switching Statistics



Third, Muni Agg over the past years highlights an engaged customer base related to retail choice. Approximately 359 Communities have passed a Muni Agg referendum within the ComEd service territory. Muni Agg by its very nature requires engagement not only by public officials within each community, but also by the citizens of the community that approve the Muni Agg referendums. This large number of Communities is another indicator of an engaged customer base that is active in retail choice.

For these reasons, we expect retail markets to continue to reflect a meaningful level of engagement during the Forecast period.

(iv) Forecasted Retail Usage

The forecast percentages of Blended Service usage are shown below, along with some historical perspective.

Table II-4
Percentage of Blended Service Usage

Month	Residential	Watthour	0-100 kW
Jun-13	31.3%	20.8%	34.1%
Jun-14	31.8%	24.9%	33.9%
Jun-15	41.6%	27.0%	34.4%
Jun-16	55.9%	38.8%	36.6%
Jun-17	64.3%	41.9%	37.5%
Jun-18	63.2%	43.0%	36.9%
Jun-19	63.6%	43.0%	36.9%
May-20	66.2%	44.5%	36.5%
Jun-21	67.3%	45.5%	37.5%
Jun-22	67.3%	45.5%	37.5%
Jun-23	67.3%	45.5%	37.5%
Jun-24	67.3%	45.5%	37.5%
Jun-25	67.3%	45.5%	37.5%

The main drivers of this forecast are:

1. Residential Blended supply is expected to remain rather stable with a slight increase in the near-term reflecting year-to-date activity. The percentage of Residential usage that is Blended supply averaged 66.1% for the three months ending May 2020 and is expected to be slightly higher at 67.3% by December 2020. The monthly Blended percentage has averaged 64.4% for the past two years (June 2018 to May 2020). This status-quo environment reflects small overall changes in switching activity by residential customers. Plus, there are offsetting dynamics (e.g., a community suspending its Muni Agg program while another renews its previously suspended program and the advent of the price to compare contract). The net result is a stable Blended percentage.

   Muni Agg results for the first several months of 2020 illustrate this offsetting dynamic. We continue to utilize town-code level data related to Muni Agg Communities with contract renewals in 2020. This data reflects recent Muni Agg Communities usages and decisions as of mid-June 2020 and that data can be found in the spreadsheet entitled "2020 Muni Agg Renewal Tracking.xlsx". Granted, less than half of Muni Agg decisions in the first half of 2020 (based on load) so one needs to be cautious in the use of these early results.

   Approximately 7% of the Muni Agg Communities (based on usage) with a contract renewal in 2020 that have decided as of mid-June 2020 have opted to suspend their program. This is below the percentage for all of 2019 which was 13%. The assumption for the remainder of 2020 is for a 10% suspension rate which is an average of 2019 and early 2020 results.

As was the case last year, some communities have restarted their previously dormant Muni Agg programs in 2020. So far in 2020 there has been approximately 170 GWh of annualized usage from communities that have decided to re-start. Consequently, there is an additional 225 GWh projected in 2020 to re-start Muni Agg for a total of slightly under 400 GWh to reflect that more than half of the 2020 load in Muni Agg communities have yet to decide.

We continue to assume the City of Chicago will not reactivate its municipal aggregation program with the City's level of Residential switching remaining flat.

A development in 2019 is the increased number of communities that are choosing a pricing option where the Muni Agg pricing is set to match the ComEd price to compare. The benefit to the customers is that the RES purchases renewable energy credits for the eligible customers making them effectively 100% Green. Under this product not all customers are moved to RES supply. On balance, once the program has been implemented the percentage of usage on RES supply, we typically find it drops by approximately 30 percentage points. In other words, goes from roughly 80% RES usage to 50% RES. This has the effect of increasing Blended usage even though a community is renewing their Muni Agg program. In 2019 approximately 28% of the total usage up for renewal chose this option for the first time. We expect similar activity in 2020. Consequently, approximately 300 GWh of usage is projected to move to Blended supply in 2020 due to this dynamic (30% of the approximately 3,300 GWh of total usage up for renewal will decide on this option with a corresponding 30% movement to Blended usage). This pricing product adds another layer of complexity to the switching forecast and, as in the past, we will continue to monitor it and keep the IPA informed of further developments

The last component is the switching change in non-Muni Agg communities. An examination of 2019 and 2020 data for these communities shows a slight movement to Blended supply which translates to an approximately 1.0% increase in the projected Blended supply percentage due to these communities.

2. The status-quo Muni Agg switching environment found in 2019 and occurring in the first half of 2020 is expected to continue into the remaining years of the Forecast. The existing population of active Muni Agg Communities have shown a solid preference to continue with their programs, which is demonstrated by the low suspension percentage in 2019 and 2020. Thus, the Blended percentage is 67.3% by June 2021. Lastly, no Muni Agg referendums are anticipated in the future as there have not been any in the past several years.

3. Non-Muni Agg Residential switching activity is also expected to remain stable over the Forecast. For example, of Communities that never implemented a Muni Agg program approximately 79.0% of their

Residential usage was Blended as of May 2020. This is very close to the 77.7% Blended as of May 2018 and the 77.4% Blended in May 2017. A stable Residential Blended percentage is anticipated among the customers outside Muni Agg communities going forward.

Based on these considerations, for the years 2021 and thereafter, a stable Residential Blended percentage is anticipated reflecting the status-quo level of Muni Agg activity, a small anticipated savings opportunity and a stable non-Muni Agg switching activity.

4. Regarding the non-residential customer forecast there are two distinct groups. The 0 to 100 kW customer group is marginally influenced by Muni Agg activity and the Blended percentage has held rather steady the past three years: Blended usage in 2017 averaged 37.4%; 2018 averaged 37.9%; and 2019 averaged 38.1%. The slight downturn in the Blended percentage over the past few months of 2020 is captured in the outlook with 37.5% Blended assumed for December 2020 followed by a stable percentage thereafter. The Watt-hour customer group is influenced by Muni Agg activity. The percentage of Blended supplied usage for the watt-hour group often follows the same general pattern as the residential customer group. The Watthour Blended percentage averaged 44.9% for 2020 and is projected to be 45.5% by December 2020 and largely reflects the anticipated Residential status quo environment.

