Farmers Rural Electric Cooperative Corporation

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

FARMERS RECC
A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy® Cooperative

Table of Contents

	Page Number
Introduction and Executive Summary	3
Narrative	9
Key Assumptions	11
Methodology and Results	15
- Residential Forecast	18
- Small Commercial	20
- Large Commercial	22
- Public Street & Highway Lighting	24
- Peak Day Weather Scenarios	26

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Introduction
Executive Summary

Farmers Rural Electric Cooperative Corporation (Farmers RECC), located in Glasgow, Kentucky, is an electric distribution cooperative that serves members in nine counties. This load forecast report contains Farmers RECC's long-range forecast of energy and peak demand.

Farmers RECC 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 Farmers RECC for reasonability. Final projections reflect a rigorous analysis of historical data combined with the experience and judgment of the President/CEO and staff of Farmers RECC. 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 Farmers RECC. Cooperation helps to ensure that the forecast meets both parties' needs. Farmers RECC 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 Farmers RECC 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	339,028	0	72,168	0	106,183	445	517,824	28	3.4	536,207
2011	316,668	0	76,028	0	95,766	455	488,917	20	3.9	509,042
2012	290,566	0	78,825	0	98,939	481	468,810	27	6.1	499,522
2013	309,589	0	79,414	0	104,665	484	494,152	32	5.0	520,013
2014	322,086	0	82,101	0	115,084	493	519,764	34	4.7	545,172
2015	304,948	0	86,027	0	118,465	486	509,926	39	4.5	534,203
2016	310,078	0	89,889	0	116,959	491	517,417	46	4.7	543,113
2017	292,437	0	87,681	0	105,994	463	486,575	32	4.9	511,691
2018	325,969	0	77,624	0	121,491	417	525,500	28	4.7	551,372
2019	312,725	0	79,292	0	108,045	369	500,431	28	4.6	524,796
2020	310,294	0	75,027	0	83,781	321	469,422	35	4.7	492,596
2021	321,100	0	76,404	0	112,369	273	510,146	35	4.7	535,327
2022	324,348	0	77,073	0	117,863	249	519,533	35	4.7	545,176
2023	325,356	0	77,789	0	122,270	225	525,639	35	4.7	551,584
2024	327,365	0	78,452	0	125,394	213	531,423	35	4.7	557,653
2025	327,678	0	80,441	0	128,157	210	536,486	35	4.7	562,965
2026	329,758	0	81,138	0	137,031	210	548,137	35	4.7	575,191
2027	332,666	0	81,812	0	139,578	210	554,267	35	4.7	581,622
2028	337,311	0	82,441	0	141,838	210	561,800	35	4.7	589,527
2029	339,584	0	83,018	0	144,019	210	566,832	35	4.7	594,806
2030	341,319	0	83,544	0	146,370	210	571,443	35	4.7	599,645
2031	342,803	0	83,998	0	148,762	210	575,774	35	4.7	604,190
2032	346,267	0	84,398	0	151,200	210	582,074	35	4.7	610,800
2033	347,837	0	84,791	0	153,595	210	586,433	35	4.7	615,374
2034	351,080	0	85,181	0	156,107	210	592,578	35	4.7	621,822
2035	354,390	0	85,562	0	158,548	210	598,709	35	4.7	628,255
2036	359,049	0	86,348	0	160,880	210	606,486	35	4.7	636,415
2037	361,600	0	87,162	0	163,184	210	612,156	35	4.7	642,365
2038	365,214	0	87,973	0	171,637	210	625,033	35	4.7	655,877
2039	368,831	0	88,772	0	173,962	210	631,775	35	4.7	662,950
2040	373,531	0	89,565	0	176,454	210	639,761	35	4.7	671,330

