Fleming-Mason Energy Cooperative

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

Fleming-Mason Energy
A Touchstone Energy Cooperative

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

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Introduction
Executive Summary

Fleming-Mason Energy Cooperative (Fleming-Mason Energy), located in Flemingsburg, Kentucky, is an electric distribution cooperative that serves members in eight counties. This load forecast report contains Fleming-Mason Energy's long-range forecast of energy and peak demand.

Fleming-Mason 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 Fleming-Mason 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 Fleming-Mason Energy. Key assumptions are reported beginning on page 11.

Executive Summary *(continued)*

The load forecast is prepared every two years as part of the overall planning cycle at EKPC and Fleming-Mason Energy. Cooperation helps to ensure that the forecast meets both parties' needs. Fleming-Mason 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 Fleming-Mason 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 Sales (MWh)	Large Comm. Sales (MWh)	Public Street & Highway Lighting Sales (MWh)	Total Sales (MWh)	Office Use (MWh)	% Loss	Purchased Power (MWh)
2010	288,707	13,959	121,856	0	440,804	75	865,400	661	2.8	891,006
2011	267,170	12,774	116,772	0	468,436	75	865,228	595	3.0	892,251
2012	268,571	0	115,011	0	440,819	81	824,482	525	2.9	849,667
2013	285,408	0	117,669	0	435,657	91	838,826	623	2.8	863,239
2014	293,983	0	119,635	0	516,461	93	930,172	677	2.9	958,271
2015	282,163	0	124,464	0	451,473	94	858,194	577	2.6	881,817
2016	285,696	0	131,182	0	565,193	93	982,163	567	2.2	1,004,335
2017	268,823	0	129,214	0	579,518	92	977,646	542	2.5	1,003,316
2018	305,220	0	135,613	0	528,802	100	969,736	607	2.3	992,751
2019	293,374	0	131,651	0	480,640	103	905,769	536	2.5	929,524
2020	285,980	0	116,737	0	556,189	103	959,010	566	2.4	983,220
2021	296,492	0	132,219	0	618,936	103	1,047,751	566	2.4	1,074,148
2022	297,852	0	133,551	0	622,769	103	1,054,276	566	2.4	1,080,834
2023	298,473	0	134,887	0	627,840	104	1,061,304	566	2.4	1,088,035
2024	299,484	0	136,340	0	629,143	104	1,065,070	566	2.4	1,091,894
2025	300,385	0	137,797	0	630,258	104	1,068,544	566	2.4	1,095,454
2026	301,600	0	139,260	0	631,391	105	1,072,355	566	2.4	1,099,359
2027	302,087	0	140,841	0	632,442	105	1,075,475	566	2.4	1,102,556
2028	303,518	0	142,428	0	633,359	105	1,079,410	566	2.4	1,106,587
2029	304,474	0	144,020	0	634,257	106	1,082,857	566	2.4	1,110,119
2030	306,569	0	145,603	0	635,240	106	1,087,519	566	2.4	1,114,896
2031	307,624	0	147,092	0	636,264	106	1,091,086	566	2.4	1,118,551
2032	309,565	0	148,499	0	637,320	107	1,095,491	566	2.4	1,123,065
2033	310,807	0	149,996	0	638,348	107	1,099,258	566	2.4	1,126,925
2034	312,848	0	151,584	0	639,404	108	1,103,943	566	2.4	1,131,725
2035	315,494	0	153,173	0	640,421	108	1,109,196	566	2.4	1,137,108
2036	318,489	0	154,709	0	641,366	108	1,114,673	566	2.4	1,142,719
2037	320,650	0	156,418	0	642,279	109	1,119,456	566	2.4	1,147,621
2038	322,887	0	158,129	0	643,184	109	1,124,308	566	2.4	1,152,592
2039	326,057	0	159,668	0	644,074	110	1,129,908	566	2.4	1,158,330
2040	328,528	0	161,194	0	645,039	110	1,134,872	566	2.4	1,163,416