5. This Forecast is based on a combination of actual results over several years, recent switching activity and granular data (e.g., community level information). ComEd will continue to monitor and analyze Muni Agg activity (along with other switching activities) and keep the IPA informed of any developments. The best approach in forecasting switching activity, especially in a market that is responding to changing conditions, is to provide regular updates. ComEd will provide a forecast update in March 2021 and July 2021. In addition, any meaningful development related to switching activity during the remainder of 2020 will be communicated to the IPA.

The effects of those drivers by customer group are as follows:

1. The Blended Service portion of the Residential customer class is expected to be 67.3% by December 2020 with no meaningful change thereafter for the reasons noted above.

2. The Blended Service portion of the 0 to 100 kW customer class is expected to be 37.5% by December 2020 and remaining at this level thereafter during the Forecast period.

3. The Blended Service portion of the Watthour customer class is expected to be 45.5% by December 2020 with this percentage holding steady into the future.

c. Known or Projected Changes to Future Load

Typically, when ComEd forecasts future loads it considers whether there are any known major customer decisions that would impact load, such as the relocation of part or all of a business. For the Eligible Retail Customers, other than the factors we have discussed elsewhere, e.g. switching, energy efficiency measures, growth, etc., there is only one known or projected change that ComEd is aware of that is different from past conditions and could affect future loads for this group of customers. This is the residential real-time pricing program ("RRTP").

In compliance with Section 16-107(b-5) of the PUA, ComEd received ICC approval to implement an RRTP program for a four-year period,[4] and, more recently, to continue the program post-2016.[5] Accordingly, ComEd still anticipates expansion of its marketing for RRTP. The expectation is for RRTP customers to grow from approximately 35,000 in May 2020 to approximately 70,000 by the end of the year 2025. Experience in the past year is supportive of this outlook as the recent number of Residential RRTP customers has increased by 18% in the past year.

d. Growth Forecast by Customer Class

(i) Introduction

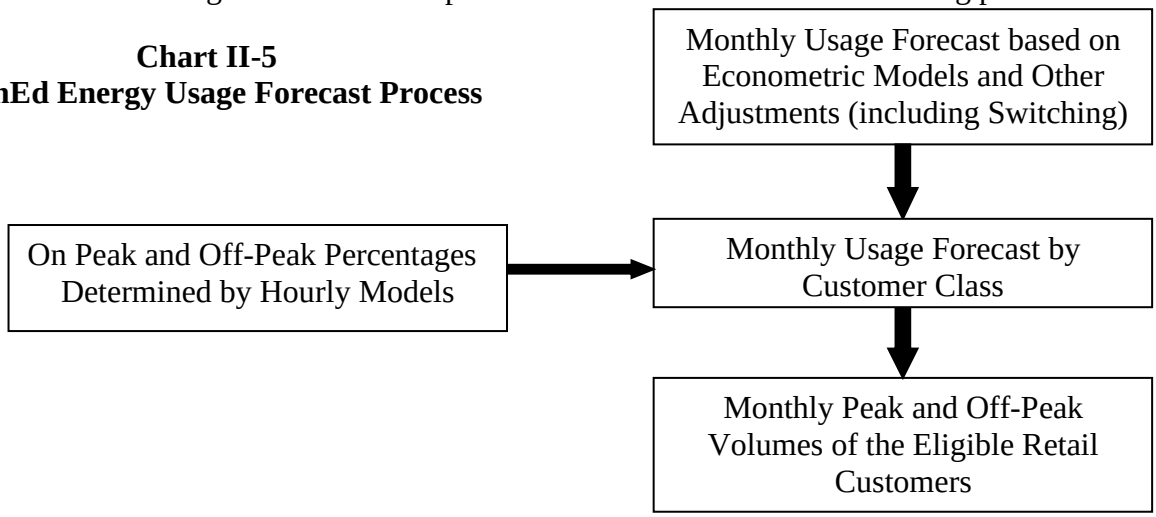
This section describes ComEd's growth forecast by customer class for the 5-year procurement planning period beginning on June 1, 2020. Section II(B)(1) discussed the hourly customer load profiles used by ComEd to develop models to present the historical load analysis required by the PUA and to predict UPC, or usage per customer. As indicated in this section, in arriving at a growth forecast by customer class, there are additional models beyond those customer-level hourly models that are used to forecast future customer class usage. These other models play an important role in determining expected load during the 5-year planning period among the Eligible Retail Customer groups.

[4] See ICC Order of December 20, 2006, in Docket No. 06-0617.

[5] See ICC Order of January 20, 2016 in Docket No. 15-0602.

The following illustrates the steps in the normal ComEd load forecasting process.

Chart II-5
ComEd Energy Usage Forecast Process

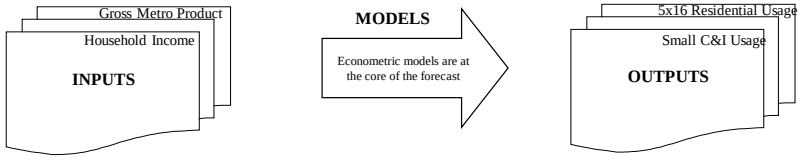


The forecasting process is model-based subject to adjustments and judgment. A suite of econometric models is used to produce monthly usage forecasts for ComEd's revenue customer classes. The two major customer classes applicable to this Forecast are Residential and Small C&I. That monthly forecast is adjusted for other considerations (e.g., switching activity) and allocated to more granular delivery service classes (e.g., the residential customer class is composed of four delivery service classes). The forecast usage is combined with the input from the hourly models to obtain on-peak and off-peak quantities for each month and delivery service class.

