Clark Energy Cooperative

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

CLARK ENERGY
A Touchstone Energy Cooperative

EAST KENTUCKY POWER COOPERATIVE
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Introduction
Executive Summary

Clark Energy Cooperative (Clark Energy), located in Winchester, Kentucky, is an electric distribution cooperative that serves members in 11 counties. This load forecast report contains Clark Energy long-range forecast of energy and peak demand.

Clark Energy and its power supplier, East Kentucky Power Cooperative (EKPC), worked jointly to prepare the load forecast. Factors considered in preparing the forecast include the national and local economy, population and housing trends, service area industrial development, electric price, household income, weather, and appliance efficiency changes.

EKPC prepared a preliminary load forecast, which was reviewed by Clark Energy for reasonability. Final projects reflect a rigorous analysis of historical data combined with the experience and judgment of the President/CEO and staff of Clark Energy. Key assumptions are reported beginning on page 12.

Executive Summary *(continued)*

The load forecast is prepared once every two years as specified in the EKPC Board approved Load Forecast work plan. Cooperation helps to ensure that the forecast meets both parties' needs. Clark Energy uses the forecast in developing three-year work plans, long-range work plans, and financial forecasts. EKPC uses the forecast in areas of generation planning, transmission planning, demand-side planning, marketing analysis, and financial forecasting.

The complete load forecast for Clark Energy is reported in Table 1-1 on pages 5 and 6. Residential and commercial sales, total purchases, winter and summer peak demands, and load factor are presented for the years 2010 through 2040.

Table 1-1
MWh Summary

Year	Residential Sales (MWh)	Seasonal Sales (MWh)	Small Comm. Sales (MWh)	Public Buildings (MWh)	Large Comm. Sales (MWh)	Public Street and Highway Lighting (MWh)	Total Sales (MWh)	Office Use (MWh)	% Loss	Purchased Power (MWh)
2010	349,511	0	85,014	0	11,309	739	446,573	787	4.7	469,421
2011	333,583	0	84,866	0	10,482	801	429,732	687	6.1	458,260
2012	310,184	0	85,944	0	11,408	798	408,334	731	5.5	432,965
2013	323,690	0	87,449	0	10,334	787	422,260	781	5.0	445,102
2014	342,442	0	90,389	0	10,193	788	443,812	793	4.9	467,525
2015	329,443	0	89,497	0	10,045	773	429,757	730	5.4	455,030
2016	319,225	0	84,365	0	11,359	713	415,663	735	4.9	437,970
2017	308,868	0	82,806	0	10,058	675	402,407	705	5.1	424,674
2018	349,630	0	86,939	0	11,841	641	449,051	667	5.2	474,186
2019	334,702	0	83,694	0	10,498	668	429,562	660	4.6	451,191
2020	328,566	0	79,498	0	10,633	693	419,390	692	5.0	442,382
2021	339,673	0	83,871	0	10,787	693	435,024	692	5.0	458,845
2022	343,116	0	90,268	0	10,794	693	444,872	692	5.0	469,216
2023	344,195	0	91,099	0	10,801	693	446,787	692	5.0	471,233
2024	346,277	0	91,954	0	10,804	693	449,728	692	5.0	474,330
2025	347,319	0	91,873	0	10,806	693	450,690	692	5.0	475,343
2026	349,366	0	91,768	0	10,806	693	452,632	692	5.0	477,388
2027	352,116	0	91,674	0	10,806	693	455,288	692	5.0	480,186
2028	356,604	0	92,602	0	10,806	693	460,705	692	5.0	485,889
2029	358,232	0	94,557	0	10,806	693	464,287	692	5.0	489,662
2030	359,962	0	95,500	0	10,806	693	466,961	692	5.0	492,478
2031	361,807	0	96,446	0	10,806	693	469,751	692	5.0	495,416
2032	365,814	0	97,386	0	10,806	693	474,699	692	5.0	500,626
2033	367,503	0	98,334	0	10,806	693	477,335	692	5.0	503,403
2034	370,932	0	98,240	0	10,806	693	480,671	692	5.0	506,916
2035	374,350	0	99,200	0	19,070	693	493,313	692	5.0	520,228
2036	379,453	0	100,167	0	19,070	693	499,383	692	5.0	526,621
2037	381,812	0	100,702	0	19,070	693	502,277	692	5.0	529,668
2038	385,420	0	101,240	0	19,070	693	506,422	692	5.0	534,034
2039	389,077	0	101,783	0	19,070	693	510,623	692	5.0	538,457
2040	393,053	0	102,324	0	19,070	693	515,139	692	5.0	543,213