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	171.6	2010	148.3	2010	891,006	59.3%	0° F	99° F
2010 - 11	206.4	2011	160.4	2011	892,251	49.4%	13° F	96° F
2011 - 12	179.1	2012	155.7	2012	849,667	54.0%	15° F	98° F
2012 - 13	164.7	2013	142.1	2013	863,239	59.8%	7° F	93° F
2013 - 14	215.0	2014	152.9	2014	958,271	50.9%	-6° F	91° F
2014 - 15	213.6	2015	137.9	2015	881,817	47.1%	-12° F	91° F
2015- 16	190.0	2016	171.0	2016	1,004,335	60.2%	5° F	92° F
2016 - 17	185.3	2017	163.1	2017	1,003,316	61.8%	6° F	90° F
2017 - 18	225.9	2018	161.5	2018	992,751	50.2%	-7° F	94° F
2018 - 19	190.3	2019	170.6	2019	929,524	55.8%	-7° F	95° F
2019 - 20	183.1	2020	167.0	2020	983,220	61.1%	10° F	90° F
2020 - 21	256.9	2021	169.7	2021	1,074,148	47.7%		
2021 - 22	259.3	2022	171.4	2022	1,080,834	47.6%		
2022 - 23	260.9	2023	172.1	2023	1,088,035	47.6%		
2023 - 24	262.1	2024	172.9	2024	1,091,894	47.4%		
2024 - 25	262.9	2025	173.6	2025	1,095,454	47.6%		
2025 - 26	264.1	2026	174.1	2026	1,099,359	47.5%		
2026 - 27	266.5	2027	176.5	2027	1,102,556	47.2%		
2027 - 28	268.2	2028	177.9	2028	1,106,587	47.0%		
2028 - 29	269.4	2029	178.9	2029	1,110,119	47.0%		
2029 - 30	270.6	2030	179.6	2030	1,114,896	47.0%		
2030 - 31	271.9	2031	180.2	2031	1,118,551	47.0%		
2031 - 32	273.8	2032	181.5	2032	1,123,065	46.7%		
2032 - 33	275.2	2033	182.0	2033	1,126,925	46.7%		
2033 - 34	277.1	2034	183.0	2034	1,131,725	46.6%		
2034 - 35	280.1	2035	185.6	2035	1,137,108	46.3%		
2035 - 36	282.5	2036	187.5	2036	1,142,719	46.1%		
2036 - 37	284.3	2037	188.2	2037	1,147,621	46.1%		
2037 - 38	286.5	2038	189.5	2038	1,152,592	45.9%		
2038 - 39	289.6	2039	190.9	2039	1,158,330	45.7%		
2039 - 40	292.0	2040	192.6	2040	1,163,416	45.4%		

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Executive Summary *(continued)*

Overall Results

- Total sales are projected to grow by 0.8 percent a year for the period 2020-2040, compared to a 1.3 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 0.6 percent.

- Load factor decreases from 47.7% to 45.4% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Small Commercial	Large Commercial	Public Street & Highway Lighting Sales	Total Sales
5-Year	2014-2019	0.0%	1.9%	-1.4%	2.0%	-0.5%
	2020-2025	1.0%	3.4%	2.5%	0.2%	2.2%
10-Year	2009-2019	1.0%	1.6%	-0.7%	2.6%	0.0%
	2020-2030	0.7%	2.2%	1.3%	0.3%	1.3%
15-Year	2004-2019	0.8%	1.0%	-0.7%	2.2%	-0.1%
	2020-2035	0.7%	1.8%	0.9%	0.3%	1.0%
20-Year	1999-2019	1.6%	1.9%	1.3%	1.7%	1.4%
	2020-2040	0.7%	1.6%	0.7%	0.3%	0.8%