Table 1-1 *(continued)*

Peaks Summary

	Winter			*Summer*				
Season	Non-Coincident Peak Demand (MW)	Year	Non-Coincident Peak Demand	Year	Purchased Power (MWh)	Load Factor (%)	Temperature at time of Winter Peak	Temperature at time of Summer Peak
2009 - 10	128.8	2010	110.3	2010	536,207	47.5%	20° F	100° F
2010 - 11	131.0	2011	108.9	2011	509,042	44.4%	-3° F	98° F
2011 - 12	109.6	2012	115.5	2012	499,522	49.2%	20° F	108° F
2012 - 13	113.3	2013	103.1	2013	520,013	52.4%	16° F	93° F
2013 - 14	148.5	2014	116.1	2014	545,172	41.9%	2° F	96° F
2014 - 15	144.9	2015	107.9	2015	534,203	42.1%	-4° F	95° F
2015- 16	130.3	2016	109.8	2016	543,113	47.5%	10° F	94° F
2016 - 17	127.3	2017	111.5	2017	511,691	45.9%	9° F	97° F
2017 - 18	144.0	2018	112.5	2018	551,372	43.7%	2° F	97° F
2018 - 19	126.3	2019	108.7	2019	524,796	47.4%	11° F	97° F
2019 - 20	115.8	2020	110.5	2020	492,596	48.4%	14° F	95° F
2020 - 21	143.9	2021	118.0	2021	535,327	42.5%		
2021 - 22	144.9	2022	118.7	2022	545,176	42.9%		
2022 - 23	145.6	2023	119.2	2023	551,584	43.2%		
2023 - 24	146.6	2024	119.6	2024	557,653	43.3%		
2024 - 25	146.7	2025	119.9	2025	562,965	43.8%		
2025 - 26	148.4	2026	121.8	2026	575,191	44.2%		
2026 - 27	149.2	2027	122.4	2027	581,622	44.5%		
2027 - 28	150.5	2028	123.1	2028	589,527	44.6%		
2028 - 29	150.9	2029	123.6	2029	594,806	45.0%		
2029 - 30	151.2	2030	123.9	2030	599,645	45.3%		
2030 - 31	151.4	2031	124.3	2031	604,190	45.5%		
2031 - 32	152.3	2032	124.8	2032	610,800	45.7%		
2032 - 33	152.5	2033	125.2	2033	615,374	46.1%		
2033 - 34	153.2	2034	125.8	2034	621,822	46.3%		
2034 - 35	154.0	2035	126.5	2035	628,255	46.6%		
2035 - 36	155.2	2036	127.3	2036	636,415	46.7%		
2036 - 37	155.7	2037	127.9	2037	642,365	47.1%		
2037 - 38	156.5	2038	130.1	2038	655,877	47.8%		
2038 - 39	157.3	2039	130.8	2039	662,950	48.1%		
2039 - 40	158.5	2040	131.6	2040	671,330	48.2%		

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Executive Summary *(continued)*

Overall Results

- Total sales are projected to grow by 1.6 percent a year for the period 2020-2040, compared to a 0.9 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 0.5 percent over the 19 year forecast (2021-2040). Summer peak demands for the same period indicate growth of 0.6 percent.

- Load factor increases from 42.5% to 48.2% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Small Commercial	Large Commercial	Public Street / Highway Lighting	Total Sales
5-Year	2014-2019	-0.6%	-0.7%	-1.3%	-5.6%	-0.8%
	2020-2025	1.1%	1.4%	8.9%	-8.1%	2.7%
10-Year	2009-2019	0.2%	1.3%	1.9%	-1.8%	0.7%
	2016-2026	1.0%	1.1%	5.7%	-4.1%	2.0%
15-Year	2004-2019	0.4%	1.2%	-1.0%	-0.7%	0.2%
	2020-2035	0.9%	0.9%	4.3%	-2.8%	1.6%
20-Year	1999-2019	0.9%	1.4%	2.1%	0.2%	1.3%
	2020-2040	0.9%	0.9%	3.8%	-2.1%	1.6%