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Table 1-1 *(continued)*
Peaks Summary

Winter		Summer						
Season	Non-Coincident Peak Demand (MW)	Year	Non-Coincident Peak Demand (MW)	Year	Purchased Power (MWh)	Load Factor (%)	Temperature at time of Winter Peak	Temperature at time of Summer Peak
2009 - 10	120.6	2010	98.7	2010	469,421	44.4%	2° F	91° F
2010 - 11	129.4	2011	94.4	2011	458,260	40.4%	10° F	94° F
2011 - 12	107.1	2012	99.0	2012	432,965	46.0%	15° F	103° F
2012 - 13	120.5	2013	89.7	2013	445,102	42.2%	10° F	93° F
2013 - 14	154.2	2014	88.1	2014	467,525	34.6%	0° F	91° F
2014 - 15	158.3	2015	89.8	2015	455,030	32.8%	-18° F	91° F
2015- 16	121.6	2016	93.1	2016	437,970	41.0%	4° F	95° F
2016 - 17	117.4	2017	90.0	2017	424,674	41.3%	4° F	94° F
2017 - 18	144.3	2018	94.3	2018	474,186	37.5%	-3° F	97° F
2018 - 19	135.4	2019	93.6	2019	451,191	38.0%	2° F	97° F
2019 - 20	112.4	2020	94.1	2020	442,382	44.8%	16° F	92° F
2020 - 21	137.4	2021	94.6	2021	458,845	38.1%		
2021 - 22	138.6	2022	95.7	2022	469,216	38.6%		
2022 - 23	139.1	2023	96.1	2023	471,233	38.7%		
2023 - 24	139.8	2024	96.3	2024	474,330	38.6%		
2024 - 25	139.5	2025	96.3	2025	475,343	38.9%		
2025 - 26	139.8	2026	96.6	2026	477,388	39.0%		
2026 - 27	139.9	2027	96.8	2027	480,186	39.2%		
2027 - 28	141.0	2028	97.3	2028	485,889	39.2%		
2028 - 29	141.1	2029	97.6	2029	489,662	39.6%		
2029 - 30	141.0	2030	97.8	2030	492,478	39.9%		
2030 - 31	141.1	2031	98.1	2031	495,416	40.1%		
2031 - 32	142.0	2032	98.8	2032	500,626	40.2%		
2032 - 33	142.0	2033	99.1	2033	503,403	40.5%		
2033 - 34	142.7	2034	99.7	2034	506,916	40.6%		
2034 - 35	143.9	2035	100.9	2035	520,228	41.3%		
2035 - 36	144.8	2036	101.8	2036	526,621	41.5%		
2036 - 37	145.7	2037	102.5	2037	529,668	41.5%		
2037 - 38	146.6	2038	103.2	2038	534,034	41.6%		
2038 - 39	147.5	2039	104.0	2039	538,457	41.7%		
2039 - 40	148.8	2040	104.9	2040	543,213	41.7%		

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Executive Summary *(continued)*

Overall Results

- Total sales are projected to grow by 1.0 percent a year for the period 2020-2040, compared to a 0.7 percent growth projected in the 2018 load forecast for the period 2018-2038. Results shown in Table 1-2.

- Winter peak demands are projected to increase 0.4 percent over the 19 year forecast (2021-2040). Summer peak demands for the same period indicate growth of 0.5 percent.