Narrative

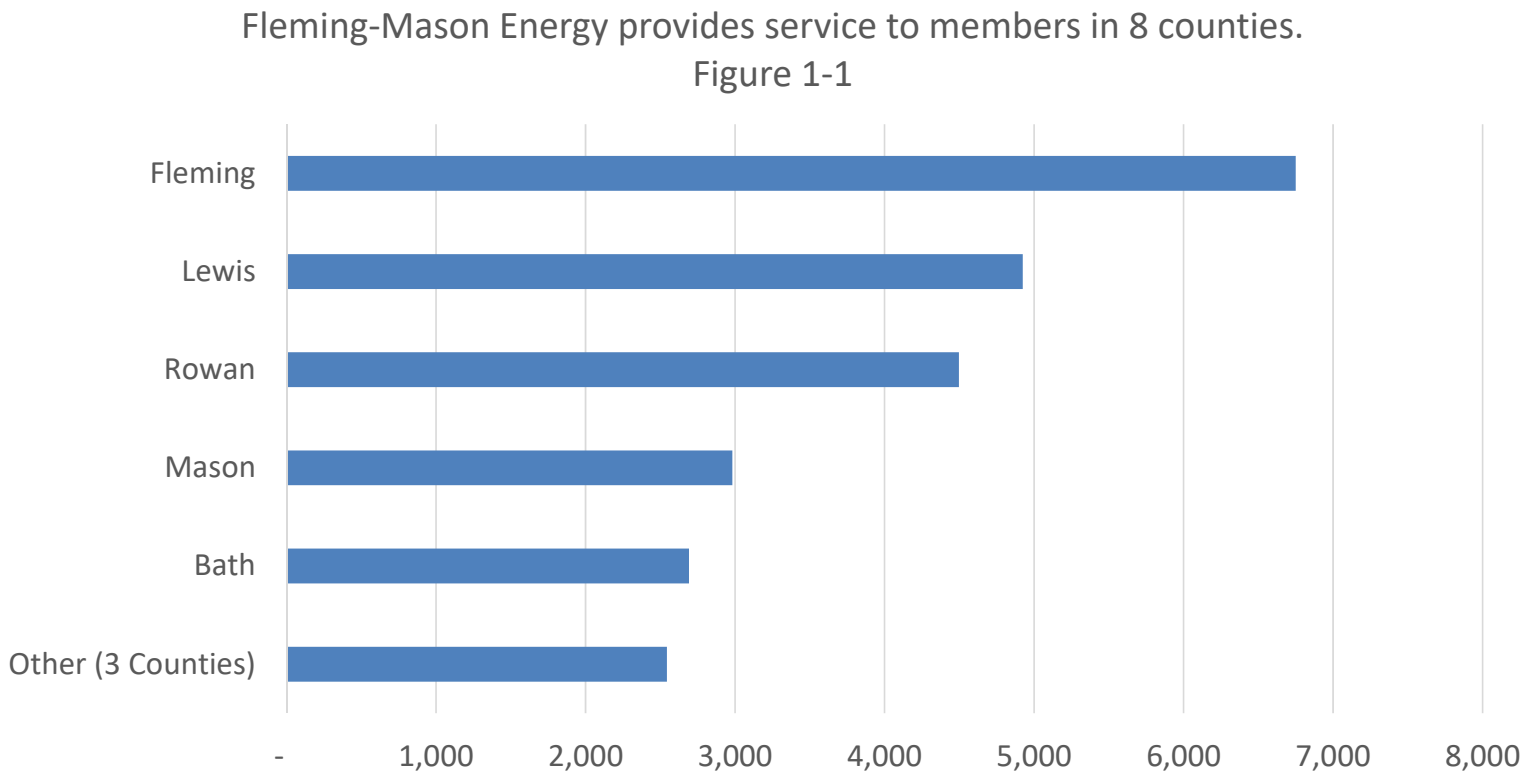
The service area of Fleming-Mason Energy is located in the northeastern Kentucky Counties of Bath, Bracken, Fleming, Lewis, Mason, Nicholas, Robertson, and Rowan. The electric service boundaries dividing these counties were established by the Kentucky Public Service Commission several years ago.

The average household has 2.27 people; 74 percent of all homes are headed by someone age 55 or greater.

This is a primarily agricultural area with the major interest in tobacco, dairy, and beef cattle. The wooded eastern section has a small sawmill industry. The three largest communities are Maysville (population 9,000), Morehead (population 6,900) and Flemingsburg (population 2,600). All three are in the electrical service territory of Kentucky Utilities, as are the county seat communities of the other counties except Vanceburg in Lewis County, which has a municipal power system.

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	0.0%	0.0%	-0.6%	2.5%
	2020-2025	-0.1%	0.3%	2.3%	2.4%
10 Year Growth Rates	2009-2019	0.0%	0.1%	0.1%	3.0%
	2020-2030	0.0%	0.4%	1.3%	3.3%
15 Year Growth Rates	2004-2019	0.1%	0.2%	-0.5%	3.2%
	2020-2035	0.0%	0.4%	1.0%	3.5%
20 Year Growth Rates	1999-2019	0.2%	0.3%	-0.4%	3.7%
	2020-2040	0.0%	0.3%	0.9%	3.5%

- *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

- 62% of customers use electric as a primary fuel for heating, while 19% use it as a secondary fuel.
  - 19% use electric furnaces and 56% use electric heat pumps.
- 73% of customers use central air and 25% use electric/window units.
- 91% 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 88%
- Freezer 62%
- Smart TV 63%

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 Covington 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 Fleming-Mason Energy as reported on RUS Form 7.

Typically, a preliminary forecast is prepared during the first quarter depending on when Fleming-Mason Energy experiences its winter peak. The first step is modeling the regional economy. Households, population density, 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 Fleming-Mason Energy Comparative Annual Operating Data

Year	kWh Purchased And Generated	Change	kWh Sold	Change	kWh Loss	% Loss	Billing Peak Demand (MW)	Average Number Of Consumers	Miles Of Line	Consumers Per Mile	Cost Of Purchased Power	Cents / kWh
2010	891,005,576	-4.8%	865,400,224	-4.7%	24,944,445	2.8%	172.3	23,822	3,537	6.7	$53,534,623	6.0
2011	892,251,445	0.1%	865,227,608	0.0%	26,428,646	3.0%	164.4	23,827	3,550	6.7	$57,792,373	6.5
2012	849,667,295	-4.8%	824,481,921	-4.7%	24,660,366	2.9%	156.7	23,758	3,560	6.7	$56,561,681	6.7
2013	863,239,261	1.6%	838,825,977	1.7%	23,789,910	2.8%	159.8	23,833	3,575	6.7	$58,155,902	6.7
2014	958,270,888	11.0%	930,171,811	10.9%	27,422,409	2.9%	187.3	23,885	3,582	6.7	$63,006,794	6.6
2015	881,817,460	-8.0%	858,193,889	-7.7%	23,046,094	2.6%	195.9	24,010	3,595	6.7	$56,077,535	6.4
2016	1,004,335,325	13.9%	982,163,125	14.4%	21,605,469	2.2%	166.4	24,219	3,601	6.7	$58,716,259	5.8
2017	1,003,315,863	-0.1%	977,646,131	-0.5%	25,127,441	2.5%	161.3	24,355	3,612	6.7	$58,024,277	5.8
2018	992,750,692	-1.1%	969,735,813	-0.8%	22,407,496	2.3%	187.6	24,474	3,624	6.8	$58,519,493	5.9
2019	929,523,735	-6.4%	905,768,533	-6.6%	23,218,713	2.5%	190.2	24,611	3,635	6.8	$54,937,878	5.9
Average						2.6%						

Methodology and Results *(continued)*

Introduction

The preliminary forecast was presented to Fleming-Mason 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 Fleming-Mason 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 Fleming-Mason 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 Fleming-Mason 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	17,722	-37	-0.2	1,358	113	9.0	288,707	23,400	8.8
2011	17,693	-29	-0.2	1,258	-99	-7.3	267,170	-21,537	-7.5
2012	22,137	4,444	25.1	1,011	-247	-19.7	268,571	1,401	0.5
2013	22,185	48	0.2	1,072	61	6.0	285,408	16,837	6.3
2014	22,196	11	0.0	1,104	32	3.0	293,983	8,575	3.0
2015	22,308	112	0.5	1,054	-50	-4.5	282,163	-11,820	-4.0
2016	22,492	184	0.8	1,059	4	0.4	285,696	3,533	1.3
2017	22,613	121	0.5	991	-68	-6.4	268,823	-16,873	-5.9
2018	22,730	117	0.5	1,119	128	13.0	305,220	36,397	13.5
2019	22,841	111	0.5	1,070	-49	-4.3	293,374	-11,846	-3.9
2020	22,981	140	0.6	1,037	-33	-3.1	285,980	-7,394	-2.5
2021	23,106	125	0.5	1,069	32	3.1	296,492	10,512	3.7
2022	23,222	116	0.5	1,069	0	0.0	297,852	1,360	0.5
2023	23,338	116	0.5	1,066	-3	-0.3	298,473	621	0.2
2024	23,443	105	0.4	1,065	-1	-0.1	299,484	1,011	0.3
2025	23,534	91	0.4	1,064	-1	-0.1	300,385	901	0.3
2026	23,619	85	0.4	1,064	0	0.0	301,600	1,215	0.4
2027	23,703	84	0.4	1,062	-2	-0.2	302,087	487	0.2
2028	23,789	86	0.4	1,063	1	0.1	303,518	1,431	0.5
2029	23,877	88	0.4	1,063	-1	-0.1	304,474	957	0.3
2030	23,967	90	0.4	1,066	3	0.3	306,569	2,095	0.7
2031	24,057	90	0.4	1,066	0	0.0	307,624	1,055	0.3
2032	24,150	93	0.4	1,068	3	0.2	309,565	1,941	0.6
2033	24,242	92	0.4	1,068	0	0.0	310,807	1,241	0.4
2034	24,336	94	0.4	1,071	3	0.3	312,848	2,041	0.7
2035	24,431	95	0.4	1,076	5	0.5	315,494	2,646	0.8
2036	24,527	96	0.4	1,082	6	0.6	318,489	2,996	0.9
2037	24,624	97	0.4	1,085	3	0.3	320,650	2,161	0.7
2038	24,723	99	0.4	1,088	3	0.3	322,887	2,236	0.7
2039	24,824	101	0.4	1,095	6	0.6	326,057	3,170	1.0
2040	24,926	102	0.4	1,098	4	0.3	328,528	2,472	0.8

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	1,601	-3	-0.2	76	6	8.3	121,856	9,166	8.1
2011	1,607	6	0.4	73	-3	-4.5	116,772	-5,084	-4.2
2012	1,611	4	0.2	71	-1	-1.8	115,011	-1,761	-1.5
2013	1,638	27	1.7	72	0	0.6	117,669	2,658	2.3
2014	1,679	41	2.5	71	-1	-0.8	119,635	1,965	1.7
2015	1,692	13	0.8	74	2	3.2	124,464	4,830	4.0
2016	1,717	25	1.5	76	3	3.9	131,182	6,717	5.4
2017	1,732	15	0.9	75	-2	-2.4	129,214	-1,968	-1.5
2018	1,733	1	0.1	78	4	4.9	135,613	6,400	5.0
2019	1,759	26	1.5	75	-3	-4.4	131,651	-3,962	-2.9
2020	1,769	10	0.6	66	-9	-11.8	116,737	-14,914	-11.3
2021	1,787	18	1.0	74	8	12.1	132,219	15,482	13.3
2022	1,805	18	1.0	74	0	0.0	133,551	1,332	1.0
2023	1,823	18	1.0	74	0	0.0	134,887	1,336	1.0
2024	1,842	19	1.0	74	0	0.0	136,340	1,452	1.1
2025	1,862	20	1.1	74	0	0.0	137,797	1,458	1.1
2026	1,882	20	1.1	74	0	0.0	139,260	1,463	1.1
2027	1,903	21	1.1	74	0	0.0	140,841	1,581	1.1
2028	1,925	22	1.2	74	0	0.0	142,428	1,587	1.1
2029	1,946	21	1.1	74	0	0.0	144,020	1,593	1.1
2030	1,968	22	1.1	74	0	0.0	145,603	1,583	1.1
2031	1,988	20	1.0	74	0	0.0	147,092	1,488	1.0
2032	2,007	19	1.0	74	0	0.0	148,499	1,407	1.0
2033	2,027	20	1.0	74	0	0.0	149,996	1,497	1.0
2034	2,048	21	1.0	74	0	0.0	151,584	1,587	1.1
2035	2,070	22	1.1	74	0	0.0	153,173	1,590	1.0
2036	2,091	21	1.0	74	0	0.0	154,709	1,536	1.0
2037	2,114	23	1.1	74	0	0.0	156,418	1,709	1.1
2038	2,137	23	1.1	74	0	0.0	158,129	1,711	1.1
2039	2,158	21	1.0	74	0	0.0	159,668	1,539	1.0
2040	2,178	20	0.9	74	0	0.0	161,194	1,527	1.0

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. Fleming-Mason Energy currently has 5 customers in this class and is projected to increase to 9 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	5	0	0.0	88,161	-15,239	-14.7	440,804	-76,194	-14.7
2011	5	0	0.0	93,687	5,526	6.3	468,436	27,632	6.3
2012	5	0	0.0	88,164	-5,523	-5.9	440,819	-27,617	-5.9
2013	5	0	0.0	87,131	-1,032	-1.2	435,657	-5,162	-1.2
2014	5	0	0.0	103,292	16,161	18.5	516,461	80,804	18.5
2015	5	0	0.0	90,295	-12,998	-12.6	451,473	-64,988	-12.6
2016	5	0	0.0	113,039	22,744	25.2	565,193	113,720	25.2
2017	5	0	0.0	115,904	2,865	2.5	579,518	14,325	2.5
2018	5	0	0.0	105,760	-10,143	-8.8	528,802	-50,715	-8.8
2019	5	0	0.0	96,128	-9,632	-9.1	480,640	-48,162	-9.1
2020	5	0	0.0	111,238	15,110	15.7	556,189	75,549	15.7
2021	7	2	40.0	88,419	-22,818	-20.5	618,936	62,747	11.3
2022	7	0	0.0	88,967	548	0.6	622,769	3,833	0.6
2023	7	0	0.0	89,691	724	0.8	627,840	5,071	0.8
2024	7	0	0.0	89,878	186	0.2	629,143	1,303	0.2
2025	7	0	0.0	90,037	159	0.2	630,258	1,115	0.2
2026	7	0	0.0	90,199	162	0.2	631,391	1,132	0.2
2027	8	1	14.3	79,055	-11,143	-12.4	632,442	1,052	0.2
2028	8	0	0.0	79,170	115	0.1	633,359	917	0.1
2029	8	0	0.0	79,282	112	0.1	634,257	897	0.1
2030	8	0	0.0	79,405	123	0.2	635,240	984	0.2
2031	8	0	0.0	79,533	128	0.2	636,264	1,024	0.2
2032	8	0	0.0	79,665	132	0.2	637,320	1,056	0.2
2033	8	0	0.0	79,793	128	0.2	638,348	1,028	0.2
2034	8	0	0.0	79,925	132	0.2	639,404	1,056	0.2
2035	9	1	12.5	71,158	-8,768	-11.0	640,421	1,018	0.2
2036	9	0	0.0	71,263	105	0.1	641,366	944	0.1
2037	9	0	0.0	71,364	102	0.1	642,279	914	0.1
2038	9	0	0.0	71,465	100	0.1	643,184	904	0.1
2039	9	0	0.0	71,564	99	0.1	644,074	890	0.1
2040	9	0	0.0	71,671	107	0.1	645,039	965	0.1

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

Fleming-Mason 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	4	0	0.0	1,563	-102	-6.1	75	-5	-6.1
2011	4	0	0.0	1,571	8	0.5	75	0	0.5
2012	5	1	25.0	1,349	-223	-14.2	81	6	7.3
2013	5	0	0.0	1,521	172	12.8	91	10	12.8
2014	5	0	0.0	1,556	35	2.3	93	2	2.3
2015	5	0	0.0	1,562	6	0.4	94	0	0.4
2016	5	0	0.0	1,553	-10	-0.6	93	-1	-0.6
2017	5	0	0.0	1,532	-21	-1.3	92	-1	-1.3
2018	6	1	20.0	1,394	-138	-9.0	100	8	9.2
2019	6	0	0.0	1,433	39	2.8	103	3	2.8
2020	6	0	0.0	1,434	1	0.1	103	0	0.1
2021	6	0	0.0	1,436	1	0.1	103	0	0.1
2022	6	0	0.0	1,437	1	0.1	103	0	0.1
2023	6	0	0.0	1,438	1	0.1	104	0	0.1
2024	6	0	0.0	1,442	4	0.3	104	0	0.3
2025	6	0	0.0	1,447	5	0.3	104	0	0.3
2026	6	0	0.0	1,452	5	0.3	105	0	0.3
2027	6	0	0.0	1,457	5	0.3	105	0	0.3
2028	6	0	0.0	1,462	5	0.3	105	0	0.3
2029	6	0	0.0	1,467	5	0.4	106	0	0.4
2030	6	0	0.0	1,472	6	0.4	106	0	0.4
2031	6	0	0.0	1,478	5	0.4	106	0	0.4
2032	6	0	0.0	1,483	6	0.4	107	0	0.4
2033	6	0	0.0	1,489	6	0.4	107	0	0.4
2034	6	0	0.0	1,494	6	0.4	108	0	0.4
2035	6	0	0.0	1,500	6	0.4	108	0	0.4
2036	6	0	0.0	1,506	6	0.4	108	0	0.4
2037	6	0	0.0	1,511	6	0.4	109	0	0.4
2038	6	0	0.0	1,517	6	0.4	109	0	0.4
2039	6	0	0.0	1,523	6	0.4	110	0	0.4
2040	6	0	0.0	1,530	6	0.4	110	0	0.4

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically influence Fleming-Mason Energy's peak demands. Tables 1-9 report 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	-7	-11	-14
Occurs Once in ...	2 Years	5 Years	10 Years	30 Years
Non-coincident Winter Peak Demand - MW				
Season	Normal		Extreme	
2020 - 21	257	265	271	276
2021 - 22	259	267	274	278
2022 - 23	261	269	275	280
2023 - 24	262	270	276	281
2024 - 25	263	271	277	282
2025 - 26	264	272	278	283
2026 - 27	267	274	281	286
2027 - 28	268	276	283	287
2028 - 29	269	277	284	289
2029 - 30	271	279	285	290
2030 - 31	272	280	286	291
2031 - 32	274	282	288	293
2032 - 33	275	283	290	294
2033 - 34	277	285	291	296
2034 - 35	280	288	294	299
2035 - 36	282	290	297	302
2036 - 37	284	292	299	303
2037 - 38	286	294	301	306
2038 - 39	290	298	304	309
2039 - 40	292	300	306	311

Summer Peak Day Maximum Temperatures				
	Normal		Extreme	
Degrees	96	99	100	102
Occurs Once in ...	2 Years	5 Years	10 Years	30 Years
Non-coincident Summer Peak Demand - MW				
Year	Normal		Extreme	
2021	170	174	175	178
2022	171	175	177	179
2023	172	176	177	180
2024	173	177	178	181
2025	174	178	179	182
2026	174	178	180	182
2027	176	181	182	185
2028	178	182	183	186
2029	179	183	184	187
2030	180	184	185	188
2031	180	184	186	189
2032	181	186	187	190
2033	182	186	188	190
2034	183	187	189	192
2035	186	190	191	194
2036	187	192	193	196
2037	188	192	194	197
2038	190	194	195	198
2039	191	195	197	200
2040	193	197	198	201

EAST KENTUCKY POWER COOPERATIVE
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