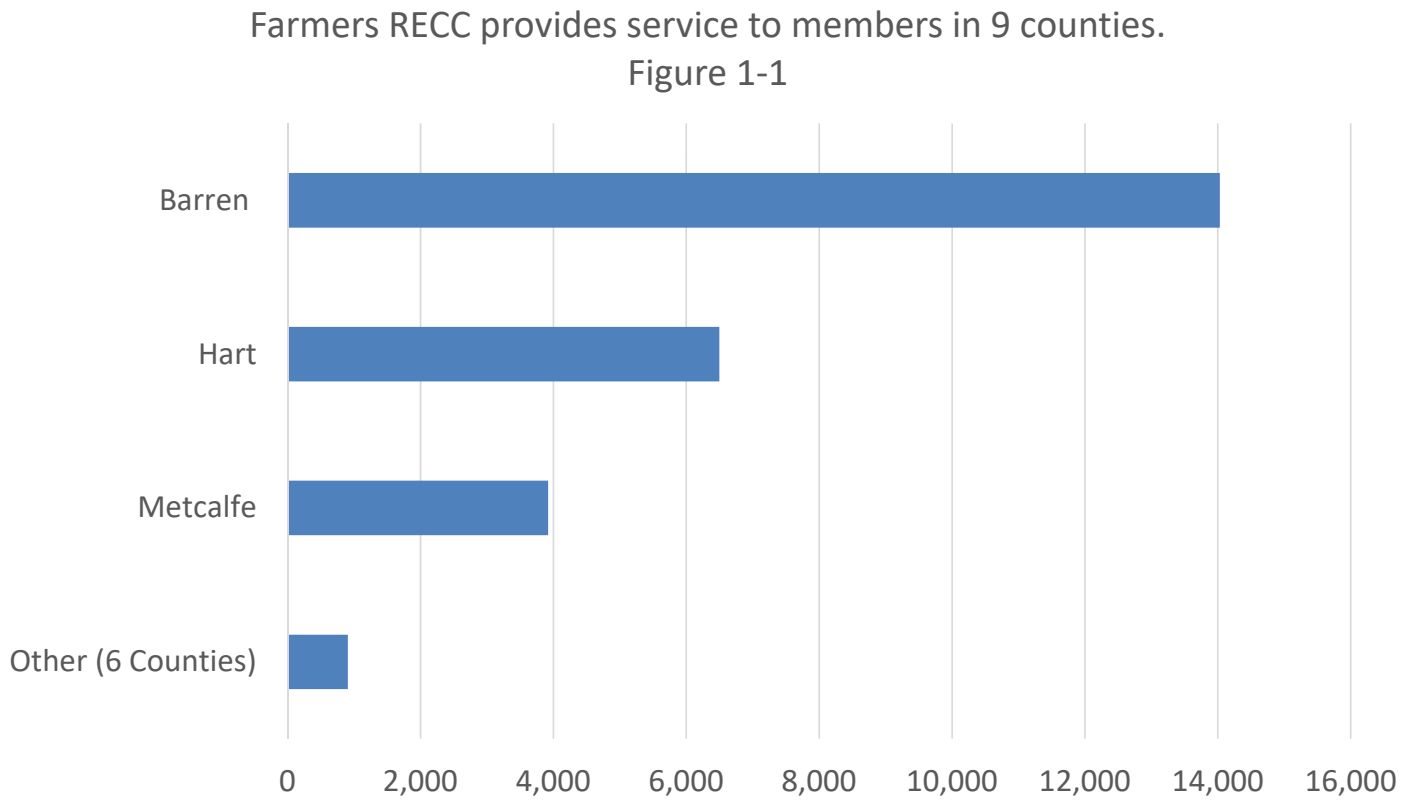
Narrative

Farmers RECC is located in South Central Kentucky in Glasgow. The cooperative serves major portions of Barren, Hart and Metcalfe Counties with other members in six surrounding counties. See Figure 1-1.