- Load factor increases from 38.1% to 41.7% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Small Commercial	Large Commercial	Public Street and Highway Lighting	Total Sales
5-Year	2014 - 2019	-0.5%	-1.5%	0.6%	-3.2%	-0.7%
	2020 - 2025	1.1%	2.9%	0.3%	0.0%	1.4%
10-Year	2009 - 2019	0.3%	0.2%	-2.4%	-0.1%	0.2%
	2020 - 2030	0.9%	1.9%	0.2%	0.0%	1.1%
15-Year	2004 - 2019	0.6%	-0.4%	1.7%	1.2%	0.4%
	2020 - 2035	0.9%	1.5%	4.0%	0.0%	1.1%
20-Year	1999 - 2019	1.5%	0.4%	8.5%	0.7%	1.3%
	2020 - 2040	0.9%	1.3%	3.0%	0.0%	1.0%

Narrative

Clark Energy provides electric service within areas of central and east central Kentucky. The service area extends east from the Lexington metropolitan and Bluegrass regions, west of the corporate headquarters location in Winchester, to the foothill areas adjacent to the mountainous regions of Eastern Kentucky.

The average household in Clark Energy's territory has 2.22 people; 76 percent of all homes are headed by someone age 55 or greater.

Clark Energy predominantly serves members within the counties of Clark, Montgomery, Bath, Menifee, Powell, Madison, and Bourbon. Portions of the counties of Fayette, Rowan, Morgan, and Estill are also served by Clark Energy. See Figure 1-1.

No corporate annexations, mergers, or legislation pertaining to certification of territory possibly altering the complexion of the service area is anticipated.