The econometric modeling portion of the process is described in the following chart:

Chart II-6

Econometric Modeling Process



Economic Forecasts
- Chicago Gross Metro Product
- Real Income per Household
- Household Growth

Switching Forecast
- RES Activity
- Market Developments

Top Down Approach
- Zone output modeled using historical weather and economic variables
- Customer class usage modeled using historic weather data and economic variables for each class
- Customer class forecast calibrated to equal zone output forecast (less line loss)
- Other research and judgment used to determine final energy forecast (e.g., effects from new energy efficiency programs)
- Usage forecast adjusted for projected switching activity
- Hourly customer class models used to determine on-peak and off-peak usage

Sales and Load Forecasts
- ComEd Zone Output
- Customer Class Usage
- Procurement Eligible Usage by On-Peak and Off-Peak Usage

As the chart indicates, ComEd's forecasts of usage for its service territory are based on a "top-down" approach. The top-down approach provides a forecast of total usage for the entire service territory and allocates the usage to various customer classes using the models specific to each class. The allocation is achieved by reducing the forecasted zone usage by the inherent difference between zone and customer class usage (in particular, line loss) and then calibrating the forecasted customer class usage to equal that system-wide at the meter usage. The econometric models are based on monthly data and have very robust characteristics.

The COVID-19 pandemic led the Company to adjust its forecast methodology presented in this submission to account for the unprecedented changes in load. Because of the short period of load history impacted by COVID-19 our typical modelling would not accurately capture the dramatic fluctuations seen year to date. The load results presented in this updated filing leverage a hybrid approach to the load forecast to project volumes over the procurement period. Leveraging the Company's most recent energy forecast within the 5-year plan submitted in the March 2020 IPA update as a starting point, we then adjusted load volumes to account for a rigorous estimate of projected impacts of COVID-19 on future load growth and changes to other relevant forecast drivers. Forecast drivers like energy efficiency, solar adoption, and electric vehicle adoption were updated to reflect changes since the prior submission. The COVID-19 forecast impacts leveraged our experience in actual load year to date with projections guided by easing of social distancing measures within the ComEd footprint and the recovery of load as economic conditions recover from the current recession.

(ii) Growth Forecast

The forecast reflects the above assumptions and a progressively greater adoption of solar generation in the coming years.

In the case of forecasting solar adoption by retail customers, the approach is to consider as many factors as reasonably possible while acknowledging that solar penetration is still in the early stages within the ComEd service territory. Along these lines, ComEd's solar forecast uses the System Dynamics model to account for various factors influencing solar adoption (this is the same model used in the March 2020 forecast update provided to the IPA). The model captures inputs related to recent IPA decisions, federal tax reform; and expected PV costs. Building upon the first point, the IPA has made various decisions in the past year that have been very helpful in providing more clarity to the economics of solar adoption. Given these various factors and decisions, the resulting forecast of solar impacts for the Residential and Small C&I customer classes is shown in Table II-7(a). Community solar is a large portion of the solar outlook. Technically, community solar does not reduce customer usage, but for the purposes of this Forecast it was included as a reduction to usage to reflect the ultimate quantities the IPA needs to procure.

Table II-5(a)

	Residential Solar (GWh)			Small C&I Solar (GWh)		
Calendar Year	Rooftop	Community	Total Solar	Rooftop	Community	Total Solar
2020	119.6	44.8	164.4	68.8	7.5	76.3
2021	181.1	129.4	310.5	124.0	21.6	145.5
2022	213.4	169.3	382.7	142.0	28.2	170.2
2023	232.5	169.3	401.8	142.8	28.2	171.0
2024	254.1	169.8	423.9	144.1	28.3	172.4
2025	290.7	169.3	460.0	146.0	28.2	174.2
2026	334.7	198.8	533.5	163.5	33.1	196.6

ComEd's historical and forecasted weather-adjusted energy usage for the Residential and Small C&I customer classes are shown in Table II-7(b) and include the above solar assumptions.

Table II-5(b)

ComEd Weather Adjusted Annual Energy Usage				
	Residential		Small C&I	
Year	Usage (GWh)	Percent Growth	Usage (GWh)	Percent Growth
2011	27,522	(1.3%)	32,217	(0.8%)
2012	27,361	(0.6%)	32,297	0.2%
2013	27,353	(0.0%)	32,149	(0.5%)
2014	27,447	0.3%	32,046	(0.3%)
2015	27,038	(1.5%)	31,771	(0.9%)
2016	26,888	(0.6%)	31,664	(0.3%)
2017	26,637	(0.9%)	31,455	(0.7%)
2018	26,573	(0.2%)	31,460	0.0%
2019	26,671	0.4%	30,853	(1.9%)
2020	27,481	3.0%	28,528	(7.5%)
2021	26,632	(3.1%)	29,562	3.6%
2022	26,671	0.1%	29,688	0.4%
2023	26,725	0.2%	29,331	(1.2%)
2024	26,875	0.6%	29,071	(0.9%)
2025	26,962	0.3%	28,738	(1.1%)
2026	27,176	0.8%	28,558	(0.6%)

2. Impact of Demand Side and Energy Efficiency Initiatives

The PUA sets out annual targets for the implementation of cost-effective demand side and energy efficiency measures.

a. Impact of demand response programs, current and projected

(i) Background

ComEd is a strong supporter of the use of demand response to actively manage peak demands. Use of demand response resources grew in the mid to late 1990s, and ComEd has maintained a large portfolio of demand response resources, with participation from residential, commercial, and industrial customers. ComEd is a leader in the development and management of demand response resources and will increase participation in appropriate programs to meet the requirements of the PUA.

The 2020-2021 (i.e., 6/1/20 to 5/31/21) portfolio of ComEd programs includes the following:

- **Direct Load Control ("DLC"):** ComEd's residential central air conditioning cycling program includes two DLC switch options (i.e., 50% and 100% options) with 69,300 customers and a Nest Smart Thermostat option with 33,200 customers for a program combined total of 102,500 customers. The total reduction potential for the program is estimated to be 72 MW.