The average household contains 2.18 people and nearly 79% of all homes are headed by someone of age 55 or greater.

Narrative *(continued)*

Counties Served



EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

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	0.5%	0.5%	0.0%	2.7%
	2020-2025	0.4%	0.8%	2.5%	3.1%
10 Year Growth Rates	2009-2019	0.4%	0.5%	0.3%	3.5%
	2016-2026	0.4%	0.7%	1.5%	3.8%
15 Year Growth Rates	2004-2019	0.6%	0.6%	-0.4%	3.4%
	2020-2035	0.3%	0.7%	1.2%	3.8%
20 Year Growth Rates	1999-2019	0.6%	0.6%	-0.5%	3.8%
	2020-2040	0.3%	0.6%	1.0%	3.8%

- *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.*

Key Assumptions *(continued)*
Appliance Saturations

- 60% of customers use electric as a primary fuel for heating, while 20% use it as a secondary fuel.
  - 17% use electric furnaces and 52% use electric heat pumps.
- 84% of customers use central air and 17% use electric/window units.
- 88% 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 91%
- Freezer 66%
- Smart TV 70%

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 Bowling Green 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 for residential and commercial classifications. Table 1-4 reports historical data for Farmers RECC as reported on RUS Form 7.

Typically, a preliminary forecast is prepared during the first quarter depending on when Farmers RECC experiences its winter peak. The first step is modeling the regional economy. 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 Farmers RECC 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	536,207,217	8.3%	517,823,516	10.8%	18,355,478	3.4%	120.5	24,574	3,577	6.9	$33,574,445	6.3
2011	509,041,736	-5.1%	488,916,559	-5.6%	20,104,847	3.9%	119.9	24,683	3,591	6.9	$35,296,777	6.9
2012	499,522,485	-1.9%	468,810,459	-4.1%	30,684,653	6.1%	103.5	24,710	3,602	6.9	$35,139,536	7.0
2013	520,012,764	4.1%	494,151,527	5.4%	25,829,398	5.0%	108.1	24,816	3,615	6.9	$36,935,158	7.1
2014	545,171,741	4.8%	519,764,221	5.2%	25,373,354	4.7%	141.3	24,894	3,624	6.9	$38,924,102	7.1
2015	534,202,528	-2.0%	509,926,233	-1.9%	24,237,256	4.5%	139.4	24,987	3,632	6.9	$36,226,666	6.8
2016	543,112,920	1.7%	517,416,970	1.5%	25,649,865	4.7%	120.7	25,122	3,648	6.9	$36,337,396	6.7
2017	511,690,828	-5.8%	486,574,671	-6.0%	25,084,322	4.9%	119.1	25,294	3,659	6.9	$34,419,738	6.7
2018	551,371,846	7.8%	525,500,450	8.0%	25,843,082	4.7%	140.1	25,421	3,673	6.9	$36,762,605	6.7
2019	524,796,489	-4.8%	500,430,672	-4.8%	24,337,949	4.6%	118.1	25,544	3,690	6.9	$34,987,459	6.7
Average						4.7%						6.4