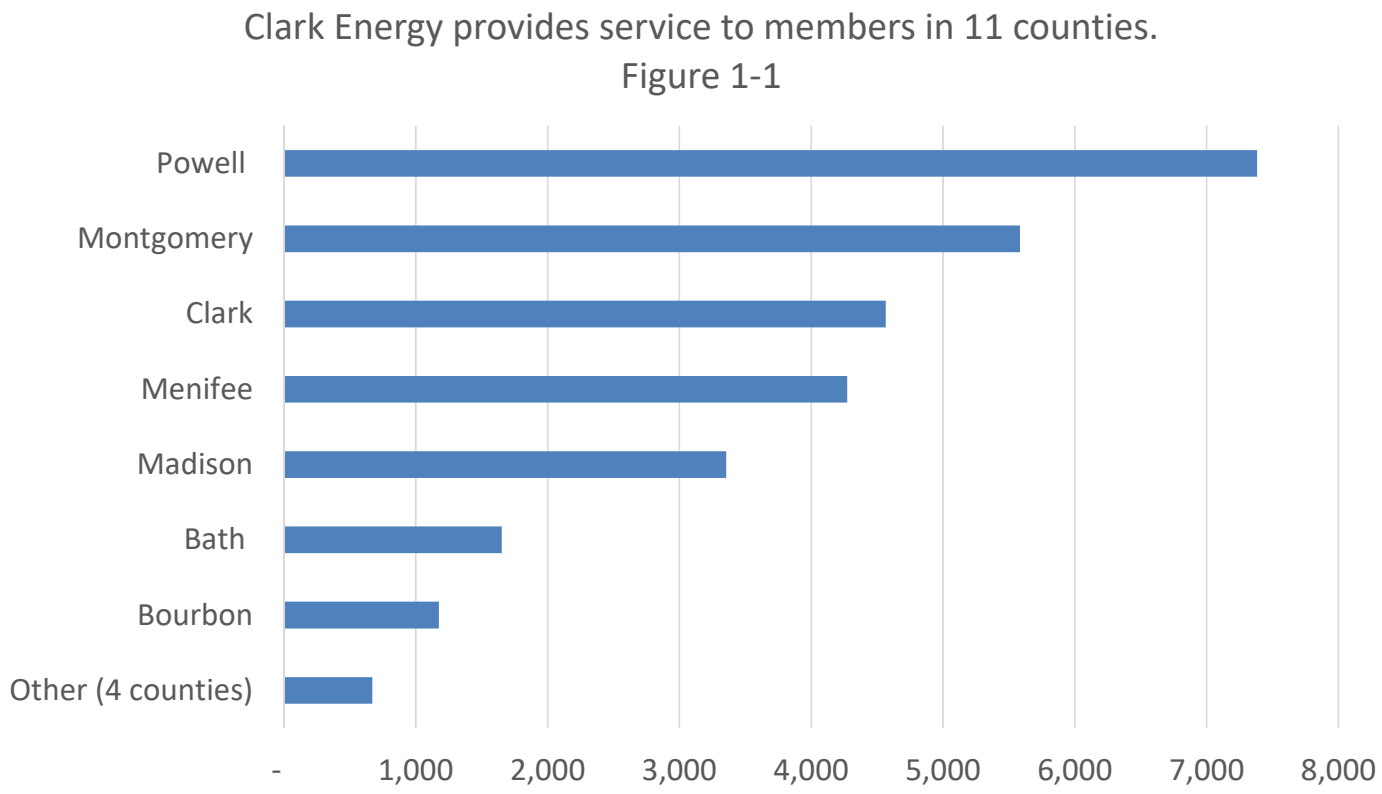
Narrative *(continued)*

The potential for continued economic development within Clark Energy's service area exists due to a variety of factors. Access to major surface transportation systems contributes to development throughout the Lexington metropolitan region. Convenient transportation for goods and services is available throughout a majority of the service area. Major surface transportation within the area consists of two major interstate highways and a major state parkway.

Established industrial parks provide attractive facilities for additional commercial activity. The existence of two state parks along with other recreational resources affords some opportunities for possible future development. Economic development within the eastern counties of Bath, Menifee, and Rowan consists primarily of commercial timber and agricultural operations. The western and southwestern counties close to or part of the metropolitan Lexington area offers the greatest potential for economic growth. These counties which possess the majority of residential, industrial, and commercial members served, include Clark, Montgomery, Powell, Madison, Bourbon, and Fayette.

Narrative *(continued)*

Counties Served



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Key Assumptions

Economic History and Forecast
Table 1-3

	Time Period	Population	Households	Total Employment	Total Real Personal Income
5 Year Growth Rates	2014 - 2019	0.6%	0.6%	0.3%	3.1%
	2020 - 2025	0.5%	0.8%	2.3%	3.1%
10 Year Growth Rates	2009 - 2019	0.5%	0.6%	1.1%	3.4%
	2020 - 2030	0.4%	0.8%	1.3%	3.8%
15 Year Growth Rates	2004 - 2019	0.6%	0.6%	0.4%	3.5%
	2020 - 2035	0.3%	0.7%	1.0%	3.9%
20 Year Growth Rates	1999 - 2019	0.7%	0.8%	0.4%	3.8%
	2020 - 2040	0.3%	0.7%	0.8%	3.9%

- *EKPC's source for economic forecasts is IHS Global Insight. Total Real Personal Income is reported in millions of 2005 dollars. Growth rates shown are Compound Annual Growth Rates.*

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Key Assumptions *(continued)*
Appliance Saturations

- 61% of customers use electric as a primary fuel for heating, while 22% use it as a secondary fuel.
  - 15% use electric furnaces and 51% use electric heat pumps.
- 78% of customers use central air and 22% use electric/window units.
- 87% of customers use electric water heaters.
- These saturations are not expected to change significantly by 2040.

Key Assumptions *(continued)*

Saturation Rates – Percent of Homes with One or More Non-HVAC Appliances

- Electric Range 87%
- Freezer 54%
- Smart TV 67%

Appliance Efficiency Projections

- Energy Information Association (EIA) projects appliance efficiencies each year.
- Similar to last year's projections, heating and cooling equipment show slow but steady increase.
- Water heater efficiency is remaining relatively flat.

Key Assumptions *(continued)*

Weather

- Weather data is from the Lexington weather station.

- Normal weather, a 20-year average of historical temperatures, is assumed for the forecast years.

Methodology and Results

Introduction

This section briefly describes the methodology used to develop the load forecast and presents results in tabular form for residential and commercial classifications. Table 1-4 shows historical data for Clark Energy as reported on RUS Form 7.