- **Voluntary Load Reduction ("VLR") Program:** VLR is a demand response program that provides fixed compensation amounts to customers for the energy (kWh) they reduce during curtailment events. This program provides for transmission and distribution ("T&D") compensation based on the local conditions of the T&D network. The portfolio has 856 MW of potential load reduction (ComEd Rider VLR).

- **Hourly Pricing (formerly known as Residential Real-Time Pricing - RRTP) Program:** ComEd residential supply customers have the option to select Hourly Pricing (i.e., Rate BESH), provided they have a smart meter. The Hourly Pricing program gives customers access to hourly electricity prices that are based on the Residual ComEd Zone PJM wholesale market prices. These prices vary from hour to hour and day to day according to the actual market price of power. This program has 34,222 customers and a load reduction potential of 14 MW.

- **Peak Time Savings (PTS) Program:** This program is required by Section 16-108.6(g) of the PUA and was approved by the ICC in Docket No. 12-0484. The PTS program is an opt-in, market-based demand response program for customers with smart meters. Under the program, customers receive bill credits for kWh usage reduction during curtailment periods. Enrollment in Peak Time Savings has grown to more than 290,000 customers enabling ComEd to bring more than 92 MW of capacity to the wholesale market in the 2020-2021 Planning Year. ComEd cleared 75 MW of summer only capacity from the program into the PJM capacity auction for the 2020-2021 Delivery Year, and 153 MW for the 2021-2022 Planning Year.

(ii) Legislative Requirement

Section 8-103B(f)(4.5) of the PUA establishes a goal to implement demand response measures, providing that:

> (c) Implement cost-effective demand-response measures to reduce peak demand by 0.1% over the prior year for eligible retail customers, as defined in Section 16-111.5 of this Act, and for customers that elect hourly service from the utility pursuant to Section 16-107 of this Act, provided those customers have not been declared competitive. This requirement continues until December 31, 2026.

Section 1-10 of the Illinois Power Agency Act defines demand response as "measures that decrease peak demand or shifts demand from peak to off-peak periods."

Table II-8 shows the estimated annual MWs of demand response measures that will need to be implemented over the Five-year Forecast period to meet the goals set forth in the PUA:

Table II-6
Estimated Annual Level of Demand Response Measures

Planning Year	Peak Load (Prior Year) (MW)	Annual Goal	Annual Goal (MW)
2021	7,291	0.1%	7.29
2022[6]	7,351	0.1%	7.35
2023	7,350	0.1%	7.35
2024	7,358	0.1%	7.36
2025	7,368	0.1%	7.37

(iii) Impact of Demand Response Programs

Demand response programs do not impact ComEd's load forecasts. Load forecasts are made on a weather normalized, unrestricted basis. Since demand response measures are called on days when the temperature is hotter than "normal," the avoided capacity and energy associated with these resources is incremental to the weather normal forecast, and thus is not factored into the load forecasts. In fact, when developing forecasts, any impact on energy usage from implementing a demand response measure in a prior year is added back into that prior year's usage data and then weather normalized before being used to assist in the forecasting process. This assures that the forecast represents a complete picture of the unrestricted demands on the system.

[6] ComEd's filed Energy Efficiency Plan in ICC Docket 17-0312 is a four-year plan, 2018-2021. For 2022 through 2025, which is not covered in the Plan, the goal is projected in a manner consistent with the Plan.

b. Impact of Energy Efficiency Programs

The PUA has several provisions regarding various types of energy efficiency programs. This section discusses the impact of each of these programs on the Forecast.

(i) Section 8-103B Energy Efficiency Measures

As of June 1, 2018, Section 8-103 of the PUA is superseded by Section 8-103B which has new energy efficiency requirements for ComEd. Section 8-103B requires ComEd to implement cost-effective energy efficiency measures beginning January 1, 2018. This provision provides annual kWh targets based on a projection of the upcoming years' energy usage for all delivery service customers. Additionally, there is a spending cap that limits the amount of expenditures on energy efficiency measures in any year.

(A) kWh Targets

The kWh target for energy efficiency is based on a projection of the amount of energy to be delivered by ComEd to all its delivery service customers (except for some very large customers) in the upcoming Planning Year. Previously, the kWh target was an annual goal based on first year savings. Starting in 2018 under Section 8-103B, the kWh targets will be based on cumulative persisting annual savings ("CPAS") which is defined as the total electric energy savings in a given year from measures installed in that year or in previous years, but no earlier than January 1, 2012, that are still operational and providing savings in that year because the measures have not yet reached the end of their useful lives. The table below shows the target percentages:

Table II-7
Target Cumulative Persisting Annual Savings ("CPAS") Percentages to Meet Energy Efficiency Goals

Year	Annual CPAS Percent Reduction in Energy Delivered
2018	7.8%
2019	9.1%
2020	10.4%
2021	11.8%
2022	13.1%
2023	14.4%
2024	15.7%
2025	17.0%
2026	17.9%
2027	18.8%
2028	19.7%
2029	20.6%
2030	21.5%

(B) Projected Overall Goals

The annual energy efficiency goals were determined based on the kWh targets and the rate impact criteria. ComEd has filed its first plan under Section 8-103B on June 30, 2017 (Docket 17-0312) and was approved by the ICC on September 11, 2017. Also, for purposes of this Forecast only,[7] the allocation of the energy (kWh) targets to the various customer classes (as shown in Table II-7(b)) was based on several years of historical data and judgment.

The above percentages represent the CPAS goal to be achieved by the end of each year for all delivery services customers (excluding some very large customers). Since the various energy efficiency measures will be implemented and phased in over the course of each Planning Year and since Eligible Retail Customers are only a subset of delivery services customers, the actual amount of GWh for Eligible Retail Customers that is impacted in each Planning Year will be somewhat less (as shown in Table II-10, below).

(C) Impact on Forecasts

Energy efficiency measures directly impact the amount of energy used by customers throughout the year. As such, they will directly impact the forecasts of future load. The following chart depicts the cumulative impacts of these measures on the Forecast:

Table II-8
Cumulative Impacts of EE on Load Forecast by Customer Type[8]

Planning Year	Residential Allocation (GWh)	Watt-Hour Allocation (GWh)	0-100 kW Allocation (GWh)
2021	3,200	39	1,014
2022	3,110	42	1,110
2023	3,036	46	1,198
2024	3,007	49	1,281
2025	3,000	51	1,352

c. Impact of Renewable Energy Resources

Section 1-75(c) of the IPA Act (20 ILCS 3855/1-75(c)) establishes goals and cost thresholds for cost effective renewable energy resources. However, other than the impact of DG solar which was discussed earlier in this document and the energy prices hedging impact related to the 2010 Long Term Renewable contracts, there is no impact on the amount of energy ComEd must procure for Eligible Retail Customers.

[7] The PUA does not prescribe how the kWh targets are to be apportioned among the customer classes, and the energy efficiency plan did not set goals on a customer class basis.

[8] These amounts are cumulative from 2008, when the statutory program began.

3. Five-Year Monthly Load Forecast

Based on all the factors discussed in this section, ComEd has developed the following forecast of projected energy usage of Eligible Retail Customers for the period from June 1, 2021 through May 31, 2022:

Table II-9

ComEd Procurement Period Load Forecast (Expected Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Weather Normal, Line Loss and DSM Adjusted)					
Year	**Month**	**Total Load (MWh)**		**Average Load (MW)**	
		On-Peak	**Off-Peak**	**On-Peak**	**Off-Peak**
2021	6	1,149,666	988,657	3,266	2,687
2021	7	1,320,896	1,312,141	3,931	3,216
2021	8	1,294,991	1,176,559	3,679	3,001
2021	9	918,225	903,124	2,733	2,352
2021	10	775,186	828,996	2,307	2,032
2021	11	872,787	900,367	2,598	2,339
2021	12	1,119,022	1,025,612	3,041	2,728
2022	1	1,031,023	1,140,125	3,069	2,794
2022	2	924,296	932,855	2,888	2,650
2022	3	935,766	880,271	2,543	2,347
2022	4	747,643	781,873	2,225	2,036
2022	5	775,688	839,121	2,309	2,057
Totals		**11,865,189**	**11,709,701**		

The forecast set forth above shows ComEd's expected load for the 2021 Planning Year. The PUA requires that the forecast cover a 5-year planning period. The forecast for ComEd's expected load for the 5-year planning period is set forth in Appendix B-1. The PUA also requires ComEd to provide low-load and high-load scenarios. That information for the 2021 Planning Year is set forth in Tables II-15 and II-16. The low-load and high-load scenarios for the 5-year planning period are set forth in Appendix B-2 and Appendix B-3, respectively. In all the forecasted usage tables, "line loss" refers only to distribution losses.

Table II-10

ComEd Procurement Period Load Forecast (Low Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Line Loss and DSM Adjusted)					
Year	**Month**	**Total Load (MWh)**		**Average Load (MW)**	
		On-Peak	**Off-Peak**	**On-Peak**	**Off-Peak**
2021	6	1,020,244	829,075	2,898	2,253
2021	7	1,119,010	1,063,118	3,330	2,606
2021	8	1,047,203	894,978	2,975	2,283
2021	9	874,988	865,176	2,604	2,253
2021	10	725,834	771,339	2,160	1,891
2021	11	800,831	822,994	2,383	2,138
2021	12	1,049,293	967,911	2,851	2,574
2022	1	1,006,334	1,117,987	2,995	2,740
2022	2	883,169	874,385	2,760	2,484
2022	3	856,747	783,466	2,328	2,089
2022	4	699,667	714,957	2,082	1,862
2022	5	744,475	740,041	2,216	1,814
Totals		**10,827,795**	**10,445,427**		

Table II-11

ComEd Procurement Period Load Forecast (High Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Line Loss and DSM Adjusted)					
Year	**Month**	**Total Load (MWh)**		**Average Load (MW)**	
		On-Peak	**Off-Peak**	**On-Peak**	**Off-Peak**
2021	6	1,206,635	1,053,681	3,428	2,863
2021	7	1,584,464	1,536,083	4,716	3,765
2021	8	1,578,947	1,409,429	4,486	3,595
2021	9	961,267	864,284	2,861	2,251
2021	10	798,386	854,707	2,376	2,095
2021	11	909,008	940,788	2,705	2,444
2021	12	1,247,472	1,141,667	3,390	3,036
2022	1	1,117,693	1,237,439	3,326	3,033
2022	2	994,269	995,683	3,107	2,829
2022	3	961,063	896,276	2,612	2,390
2022	4	779,181	795,723	2,319	2,072
2022	5	911,669	913,829	2,713	2,240
Totals		**13,050,054**	**12,639,589**		

The low-load and the high-load scenarios are based upon a change to three of the main variables impacting load: weather, switching and load growth.

The Low-Load Forecast assumes that the summer weather is cooler than normal, that load growth occurs at a rate 2% less than the Expected Load Forecast and higher RES service relative to the Expected Load Forecast shown in Table II-14. In this scenario for switching purposes, Residential, Watt-Hour and 0 to 100 kW Blended usage is reduced by a total of four percentage points over the course of the calendar years 2021 and 2022. This switching change equates to approximately 750 GWh for Program Year 2020 and 1,500 GWh for Program Year 2021. The percentage of Eligible Retail Customers taking Blended Service in this switching scenario is 55% (based on usage) as of December 2022 compared to 59% in the Expected Load Forecast.

The High-Load Forecast assumes that the summer weather is hotter than normal, that load growth occurs at a rate 2% more than is expected, and lower RES service. In this scenario for switching purposes, Residential, Watt-Hour and 0 to 100 kW Blended usage is reduced by a total of four percentage points over the course of the calendar years 2021 and 2022. This switching change equates to approximately (750) GWh for Program Year 2020 and (1,500) GWh for Program Year 2021. The percentage of Eligible Retail Customers taking Blended Service in this switching scenario is 63% as of December 202 compared to 59% in the Expected Load Forecast.