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

Introduction

The preliminary forecast was presented to Farmers RECC 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 Farmers RECC 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 reports Farmers RECC'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 Farmers RECC'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	22,803	125	0.6	1,239	108	9.5	339,028	31,222	10.1
2011	22,891	88	0.4	1,153	-86	-7.0	316,668	-22,360	-6.6
2012	22,837	-54	-0.2	1,060	-93	-8.0	290,566	-26,102	-8.2
2013	22,922	85	0.4	1,126	65	6.2	309,589	19,022	6.5
2014	23,009	87	0.4	1,167	41	3.6	322,086	12,498	4.0
2015	23,087	78	0.3	1,101	-66	-5.6	304,948	-17,138	-5.3
2016	23,239	152	0.7	1,112	11	1.0	310,078	5,130	1.7
2017	23,419	180	0.8	1,041	-71	-6.4	292,437	-17,641	-5.7
2018	23,490	71	0.3	1,156	116	11.1	325,969	33,532	11.5
2019	23,652	162	0.7	1,102	-55	-4.7	312,725	-13,244	-4.1
2020	23,817	165	0.7	1,086	-16	-1.5	310,294	-2,431	-0.8
2021	23,984	167	0.7	1,116	30	2.8	321,100	10,806	3.5
2022	24,152	168	0.7	1,119	3	0.3	324,348	3,248	1.0
2023	24,321	169	0.7	1,115	-4	-0.4	325,356	1,008	0.3
2024	24,491	170	0.7	1,114	-1	-0.1	327,365	2,009	0.6
2025	24,663	171	0.7	1,107	-7	-0.6	327,678	313	0.1
2026	24,835	173	0.7	1,106	-1	-0.1	329,758	2,080	0.6
2027	25,009	174	0.7	1,108	2	0.2	332,666	2,909	0.9
2028	25,195	186	0.7	1,116	7	0.6	337,311	4,644	1.4
2029	25,366	171	0.7	1,116	0	0.0	339,584	2,273	0.7
2030	25,521	155	0.6	1,115	-1	-0.1	341,319	1,735	0.5
2031	25,655	134	0.5	1,113	-1	-0.1	342,803	1,484	0.4
2032	25,773	118	0.5	1,120	6	0.5	346,267	3,463	1.0
2033	25,890	116	0.5	1,120	0	0.0	347,837	1,570	0.5
2034	26,005	115	0.4	1,125	5	0.5	351,080	3,242	0.9
2035	26,117	112	0.4	1,131	6	0.5	354,390	3,310	0.9
2036	26,229	112	0.4	1,141	10	0.9	359,049	4,659	1.3
2037	26,348	119	0.5	1,144	3	0.3	361,600	2,552	0.7
2038	26,465	117	0.4	1,150	6	0.6	365,214	3,613	1.0
2039	26,577	112	0.4	1,156	6	0.6	368,831	3,617	1.0
2040	26,686	110	0.4	1,166	10	0.9	373,531	4,700	1.3

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	1,758	10	0.6	41	1	2.5	72,168	2,697	3.9
2011	1,779	21	1.2	43	2	4.9	76,028	3,860	5.3
2012	1,862	83	4.7	42	-1	-2.3	78,825	2,797	3.7
2013	1,883	21	1.1	42	0	0.0	79,414	590	0.7
2014	1,873	-10	-0.5	44	2	4.8	82,101	2,687	3.4
2015	1,889	16	0.9	46	2	4.5	86,027	3,927	4.8
2016	1,872	-17	-0.9	48	2	4.3	89,889	3,861	4.5
2017	1,864	-8	-0.4	47	-1	-2.1	87,681	-2,208	-2.5
2018	1,918	54	2.9	40	-7	-14.9	77,624	-10,057	-11.5
2019	1,880	-38	-2.0	42	2	5.0	79,292	1,669	2.1
2020	1,830	-50	-2.7	41	-1	-2.4	75,027	-4,265	-5.4
2021	1,846	16	0.9	41	0	0.0	76,404	1,377	1.8
2022	1,862	16	0.9	41	0	0.0	77,073	669	0.9
2023	1,879	17	0.9	41	0	0.0	77,789	716	0.9
2024	1,895	16	0.9	41	0	0.0	78,452	663	0.9
2025	1,911	16	0.8	42	1	2.4	80,441	1,989	2.5
2026	1,927	16	0.8	42	0	0.0	81,138	697	0.9
2027	1,943	16	0.8	42	0	0.0	81,812	674	0.8
2028	1,958	15	0.8	42	0	0.0	82,441	629	0.8
2029	1,972	14	0.7	42	0	0.0	83,018	577	0.7
2030	1,984	12	0.6	42	0	0.0	83,544	525	0.6
2031	1,995	11	0.6	42	0	0.0	83,998	455	0.5
2032	2,005	10	0.5	42	0	0.0	84,398	399	0.5
2033	2,014	9	0.4	42	0	0.0	84,791	393	0.5
2034	2,023	9	0.4	42	0	0.0	85,181	390	0.5
2035	2,032	9	0.4	42	0	0.0	85,562	381	0.4
2036	2,041	9	0.4	42	0	0.0	86,348	786	0.9
2037	2,051	10	0.5	42	0	0.0	87,162	815	0.9
2038	2,060	9	0.4	43	1	2.4	87,973	810	0.9
2039	2,069	9	0.4	43	0	0.0	88,772	799	0.9
2040	2,078	9	0.4	43	0	0.0	89,565	794	0.9