Typically preliminary forecasts are prepared during the first quarter depending on when Clark Energy experiences its winter peak. The first step is modeling the regional economy. Households, employment, and real gross county product are among the areas analyzed. The regional model results are used in combination with the historical billing information, appliance saturation data, appliance efficiency data, and weather data to develop the long range forecast.

Table 1-4 Clark Energy Comparative Annual Operating Data

Year	kWh Purchased And Generated	Change	kWh Sold	Change	kWh Loss	% Loss	Peak Billing Demand (MW)	Average Number Of Consumers	Miles Of Line	Consumers Per Mile	Cost Of Purchased Power	Cents / kWh
2010	469,421,219	5.6%	446,573,464	6.5%	22,060,572	4.7%	114.0	26,154	3,036	8.6	$30,661,073	6.5
2011	458,259,863	-2.4%	429,731,578	-3.8%	27,840,944	6.1%	126.8	26,041	3,042	8.6	$32,765,294	7.1
2012	432,965,387	-5.5%	408,334,085	-5.0%	23,900,192	5.5%	102.7	25,980	3,052	8.5	$31,726,336	7.3
2013	445,101,784	2.8%	422,260,264	3.4%	22,061,001	5.0%	110.0	25,985	3,056	8.5	$33,170,873	7.5
2014	467,524,538	5.0%	443,812,064	5.1%	22,919,028	4.9%	106.8	25,989	3,066	8.5	$34,837,234	7.5
2015	455,030,406	-2.7%	429,757,200	-3.2%	24,543,592	5.4%	154.0	26,085	3,085	8.5	$32,469,589	7.1
2016	437,970,055	-3.7%	415,662,500	-3.3%	21,572,359	4.9%	114.8	26,246	3,103	8.5	$30,622,829	7.0
2017	424,674,303	-3.0%	402,407,233	-3.2%	21,562,202	5.1%	113.6	26,400	2,908	9.1	$29,843,078	7.0
2018	474,186,048	11.7%	449,051,086	11.6%	24,468,337	5.2%	139.5	26,527	2,919	9.1	$32,553,228	6.9
2019	451,191,177	-4.8%	429,562,281	-4.3%	20,968,848	4.6%	128.7	26,841	2,936	9.1	$31,106,651	6.9
Average						5.1%						

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Methodology and Results *(continued)*

Introduction

The preliminary forecast was presented to Clark Energy staff. Changes were made to the forecast as needed based on new information, such as new large loads or subdivisions. In some cases, other assumptions were based on insights from Clark Energy staff.

Methodology and Results *(continued)*

Residential Forecast

Residential customers are analyzed by means of regression analysis with resulting coefficients used to prepare customer projections. Regressions for residential customers are typically a function of regional economic and demographic variables. Two variables that are very significant are the numbers of households by county and the percent of total households served by the member cooperative. Table 1-5 report Clark Energy's customer forecast.

The residential energy sales were analyzed by means of regression analysis, as a function of residential customers, base 60 heating degree days, base 65 cooling degree days and projected residential rates. Table 1-5 reports Clark Energy's energy forecast.

Table 1-5
Residential Summary

	Customers			Use Per Customer			Class Sales		
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	24,484	43	0.2	1,190	87	7.9	349,511	26,118	8.1
2011	24,394	-90	-0.4	1,140	-50	-4.2	333,583	-15,928	-4.6
2012	24,234	-160	-0.7	1,067	-73	-6.4	310,184	-23,399	-7.0
2013	24,214	-20	-0.1	1,114	47	4.4	323,690	13,506	4.4
2014	24,233	19	0.1	1,178	64	5.7	342,442	18,752	5.8
2015	24,317	84	0.3	1,129	-49	-4.1	329,443	-12,999	-3.8
2016	24,477	160	0.7	1,087	-42	-3.7	319,225	-10,217	-3.1
2017	24,597	120	0.5	1,046	-40	-3.7	308,868	-10,357	-3.2
2018	24,693	96	0.4	1,180	133	12.8	349,630	40,762	13.2
2019	24,834	141	0.6	1,123	-57	-4.8	334,702	-14,928	-4.3
2020	25,034	200	0.8	1,094	-29	-2.6	328,566	-6,135	-1.8
2021	25,222	188	0.8	1,122	29	2.6	339,673	11,106	3.4
2022	25,398	176	0.7	1,126	4	0.3	343,116	3,444	1.0
2023	25,576	178	0.7	1,121	-4	-0.4	344,195	1,079	0.3
2024	25,755	179	0.7	1,120	-1	-0.1	346,277	2,083	0.6
2025	25,935	180	0.7	1,116	-4	-0.4	347,319	1,042	0.3
2026	26,104	169	0.7	1,115	-1	-0.1	349,366	2,046	0.6
2027	26,274	170	0.7	1,117	2	0.1	352,116	2,751	0.8
2028	26,444	170	0.6	1,124	7	0.6	356,604	4,488	1.3
2029	26,603	159	0.6	1,122	-2	-0.1	358,232	1,628	0.5
2030	26,763	160	0.6	1,121	-1	-0.1	359,962	1,730	0.5
2031	26,923	160	0.6	1,120	-1	-0.1	361,807	1,845	0.5
2032	27,085	162	0.6	1,126	6	0.5	365,814	4,007	1.1
2033	27,247	162	0.6	1,124	-2	-0.1	367,503	1,689	0.5
2034	27,411	164	0.6	1,128	4	0.3	370,932	3,429	0.9
2035	27,562	151	0.6	1,132	4	0.4	374,350	3,418	0.9
2036	27,713	151	0.5	1,141	9	0.8	379,453	5,103	1.4
2037	27,852	139	0.5	1,142	1	0.1	381,812	2,358	0.6
2038	27,991	139	0.5	1,147	5	0.4	385,420	3,608	0.9
2039	28,131	140	0.5	1,153	5	0.4	389,077	3,657	0.9
2040	28,272	141	0.5	1,159	6	0.5	393,053	3,976	1.0

Methodology and Results *(continued)*

Small Commercial Forecast

Small commercial sales are projected using two equations: a customer equation and a small commercial sales equation. Both are determined through regression analysis and utilize inputs relating to the economy, electric price, and the residential customer forecast. Small commercial projections are reported in Table 1-6.

Table 1-6
Small Commercial Summary

	Customers			*Use Per Customer*			*Class Sales*		
	Annual Average	Annual Change	% Change	Annual Average (MWh)	Change (MWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	1,637	-11	-0.7	52	2	4.0	85,014	3,249	4.0
2011	1,615	-22	-1.3	53	1	1.9	84,866	-148	-0.2
2012	1,715	100	6.2	50	-3	-5.7	85,944	1,078	1.3
2013	1,740	25	1.5	50	0	0.0	87,449	1,505	1.8
2014	1,727	-13	-0.7	52	2	4.0	90,389	2,940	3.4
2015	1,741	14	0.8	51	-1	-1.9	89,497	-892	-1.0
2016	1,742	1	0.1	48	-3	-5.9	84,365	-5,132	-5.7
2017	1,776	34	2.0	47	-1	-2.1	82,806	-1,559	-1.8
2018	1,807	31	1.7	48	1	2.1	86,939	4,133	5.0
2019	1,829	22	1.2	46	-2	-4.2	83,694	-3,245	-3.7
2020	1,849	20	1.1	43	-3	-6.5	79,498	-4,196	-5.0
2021	1,864	15	0.8	45	2	4.7	83,871	4,373	5.5
2022	1,881	17	0.9	48	3	6.7	90,268	6,397	7.6
2023	1,898	17	0.9	48	0	0.0	91,099	830	0.9
2024	1,916	18	0.9	48	0	0.0	91,954	855	0.9
2025	1,934	18	0.9	48	0	0.0	91,873	-81	-0.1
2026	1,953	19	1.0	47	-1	-2.1	91,768	-104	-0.1
2027	1,971	18	0.9	47	0	0.0	91,674	-95	-0.1
2028	1,991	20	1.0	47	0	0.0	92,602	928	1.0
2029	2,012	21	1.1	47	0	0.0	94,557	1,955	2.1
2030	2,032	20	1.0	47	0	0.0	95,500	944	1.0
2031	2,052	20	1.0	47	0	0.0	96,446	945	1.0
2032	2,072	20	1.0	47	0	0.0	97,386	940	1.0
2033	2,092	20	1.0	47	0	0.0	98,334	947	1.0
2034	2,113	21	1.0	46	-1	-2.1	98,240	-93	-0.1
2035	2,133	20	0.9	47	1	2.2	99,200	959	1.0
2036	2,154	21	1.0	47	0	0.0	100,167	967	1.0
2037	2,175	21	1.0	46	-1	-2.1	100,702	535	0.5
2038	2,196	21	1.0	46	0	0.0	101,240	538	0.5
2039	2,217	21	1.0	46	0	0.0	101,783	543	0.5
2040	2,239	22	1.0	46	0	0.0	102,324	540	0.5

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. Clark Energy currently has 1 customer in this class and is projected to increase to 2 customers by 2040. Large commercial results are reported in Table 1-7.

Table 1-7
Large Commercial Summary

	Customers			*Use Per Customer*			*Class Sales*		
	Annual Average	Annual Change	% Change	Annual Average (MWh)	Change (MWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	2	-1	-33.3	5,655	1,187	26.6	11,309	-2,092	-15.6
2011	1	-1	-50.0	10,482	4,827	85.4	10,482	-827	-7.3
2012	1	0	0.0	11,408	926	8.8	11,408	926	8.8
2013	1	0	0.0	10,334	-1,074	-9.4	10,334	-1,074	-9.4
2014	1	0	0.0	10,193	-140	-1.4	10,193	-140	-1.4
2015	1	0	0.0	10,045	-148	-1.5	10,045	-148	-1.5
2016	1	0	0.0	11,359	1,314	13.1	11,359	1,314	13.1
2017	1	0	0.0	10,058	-1,301	-11.5	10,058	-1,301	-11.5
2018	1	0	0.0	11,841	1,783	17.7	11,841	1,783	17.7
2019	1	0	0.0	10,498	-1,343	-11.3	10,498	-1,343	-11.3
2020	1	0	0.0	10,633	135	1.3	10,633	135	1.3
2021	1	0	0.0	10,787	155	1.5	10,787	155	1.5
2022	1	0	0.0	10,794	7	0.1	10,794	7	0.1
2023	1	0	0.0	10,801	7	0.1	10,801	7	0.1
2024	1	0	0.0	10,804	3	0.0	10,804	3	0.0
2025	1	0	0.0	10,806	1	0.0	10,806	1	0.0
2026	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2027	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2028	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2029	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2030	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2031	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2032	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2033	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2034	1	0	0.0	10,806	0	0.0	10,806	0	0.0
2035	2	1	100.0	9,535	-1,271	-11.8	19,070	8,264	76.5
2036	2	0	0.0	9,535	0	0.0	19,070	0	0.0
2037	2	0	0.0	9,535	0	0.0	19,070	0	0.0
2038	2	0	0.0	9,535	0	0.0	19,070	0	0.0
2039	2	0	0.0	9,535	0	0.0	19,070	0	0.0
2040	2	0	0.0	9,535	0	0.0	19,070	0	0.0

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

Clark Energy serves street light accounts which are classified in the 'Public Street & Highway Lighting' category. This class is modeled separately. Results are reported in Table 1-8.

Table 1-8

Public Street & Highway Lighting Summary

	Customers			Use Per Customer			Class Sales		
	Annual Average	Annual Change	% Change	Monthly Average (kWh)	Change (MWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	31	0	0.0	1,986	181	10.0	739	67	10.0
2011	31	0	0.0	2,152	166	8.3	801	62	8.3
2012	30	-1	-3.2	2,217	65	3.0	798	-2	-0.3
2013	30	0	0.0	2,186	-32	-1.4	787	-11	-1.4
2014	28	-2	-6.7	2,344	159	7.3	788	1	0.1
2015	26	-2	-7.1	2,476	132	5.6	773	-15	-1.9
2016	26	0	0.0	2,285	-191	-7.7	713	-60	-7.7
2017	26	0	0.0	2,164	-121	-5.3	675	-38	-5.3
2018	26	0	0.0	2,054	-110	-5.1	641	-34	-5.1
2019	25	-1	-3.8	2,227	173	8.4	668	27	4.2
2020	45	20	80.0	1,283	-944	-42.4	693	25	3.7
2021	45	0	0.0	1,283	0	0.0	693	0	0.0
2022	45	0	0.0	1,283	0	0.0	693	0	0.0
2023	45	0	0.0	1,283	0	0.0	693	0	0.0
2024	45	0	0.0	1,283	0	0.0	693	0	0.0
2025	45	0	0.0	1,283	0	0.0	693	0	0.0
2026	45	0	0.0	1,283	0	0.0	693	0	0.0
2027	45	0	0.0	1,283	0	0.0	693	0	0.0
2028	45	0	0.0	1,283	0	0.0	693	0	0.0
2029	45	0	0.0	1,283	0	0.0	693	0	0.0
2030	45	0	0.0	1,283	0	0.0	693	0	0.0
2031	45	0	0.0	1,283	0	0.0	693	0	0.0
2032	45	0	0.0	1,283	0	0.0	693	0	0.0
2033	45	0	0.0	1,283	0	0.0	693	0	0.0
2034	45	0	0.0	1,283	0	0.0	693	0	0.0
2035	45	0	0.0	1,283	0	0.0	693	0	0.0
2036	45	0	0.0	1,283	0	0.0	693	0	0.0
2037	45	0	0.0	1,283	0	0.0	693	0	0.0
2038	45	0	0.0	1,283	0	0.0	693	0	0.0
2039	45	0	0.0	1,283	0	0.0	693	0	0.0
2040	45	0	0.0	1,283	0	0.0	693	0	0.0

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically influence Clark Energy's peak demands. Table 1-9 reports the impact of extreme weather on system demands.

Table 1-9: Seasonal Peaks by Weather Scenario

Winter Peak Day Minimum Temperatures				
	Normal	Extreme		
Degrees	-2	-9	-13	-18
Probability	*50%*	*20%*	*10%*	*3%*
Occurs Once in ...	2 Years	5 Years	10 Years	30 Years
Noncoincident Winter Peak Demand - MW				
Season	Normal	Extreme		
2020 - 21	137	147	152	159
2021 - 22	139	148	153	160
2022 - 23	139	149	154	161
2023 - 24	140	149	155	162
2024 - 25	139	149	155	161
2025 - 26	140	149	155	162
2026 - 27	140	150	155	162
2027 - 28	141	151	156	163
2028 - 29	141	151	157	164
2029 - 30	141	151	157	164
2030 - 31	141	151	157	164
2031 - 32	142	152	158	165
2032 - 33	142	152	158	165
2033 - 34	143	153	159	166
2034 - 35	144	154	160	167
2035 - 36	145	155	161	168
2036 - 37	146	156	162	169
2037 - 38	147	157	163	170
2038 - 39	147	158	164	171
2039 - 40	149	159	165	173

Summer Peak Day Maximum Temperatures				
	Normal	Extreme		
Degrees	96	99	101	103
Probability	*50%*	*20%*	*10%*	*3%*
Occurs Once in ...	2 Years	5 Years	10 Years	30 Years
Noncoincident Summer Peak Demand - MW				
Year	Normal	Extreme		
2021	95	98	100	102
2022	96	99	101	103
2023	96	99	101	104
2024	96	100	102	104
2025	96	100	102	104
2026	97	100	102	104
2027	97	100	102	105
2028	97	101	103	105
2029	98	101	103	105
2030	98	101	103	106
2031	98	101	104	106
2032	99	102	104	107
2033	99	103	105	107
2034	100	103	106	108
2035	101	104	107	109
2036	102	105	108	110
2037	102	106	108	111
2038	103	107	109	112
2039	104	108	110	112
2040	105	108	111	113

EAST KENTUCKY POWER COOPERATIVE
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