The +/- 2% load growth assumption in both scenarios reflects, the current economic uncertainty.

ComEd's intention is to keep the IPA informed of significant changes in its forecast during the procurement proceeding.

III. CONCLUSION

For all the reasons described here, ComEd believes that its Forecast for the period June 1, 2021 through May 31, 2026 is consistent with the requirements of the PUA and provides an appropriate approach to develop the procurement plan to acquire supply for the Eligible Retail Customers.

Appendices

A. Load Forecast Models

1. Residential Single-Family Model (Hour 16)

B. Five-Year Load Forecast

1. Expected load

2. Low Load

3. High Load

Appendix A-1

Residential Single Family Model (Hour 16)			
Variable	**Coefficient**	**T-Stat**	**Notes**
Constant	0.840	20.06	Constant term
Monday Binary	-0.104	-7.97	Daily Binary - Monday
Tuesday Binary	-0.106	-7.53	Daily Binary - Tuesday
Wednesday Binary	-0.104	-7.22	Daily Binary - Wednesday
Thursday Binary	-0.117	-8.08	Daily Binary - Thursday
Friday Binary	-0.121	-8.50	Daily Binary - Friday
Saturday Binary	-0.029	-2.95	Daily Binary - Saturday
MLK Binary	0.098	1.68	Martin Luther King's Day
Presidents Day Binary	0.065	1.13	President's Day
GoodFriday Binary	0.020	0.36	Good Friday
Memorial Day Binary	0.136	2.30	Memorial Day
July4th Binary	0.097	1.42	July 4th.
LaborDay Binary	0.300	4.98	Labor Day
Thanksgiving Binary	0.173	2.88	Thanksgiving Day
FriAThanks Binary	0.095	1.51	Friday after Thanksgiving Day
XMasWeek Before Binary	0.077	1.08	Week before Christmas
XMasEve Binary	0.215	2.51	Christmas Eve
XMasDay Binary	0.169	2.42	Christmas Day
XMasWeek Binary	0.112	1.54	Christmas Week
New Years Eve Binary	0.168	1.68	New Year's Eve Day
New Years Day Binary	0.138	1.81	New Year's Day
Feb Binary	-0.047	-1.03	Monthly Binary - February
Mar Binary	-0.105	-2.37	Monthly Binary - March
MarDLS Binary	0.000	0.00	Day That Daylight Savings Begins In March
Apr Binary	-0.123	-2.63	Monthly Binary - April
May Binary	-0.173	-3.56	Monthly Binary - May
Jun Binary	0.153	3.03	Monthly Binary - June
Jul Binary	0.208	3.89	Monthly Binary - July
Aug Binary	0.312	5.88	Monthly Binary - August
Sep Binary	0.096	1.84	Monthly Binary - September
Oct Binary	0.002	0.04	Monthly Binary - October
NovDLS Binary	0.025	0.50	Day That Daylight Savings Ends In November
Nov Binary	-0.119	-2.33	Monthly Binary - November
Dec Binary	-0.008	-0.16	Monthly Binary - December
JanWalk	-0.001	-0.59	Monthly Time Trend - January
FebWalk	-0.002	-1.19	Monthly Time Trend - February
MarWalk	-0.001	-0.38	Monthly Time Trend - March
AprWalk	0.000	0.15	Monthly Time Trend - April
MayWalk	0.008	4.75	Monthly Time Trend - May
JunWalk	0.000	-0.14	Monthly Time Trend - June

JulWalk	0.001	0.42	Monthly Time Trend - July
AugWalk	-0.006	-3.44	Monthly Time Trend - August
SepWalk	-0.001	-0.48	Monthly Time Trend - September
OctWalk	-0.003	-1.89	Monthly Time Trend - October
NovWalk	0.005	2.32	Monthly Time Trend - November
DecWalk	0.001	0.65	Monthly Time Trend - December
SeasonHDD	0.007	9.63	Seasonal Heating Degree Days Spline
LagHDD	0.000	0.08	1 Day Lag Seasonal Heating Degree Days Spline
Lag2HDD	0.001	1.59	2 Day Lag Seasonal Heating Degree Days Spline
SeasonTDD	0.155	65.30	Seasonal Cooling Degree Days Spline
LagTDD	0.005	1.94	1 Day Lag Seasonal Cooling Degree Days Spline
Lag2TDD	0.012	5.55	2 Day Lag Seasonal Cooling Degree Days Spline
HDDWkEnd	0.000	0.41	Weekend Seasonal Heating Degree Days Spline
TDDWkEnd	0.003	1.24	Weekend Seasonal Cooling Degree Days Spline
Shift2016	0.036	3.17	An End Shift to describe usage for 2016
Shift2017	0.002	0.17	An End Shift to describe usage for 2017
AR(1)	0.321	14.06	Autoregressive Term

The coefficients provide the effect that each variable has on the hourly usage for a single hour (Hour 16 which includes the load from 3 p.m. to 4 p.m. in the afternoon). The "T-Stat" provides the statistical significance of the variable, with a value generally greater than +/- two (2) indicating that the coefficient is significantly different from zero. The hourly model for Hour 16 has an adjusted R-squared of 0.95, which means that 95% of the variance in the hourly data is being explained by the model.

At the daily level, the mean absolute percent error ("MAPE") for the summation of the hourly models is 3.2%. The 3.2% daily MAPE means that the average absolute percentage difference on a daily basis between the usage predicted by the model and the actual usage for that period was very small. In other words, the model can explain usage with a 97% accuracy rate. Such a high accuracy rate is particularly noteworthy because the model is dealing with very short time frames in which many factors may come into play. The high accuracy rate, the low MAPE and the high R-squared indicate that the model captures the vast majority of factors that affect electrical usage.

Appendix B-1

ComEd Procurement Period Load Forecast (Expected Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Weather Normal, Line Loss and DSM Adjusted)					
Year	Month	Total Load (MWh)		Average Load (MW)	
		On-Peak	Off-Peak	On-Peak	Off-Peak
2021	6	1,149,666	988,657	3,266	2,687
2021	7	1,320,896	1,312,141	3,931	3,216
2021	8	1,294,991	1,176,559	3,679	3,001
2021	9	918,225	903,124	2,733	2,352
2021	10	775,186	828,996	2,307	2,032
2021	11	872,787	900,367	2,598	2,339
2021	12	1,119,022	1,025,612	3,041	2,728
2022	1	1,031,023	1,140,125	3,069	2,794
2022	2	924,296	932,855	2,888	2,650
2022	3	935,766	880,271	2,543	2,347
2022	4	747,643	781,873	2,225	2,036
2022	5	775,688	839,121	2,309	2,057
2022	6	1,151,342	982,322	3,271	2,669
2022	7	1,252,280	1,364,115	3,913	3,217
2022	8	1,360,575	1,118,724	3,697	2,975
2022	9	907,797	905,438	2,702	2,358
2022	10	775,419	829,729	2,308	2,034
2022	11	874,675	900,422	2,603	2,339
2022	12	1,016,401	1,120,275	3,025	2,746
2023	1	1,038,184	1,150,580	3,090	2,820
2023	2	924,369	935,233	2,889	2,657
2023	3	933,362	883,111	2,536	2,355
2023	4	708,837	809,912	2,215	2,025
2023	5	812,087	803,208	2,307	2,049
2023	6	1,150,335	975,039	3,268	2,650
2023	7	1,248,775	1,358,968	3,902	3,205
2023	8	1,352,023	1,118,848	3,674	2,976
2023	9	856,723	936,320	2,677	2,341
2023	10	817,002	797,986	2,321	2,036
2023	11	877,215	898,303	2,611	2,333
2023	12	961,728	1,164,140	3,005	2,746
2024	1	1,094,877	1,109,082	3,110	2,829
2024	2	955,880	946,959	2,845	2,630
2024	3	846,373	950,559	2,519	2,336
2024	4	791,803	749,435	2,249	2,037
2024	5	814,236	793,769	2,313	2,025

ComEd Procurement Period Load Forecast (Expected Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Weather Normal, Line Loss and DSM Adjusted)					
Year	**Month**	**Total Load (MWh)**		**Average Load (MW)**	
		On-Peak	**Off-Peak**	**On-Peak**	**Off-Peak**
2024	6	1,025,747	1,070,121	3,205	2,675
2024	7	1,377,942	1,250,754	3,915	3,191
2024	8	1,283,915	1,169,580	3,647	2,984
2024	9	857,946	930,025	2,681	2,325
2024	10	858,998	770,114	2,334	2,048
2024	11	830,877	938,087	2,596	2,339
2024	12	1,018,712	1,125,016	3,032	2,757
2025	1	1,095,004	1,115,136	3,111	2,845
2025	2	924,150	943,527	2,888	2,680
2025	3	846,469	955,210	2,519	2,347
2025	4	791,139	754,263	2,248	2,050
2025	5	765,850	827,374	2,279	2,028
2025	6	1,076,145	1,027,957	3,203	2,677
2025	7	1,376,827	1,248,148	3,911	3,184
2025	8	1,219,661	1,218,514	3,630	2,987
2025	9	908,149	887,792	2,703	2,312
2025	10	861,070	773,352	2,340	2,057
2025	11	784,057	979,439	2,579	2,349
2025	12	1,074,800	1,088,589	3,053	2,777
2026	1	1,043,577	1,162,537	3,106	2,849
2026	2	929,520	945,447	2,905	2,686
2026	3	894,118	924,449	2,540	2,364
2026	4	791,209	758,919	2,248	2,062
2026	5	721,071	864,890	2,253	2,040
Totals		**58,744,440**	**59,041,418**		

Appendix B-2

ComEd Procurement Period Load Forecast (Low Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Line Loss and DSM Adjusted)					
Year	Month	Total Load (MWh)		Average Load (MW)	
		On-Peak	Off-Peak	On-Peak	Off-Peak
2021	6	1,020,244	829,075	2,898	2,253
2021	7	1,119,010	1,063,118	3,330	2,606
2021	8	1,047,203	894,978	2,975	2,283
2021	9	874,988	865,176	2,604	2,253
2021	10	725,834	771,339	2,160	1,891
2021	11	800,831	822,994	2,383	2,138
2021	12	1,049,293	967,911	2,851	2,574
2022	1	1,006,334	1,117,987	2,995	2,740
2022	2	883,169	874,385	2,760	2,484
2022	3	856,747	783,466	2,328	2,089
2022	4	699,667	714,957	2,082	1,862
2022	5	744,475	740,041	2,216	1,814
2022	6	976,044	770,592	2,773	2,094
2022	7	1,012,379	1,040,373	3,164	2,454
2022	8	1,035,319	808,320	2,813	2,150
2022	9	819,937	818,645	2,440	2,132
2022	10	684,522	731,360	2,037	1,793
2022	11	761,845	775,557	2,267	2,014
2022	12	903,694	997,391	2,690	2,445
2023	1	966,040	1,066,356	2,875	2,614
2023	2	833,399	841,179	2,604	2,390
2023	3	811,851	753,411	2,206	2,009
2023	4	633,983	709,331	1,981	1,773
2023	5	712,601	711,988	2,024	1,816
2023	6	930,834	743,497	2,644	2,020
2023	7	948,945	1,026,198	2,965	2,420
2023	8	980,390	798,549	2,664	2,124
2023	9	758,554	814,781	2,370	2,037
2023	10	703,823	683,802	1,999	1,744
2023	11	745,797	757,010	2,220	1,966
2023	12	842,247	1,010,956	2,632	2,384
2024	1	994,804	1,011,669	2,826	2,581
2024	2	838,042	835,376	2,494	2,320
2024	3	718,051	799,278	2,137	1,964
2024	4	695,789	640,093	1,977	1,739
2024	5	715,428	674,490	2,032	1,721

ComEd Procurement Period Load Forecast (Low Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Line Loss and DSM Adjusted)					
Year	**Month**	**Total Load (MWh)**		**Average Load (MW)**	
		On-Peak	**Off-Peak**	**On-Peak**	**Off-Peak**
2024	6	754,518	863,290	2,358	2,158
2024	7	980,307	970,556	2,785	2,476
2024	8	883,335	847,212	2,509	2,161
2024	9	740,033	797,295	2,313	1,993
2024	10	730,543	642,341	1,985	1,708
2024	11	696,612	770,421	2,177	1,921
2024	12	866,747	965,790	2,580	2,367
2025	1	993,249	979,098	2,822	2,498
2025	2	796,073	819,507	2,488	2,328
2025	3	703,939	787,720	2,095	1,935
2025	4	677,000	636,736	1,923	1,730
2025	5	662,788	686,759	1,973	1,683
2025	6	794,050	797,373	2,363	2,076
2025	7	973,305	935,777	2,765	2,387
2025	8	803,288	882,065	2,391	2,162
2025	9	769,521	743,856	2,290	1,937
2025	10	715,931	634,159	1,945	1,687
2025	11	641,393	792,031	2,110	1,899
2025	12	896,777	916,186	2,548	2,337
2026	1	928,317	1,000,934	2,763	2,453
2026	2	790,046	799,554	2,469	2,271
2026	3	732,036	744,226	2,080	1,903
2026	4	660,410	630,968	1,876	1,715
2026	5	610,439	705,847	1,908	1,665
Totals		**49,652,770**	**49,615,330**		

Appendix B-3

ComEd Procurement Period Load Forecast (High Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Line Loss and DSM Adjusted)					
Year	Month	Total Load (MWh)		Load (MW)	
		On-Peak	Off-Peak	On-Peak	Off-Peak
2021	6	1,206,635	1,053,681	3,428	2,863
2021	7	1,584,464	1,536,083	4,716	3,765
2021	8	1,578,947	1,409,429	4,486	3,595
2021	9	961,267	864,284	2,861	2,251
2021	10	798,386	854,707	2,376	2,095
2021	11	909,008	940,788	2,705	2,444
2021	12	1,247,472	1,141,667	3,390	3,036
2022	1	1,117,693	1,237,439	3,326	3,033
2022	2	994,269	995,683	3,107	2,829
2022	3	961,063	896,276	2,612	2,390
2022	4	779,181	795,723	2,319	2,072
2022	5	911,669	913,829	2,713	2,240
2022	6	1,240,577	1,135,299	3,524	3,085
2022	7	1,606,126	1,658,718	5,019	3,912
2022	8	1,740,441	1,415,779	4,729	3,765
2022	9	1,017,910	897,488	3,029	2,337
2022	10	847,113	896,432	2,521	2,197
2022	11	955,640	995,403	2,844	2,585
2022	12	1,210,674	1,295,421	3,603	3,175
2023	1	1,181,070	1,311,668	3,515	3,215
2023	2	1,039,657	1,047,603	3,249	2,976
2023	3	1,010,184	930,828	2,745	2,482
2023	4	759,205	870,479	2,373	2,176
2023	5	1,003,232	895,040	2,850	2,283
2023	6	1,315,551	1,137,247	3,737	3,090
2023	7	1,638,438	1,724,128	5,120	4,066
2023	8	1,792,182	1,450,488	4,870	3,858
2023	9	936,342	1,010,886	2,926	2,527
2023	10	915,985	882,495	2,602	2,251
2023	11	984,343	1,011,291	2,930	2,627
2023	12	1,171,844	1,371,440	3,662	3,235
2024	1	1,274,389	1,285,517	3,620	3,279
2024	2	1,096,113	1,079,588	3,262	2,999
2024	3	938,822	1,020,461	2,794	2,507
2024	4	879,827	806,606	2,500	2,192
2024	5	973,604	953,782	2,766	2,433

ComEd Procurement Period Load Forecast (High Load) Projected Energy Usage and Average Demand For Eligible Retail Customers (Line Loss and DSM Adjusted)					
Year	**Month**	**Total Load (MWh)**		**Load (MW)**	
		On-Peak	**Off-Peak**	**On-Peak**	**Off-Peak**
2024	6	1,230,685	1,237,429	3,846	3,094
2024	7	1,770,168	1,686,545	5,029	4,302
2024	8	1,736,455	1,548,719	4,933	3,951
2024	9	910,407	1,069,436	2,845	2,674
2024	10	988,372	861,151	2,686	2,290
2024	11	956,762	1,071,156	2,990	2,671
2024	12	1,233,097	1,383,727	3,670	3,391
2025	1	1,299,257	1,319,021	3,691	3,365
2025	2	1,084,543	1,095,826	3,389	3,113
2025	3	948,010	1,055,083	2,821	2,592
2025	4	901,895	822,648	2,562	2,235
2025	5	896,434	1,051,556	2,668	2,577
2025	6	1,329,380	1,197,622	3,956	3,119
2025	7	1,865,451	1,656,374	5,300	4,225
2025	8	1,671,172	1,658,930	4,974	4,066
2025	9	985,155	1,042,558	2,932	2,715
2025	10	1,006,939	885,241	2,736	2,354
2025	11	927,009	1,135,113	3,049	2,722
2025	12	1,321,593	1,371,550	3,755	3,499
2026	1	1,257,517	1,407,959	3,743	3,451
2026	2	1,112,305	1,119,927	3,476	3,182
2026	3	1,019,423	1,043,057	2,896	2,668
2026	4	920,939	842,686	2,616	2,290
2026	5	844,591	1,133,156	2,639	2,673
Totals		**68,796,882**	**68,420,146**		