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. Farmers RECC currently has 6 customers in this class and is projected to increase to 8 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	6	0	0.0	17,697	2,743	18.3	106,183	16,457	18.3
2011	6	0	0.0	15,961	-1,736	-9.8	95,766	-10,417	-9.8
2012	4	-2	-33.3	24,735	8,774	55.0	98,939	3,173	3.3
2013	4	0	0.0	26,166	1,432	5.8	104,665	5,726	5.8
2014	5	1	25.0	23,017	-3,149	-12.0	115,084	10,419	10.0
2015	4	-1	-20.0	29,616	6,599	28.7	118,465	3,381	2.9
2016	4	0	0.0	29,240	-376	-1.3	116,959	-1,506	-1.3
2017	4	0	0.0	26,498	-2,741	-9.4	105,994	-10,965	-9.4
2018	6	2	50.0	20,248	-6,250	-23.6	121,491	15,497	14.6
2019	6	0	0.0	18,007	-2,241	-11.1	108,045	-13,446	-11.1
2020	6	0	0.0	13,963	-4,044	-22.5	83,781	-24,264	-22.5
2021	6	0	0.0	18,728	4,765	34.1	112,369	28,588	34.1
2022	6	0	0.0	19,644	916	4.9	117,863	5,494	4.9
2023	6	0	0.0	20,378	735	3.7	122,270	4,407	3.7
2024	6	0	0.0	20,899	521	2.6	125,394	3,124	2.6
2025	6	0	0.0	21,359	461	2.2	128,157	2,763	2.2
2026	7	1	16.7	19,576	-1,784	-8.4	137,031	8,875	6.9
2027	7	0	0.0	19,940	364	1.9	139,578	2,547	1.9
2028	7	0	0.0	20,263	323	1.6	141,838	2,260	1.6
2029	7	0	0.0	20,574	312	1.5	144,019	2,182	1.5
2030	7	0	0.0	20,910	336	1.6	146,370	2,351	1.6
2031	7	0	0.0	21,252	342	1.6	148,762	2,392	1.6
2032	7	0	0.0	21,600	348	1.6	151,200	2,437	1.6
2033	7	0	0.0	21,942	342	1.6	153,595	2,395	1.6
2034	7	0	0.0	22,301	359	1.6	156,107	2,512	1.6
2035	7	0	0.0	22,650	349	1.6	158,548	2,441	1.6
2036	7	0	0.0	22,983	333	1.5	160,880	2,332	1.5
2037	7	0	0.0	23,312	329	1.4	163,184	2,304	1.4
2038	8	1	14.3	21,455	-1,857	-8.0	171,637	8,453	5.2
2039	8	0	0.0	21,745	291	1.4	173,962	2,325	1.4
2040	8	0	0.0	22,057	312	1.4	176,454	2,493	1.4

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

Farmers RECC 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	7	0	0.0	5,296	16	0.3	445	1	0.3
2011	7	0	0.0	5,415	118	2.2	455	10	2.2
2012	7	0	0.0	5,721	306	5.7	481	26	5.7
2013	7	0	0.0	5,756	35	0.6	484	3	0.6
2014	7	0	0.0	5,865	109	1.9	493	9	1.9
2015	7	0	0.0	5,784	-81	-1.4	486	-7	-1.4
2016	7	0	0.0	5,849	65	1.1	491	5	1.1
2017	7	0	0.0	5,512	-336	-5.8	463	-28	-5.8
2018	7	0	0.0	4,966	-546	-9.9	417	-46	-9.9
2019	6	-1	-14.3	5,125	159	3.2	369	-48	-11.5
2020	6	0	0.0	4,456	-669	-13.0	321	-48	-13.0
2021	6	0	0.0	3,787	-669	-15.0	273	-48	-15.0
2022	6	0	0.0	3,453	-334	-8.8	249	-24	-8.8
2023	6	0	0.0	3,119	-334	-9.7	225	-24	-9.7
2024	6	0	0.0	2,951	-167	-5.4	213	-12	-5.4
2025	6	0	0.0	2,918	-33	-1.1	210	-2	-1.1
2026	6	0	0.0	2,918	0	0.0	210	0	0.0
2027	6	0	0.0	2,918	0	0.0	210	0	0.0
2028	6	0	0.0	2,918	0	0.0	210	0	0.0
2029	6	0	0.0	2,918	0	0.0	210	0	0.0
2030	6	0	0.0	2,918	0	0.0	210	0	0.0
2031	6	0	0.0	2,918	0	0.0	210	0	0.0
2032	6	0	0.0	2,918	0	0.0	210	0	0.0
2033	6	0	0.0	2,918	0	0.0	210	0	0.0
2034	6	0	0.0	2,918	0	0.0	210	0	0.0
2035	6	0	0.0	2,918	0	0.0	210	0	0.0
2036	6	0	0.0	2,918	0	0.0	210	0	0.0
2037	6	0	0.0	2,918	0	0.0	210	0	0.0
2038	6	0	0.0	2,918	0	0.0	210	0	0.0
2039	6	0	0.0	2,918	0	0.0	210	0	0.0
2040	6	0	0.0	2,918	0	0.0	210	0	0.0

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically influence Farmers RECC'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 F	2	-4	-8	-12
Probability	*50%*	*20%*	*10%*	*3%*
Occurs Once in ...	2 Years	5 Years	10 Years	30 Years
Non-Coincident Winter Peak Demand - MW				
Season	Normal		Extreme	
2020 - 21	144	150	155	159
2021 - 22	145	151	156	160
2022 - 23	146	152	157	161
2023 - 24	147	153	158	162
2024 - 25	147	153	158	162
2025 - 26	148	155	160	164
2026 - 27	149	156	160	165
2027 - 28	151	157	162	166
2028 - 29	151	158	162	167
2029 - 30	151	158	163	167
2030 - 31	151	158	163	167
2031 - 32	152	159	164	168
2032 - 33	152	159	164	169
2033 - 34	153	160	165	169
2034 - 35	154	161	166	170
2035 - 36	155	162	167	172
2036 - 37	156	163	167	172
2037 - 38	156	164	168	173
2038 - 39	157	164	169	174
2039 - 40	159	166	170	175

Summer Peak Day Maximum Temperatures				
	Normal		Extreme	
Degrees F	99	103	105	107
Probability	*50%*	*20%*	*10%*	*3%*
Occurs Once in ...	2 Years	5 Years	10 Years	30 Years
Non-Coincident Summer Peak Demand - MW				
Year	Normal		Extreme	
2021	118	125	129	132
2022	119	126	130	133
2023	119	126	130	134
2024	120	127	131	134
2025	120	127	131	135
2026	122	129	133	137
2027	122	130	134	137
2028	123	131	134	138
2029	124	131	135	139
2030	124	131	135	139
2031	124	132	136	140
2032	125	132	136	140
2033	125	133	137	141
2034	126	134	137	141
2035	126	134	138	142
2036	127	135	139	143
2037	128	136	140	144
2038	130	138	142	146
2039	131	139	143	147
2040	132	139	144	148

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative