South Kentucky Rural Electric Cooperative Corporation

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

South Kentucky 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
- Public Buildings	20
- Small Commercial	22
- Large Commercial	24
- Public Street & Highway Lighting	26
- Peak Day Weather Scenarios	28

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Introduction
Executive Summary

South Kentucky Rural Electric Cooperative Corporation (South Kentucky RECC), located in Somerset, Kentucky, is an electric distribution cooperative that serves members in 13 counties including 2 in Tennessee. This load forecast report contains South Kentucky RECC's long-range forecast of energy and peak demand.

South Kentucky RECC and 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.

Executive Summary *(continued)*

EKPC prepared a preliminary load forecast, which was reviewed by South Kentucky RECC for reasonability. Final projections reflect a rigorous analysis of historical data combined with the experience and judgment of the CEO and staff of South Kentucky RECC. Key assumptions are reported beginning on page 11.

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. South Kentucky 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 South Kentucky 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 (MWh)	Large Comm. Sales (MWh)	Public Street and Highway Lighting (MWh)	Total Sales (MWh)	Office Use (MWh)	% Loss	Purchased Power (MWh)
2010	874,581	0	301,232	13,280	137,728	1,233	1,328,054	540	5.7	1,409,563
2011	824,682	0	295,536	12,698	142,054	1,260	1,276,229	532	2.8	1,312,896
2012	748,397	0	289,869	11,368	140,630	1,249	1,191,512	453	5.2	1,256,982
2013	797,653	0	286,350	12,335	148,780	1,236	1,246,353	486	5.7	1,321,554
2014	837,685	0	280,037	13,563	178,328	1,270	1,310,883	527	4.6	1,374,317
2015	789,018	0	276,787	13,085	190,817	1,274	1,270,981	572	3.7	1,320,602
2016	772,769	0	272,595	12,871	192,713	1,257	1,252,206	965	6.1	1,334,196
2017	728,983	0	266,588	12,177	192,162	1,041	1,200,951	1,184	5.7	1,274,648
2018	838,521	0	281,646	14,520	189,362	940	1,324,988	1,251	3.8	1,379,207
2019	792,508	0	272,513	13,484	182,947	909	1,262,361	1,267	4.6	1,324,843
2020	772,602	0	259,104	11,833	174,271	881	1,218,691	1,234	4.8	1,281,264
2021	807,028	0	281,531	13,043	192,220	880	1,294,702	1,234	4.8	1,361,097
2022	808,771	0	288,450	13,337	196,065	880	1,307,502	1,234	4.8	1,374,541
2023	809,095	0	290,165	13,486	199,986	880	1,313,612	1,234	4.8	1,380,957
2024	810,756	0	291,889	13,580	212,415	880	1,329,520	1,234	4.8	1,397,665
2025	810,843	0	293,621	13,527	216,663	880	1,335,534	1,234	4.8	1,403,982
2026	813,084	0	295,362	13,514	220,997	880	1,343,837	1,234	4.8	1,412,702
2027	816,313	0	291,711	13,526	225,417	880	1,347,846	1,234	4.8	1,416,913
2028	823,609	0	293,438	13,544	229,925	880	1,361,396	1,234	4.8	1,431,145
2029	825,993	0	295,174	13,481	234,523	880	1,370,052	1,234	4.8	1,440,236
2030	828,398	0	291,421	13,448	239,214	880	1,373,361	1,234	4.8	1,443,711
2031	831,039	0	293,143	13,446	243,998	880	1,382,506	1,234	4.8	1,453,316
2032	837,998	0	294,874	13,487	257,307	880	1,404,546	1,234	4.8	1,476,464
2033	841,904	0	296,614	13,472	262,454	880	1,415,323	1,234	4.8	1,487,782
2034	849,357	0	292,733	13,481	267,703	880	1,424,154	1,234	4.8	1,497,058
2035	855,712	0	294,458	13,494	273,057	880	1,437,600	1,234	4.8	1,511,180
2036	865,737	0	296,192	13,565	278,518	880	1,454,891	1,234	4.8	1,529,341
2037	871,716	0	297,934	13,576	284,088	880	1,468,194	1,234	4.8	1,543,312
2038	879,764	0	299,686	13,610	289,770	880	1,483,710	1,234	4.8	1,559,609
2039	887,536	0	301,447	13,647	303,995	880	1,507,505	1,234	4.8	1,584,600
2040	898,016	0	303,217	13,707	310,074	880	1,525,895	1,234	4.8	1,603,914

Table 1-1 *(continued)*

Peaks Summary

Winter		Summer						
Season	Non-Coincident Peak Demand	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	379.0	2010	270.8	2010	1,409,563	42.5%	3° F	95° F
2010 - 11	379.7	2011	266.1	2011	1,312,896	39.5%	7° F	91° F
2011 - 12	317.6	2012	273.8	2012	1,256,982	45.1%	19° F	100° F
2012 - 13	325.5	2013	247.3	2013	1,321,554	46.3%	14° F	91° F
2013 - 14	461.2	2014	245.4	2014	1,374,317	34.0%	0° F	88° F
2014 - 15	466.8	2015	254.0	2015	1,320,602	32.3%	-15° F	88° F
2015- 16	378.8	2016	263.6	2016	1,334,196	40.1%	7° F	91° F
2016 - 17	369.2	2017	260.6	2017	1,274,648	39.4%	9° F	90° F
2017 - 18	438.5	2018	263.2	2018	1,379,207	35.9%	-6° F	91° F
2018 - 19	366.4	2019	259.5	2019	1,324,843	41.3%	10° F	91° F
2019 - 20	343.0	2020	268.5	2020	1,281,264	42.5%	14° F	91° F
2020 - 21	428.8	2021	288.1	2021	1,361,097	36.2%		
2021 - 22	431.8	2022	301.5	2022	1,374,541	36.3%		
2022 - 23	433.8	2023	304.9	2023	1,380,957	36.3%		
2023 - 24	436.7	2024	306.9	2024	1,397,665	36.4%		
2024 - 25	435.2	2025	309.1	2025	1,403,982	36.8%		
2025 - 26	436.6	2026	308.0	2026	1,412,702	36.9%		
2026 - 27	438.8	2027	309.1	2027	1,416,913	36.9%		
2027 - 28	442.7	2028	310.6	2028	1,431,145	36.8%		
2028 - 29	443.4	2029	312.6	2029	1,440,236	37.1%		
2029 - 30	443.8	2030	313.6	2030	1,443,711	37.1%		
2030 - 31	444.3	2031	314.4	2031	1,453,316	37.3%		
2031 - 32	448.0	2032	315.2	2032	1,476,464	37.5%		
2032 - 33	447.4	2033	318.3	2033	1,487,782	38.0%		
2033 - 34	449.6	2034	318.1	2034	1,497,058	38.0%		
2034 - 35	451.5	2035	319.8	2035	1,511,180	38.2%		
2035 - 36	455.2	2036	321.4	2036	1,529,341	38.2%		
2036 - 37	456.5	2037	323.6	2037	1,543,312	38.6%		
2037 - 38	459.1	2038	325.4	2038	1,559,609	38.8%		
2038 - 39	462.5	2039	327.4	2039	1,584,600	39.1%		
2039 - 40	465.2	2040	330.9	2040	1,603,914	39.2%		

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Executive Summary *(continued)*

Overall Results

- Total sales are projected to grow by 1.1 percent a year for the period 2020-2040, compared to a 1.2 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 0.7 percent.

- Load factor increases from 36.2% to 39.2% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Small Commercial	Public Buildings	Large Commercial	Public Street / Highway Lighting	Total Sales
5-Year	2014 - 2019	-1.1%	-0.5%	-0.1%	0.5%	-6.5%	-0.8%
	2020 - 2025	1.0%	2.5%	2.7%	4.5%	0.0%	1.8%
10-Year	2009 - 2019	0.0%	-0.1%	1.9%	3.2%	-2.7%	0.4%
	2020 - 2030	0.7%	1.2%	1.3%	3.2%	0.0%	1.2%
15-Year	2004 - 2019	0.7%	1.9%	1.6%	1.7%	1.5%	1.1%
	2020 - 2035	0.7%	0.9%	0.9%	3.0%	0.0%	1.1%
20-Year	1999 - 2019	1.3%	1.8%	2.5%	4.4%	1.5%	1.8%
	2020 - 2040	0.8%	0.8%	0.7%	2.9%	0.0%	1.1%

Narrative

The service area of South Kentucky RECC is located in the southern Kentucky Counties of Adair, Casey, Clinton, Cumberland, Laurel, Lincoln, McCreary, Pulaski, Rockcastle, Russell and Wayne with some territory in northern Tennessee, see Figure 1-1.

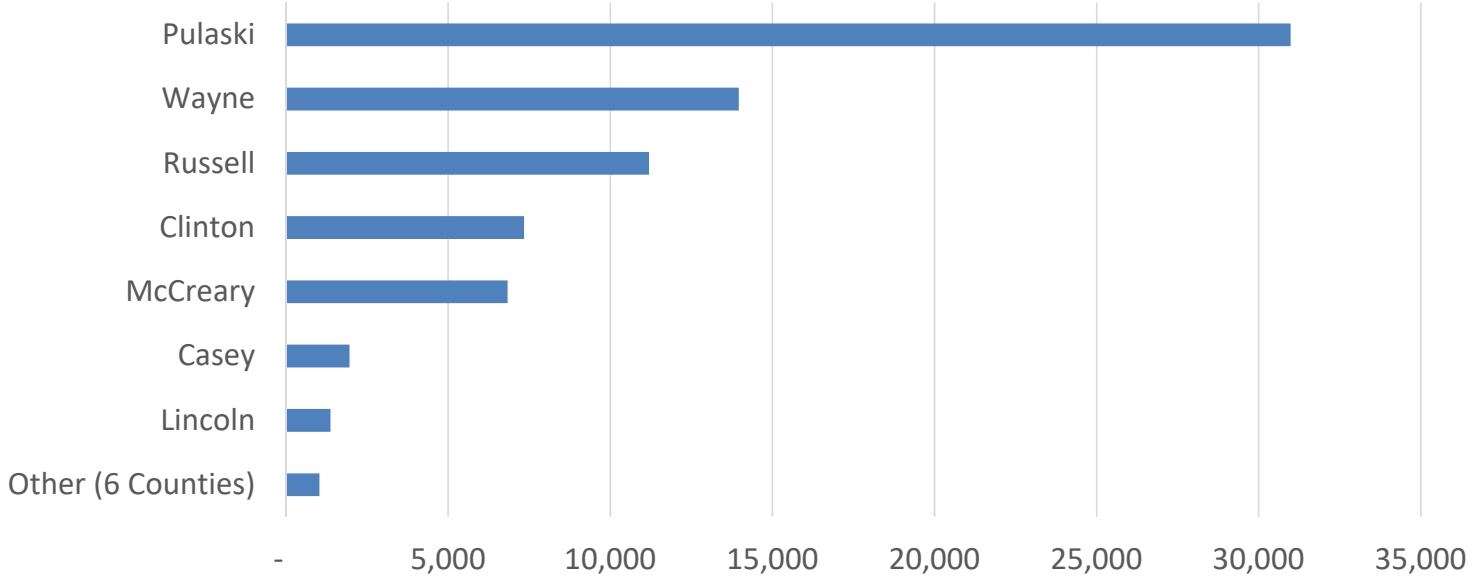
The average household has 2.25 people; 80 percent of all homes are headed by someone age 55 or greater.

Narrative *(continued)*

Counties Served

South Kentucky RECC provides service to 13 counties, including 2 in Tennessee.

Figure 1-1



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	0.0%	0.2%	0.6%	3.1%
	2020 - 2025	0.2%	0.6%	2.5%	2.8%
10 Year Growth Rates	2009 - 2019	0.1%	0.2%	0.3%	3.2%
	2020 - 2030	0.3%	0.7%	1.5%	3.6%
15 Year Growth Rates	2004 - 2019	0.3%	0.3%	-0.1%	3.5%
	2020 - 2035	0.2%	0.7%	1.2%	3.8%
20 Year Growth Rates	1999 - 2019	0.5%	0.5%	0.2%	4.1%
	2020 - 2040	0.2%	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

- 79% of customers use electric as a primary fuel for heating, while 21% use it as a secondary fuel.
  - 16% use electric furnaces and 76% use electric heat pumps.
- 82% of customers use central air and 19% use electric/window units.
- 97% 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 94%
- Freezer 55%
- Smart TV 65%

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 Somerset 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 South Kentucky RECC as reported on RUS Form 7.

Typically, a preliminary forecast is prepared during the first quarter depending on when South Kentucky RECC 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.

South Kentucky 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	1,409,563,486	8.9%	1,328,054,475	9.3%	80,968,536	5.7%	369.7	66,430	6,735	9.9	$91,391,978	6.5
2011	1,312,895,818	-6.9%	1,276,229,182	-3.9%	36,134,897	2.8%	366.6	66,361	6,755	9.8	$93,451,521	7.1
2012	1,256,982,022	-4.3%	1,191,512,197	-6.6%	65,016,643	5.2%	304.3	66,327	6,759	9.8	$91,125,341	7.2
2013	1,321,553,811	5.1%	1,246,353,118	4.6%	74,715,022	5.7%	320.9	66,272	6,771	9.8	$96,126,053	7.3
2014	1,374,317,307	4.0%	1,310,882,736	5.2%	62,907,223	4.6%	447.0	66,530	6,787	9.8	$100,431,511	7.3
2015	1,320,602,148	-3.9%	1,270,980,723	-3.0%	49,048,990	3.7%	458.9	66,763	6,813	9.8	$93,010,261	7.0
2016	1,334,195,975	1.0%	1,252,206,334	-1.5%	81,024,411	6.1%	352.2	67,067	6,836	9.8	$91,258,444	6.8
2017	1,274,648,341	-4.5%	1,200,951,081	-4.1%	72,513,257	5.7%	353.4	67,436	6,866	9.8	$87,589,528	6.9
2018	1,379,206,804	8.2%	1,324,987,551	10.3%	52,967,855	3.8%	426.2	67,871	6,900	9.8	$93,174,723	6.8
2019	1,324,842,733	-3.9%	1,262,361,405	-4.7%	61,214,790	4.6%	343.9	68,245	6,932	9.8	$89,222,317	6.7
Average						4.8%						

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

The preliminary forecast was presented to South Kentucky 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 South Kentucky 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 and the percent of total households served by the member cooperative. Table 1-5 report South Kentucky RECC's residential 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 South Kentucky RECC's residential 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	60,821	55	0.1	1,198	111	10.2	874,581	81,925	10.3
2011	60,730	-91	-0.1	1,132	-67	-5.6	824,682	-49,900	-5.7
2012	60,678	-52	-0.1	1,028	-104	-9.2	748,397	-76,285	-9.3
2013	60,618	-60	-0.1	1,097	69	6.7	797,653	49,256	6.6
2014	60,800	182	0.3	1,148	52	4.7	837,685	40,032	5.0
2015	60,801	1	0.0	1,081	-67	-5.8	789,018	-48,668	-5.8
2016	61,069	268	0.4	1,055	-27	-2.5	772,769	-16,248	-2.1
2017	61,391	322	0.5	990	-65	-6.2	728,983	-43,787	-5.7
2018	61,813	422	0.7	1,130	141	14.2	838,521	109,538	15.0
2019	62,138	325	0.5	1,063	-68	-6.0	792,508	-46,012	-5.5
2020	62,438	300	0.5	1,031	-32	-3.0	772,602	-19,907	-2.5
2021	62,704	266	0.4	1,073	41	4.0	807,028	34,427	4.5
2022	62,955	251	0.4	1,071	-2	-0.2	808,771	1,742	0.2
2023	63,207	252	0.4	1,067	-4	-0.4	809,095	324	0.0
2024	63,460	253	0.4	1,065	-2	-0.2	810,756	1,661	0.2
2025	63,714	254	0.4	1,061	-4	-0.4	810,843	87	0.0
2026	63,969	255	0.4	1,059	-1	-0.1	813,084	2,240	0.3
2027	64,224	255	0.4	1,059	0	0.0	816,313	3,230	0.4
2028	64,481	257	0.4	1,064	5	0.5	823,609	7,296	0.9
2029	64,739	258	0.4	1,063	-1	-0.1	825,993	2,384	0.3
2030	65,031	292	0.5	1,062	-2	-0.2	828,398	2,406	0.3
2031	65,323	292	0.4	1,060	-1	-0.1	831,039	2,640	0.3
2032	65,617	294	0.5	1,064	4	0.4	837,998	6,960	0.8
2033	65,945	328	0.5	1,064	0	0.0	841,904	3,905	0.5
2034	66,275	330	0.5	1,068	4	0.4	849,357	7,453	0.9
2035	66,606	331	0.5	1,071	3	0.2	855,712	6,355	0.7
2036	66,939	333	0.5	1,078	7	0.7	865,737	10,025	1.2
2037	67,274	335	0.5	1,080	2	0.2	871,716	5,979	0.7
2038	67,610	336	0.5	1,084	5	0.4	879,764	8,048	0.9
2039	67,948	338	0.5	1,088	4	0.4	887,536	7,772	0.9
2040	68,288	340	0.5	1,096	7	0.7	898,016	10,480	1.2

Methodology and Results *(continued)*

Public Buildings Forecast

South Kentucky RECC reports a Public Buildings class. Sales are projected using two equations, a customer equation and a sales equation, similar to the residential forecasts. Projections are reported in Table 1-6.

Table 1-6
Public Buildings 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	795	47	6.3	1,392	151	12.2	13,280	2,141	19.2
2011	824	29	3.6	1,284	-108	-7.8	12,698	-583	-4.4
2012	836	12	1.5	1,133	-151	-11.8	11,368	-1,330	-10.5
2013	845	9	1.1	1,217	83	7.4	12,335	968	8.5
2014	853	8	0.9	1,325	108	8.9	13,563	1,227	9.9
2015	869	16	1.9	1,255	-70	-5.3	13,085	-478	-3.5
2016	876	7	0.8	1,224	-30	-2.4	12,871	-214	-1.6
2017	892	16	1.8	1,138	-87	-7.1	12,177	-693	-5.4
2018	901	9	1.0	1,343	205	18.0	14,520	2,342	19.2
2019	905	4	0.4	1,242	-101	-7.5	13,484	-1,035	-7.1
2020	911	6	0.7	1,082	-159	-12.8	11,833	-1,651	-12.2
2021	917	6	0.7	1,185	103	9.5	13,043	1,209	10.2
2022	923	6	0.7	1,204	19	1.6	13,337	294	2.3
2023	929	6	0.7	1,210	6	0.5	13,486	149	1.1
2024	935	6	0.6	1,210	1	0.1	13,580	95	0.7
2025	941	6	0.6	1,198	-12	-1.0	13,527	-54	-0.4
2026	947	6	0.6	1,189	-9	-0.7	13,514	-13	-0.1
2027	953	6	0.6	1,183	-6	-0.5	13,526	11	0.1
2028	959	6	0.6	1,177	-6	-0.5	13,544	19	0.1
2029	965	6	0.6	1,164	-13	-1.1	13,481	-63	-0.5
2030	971	6	0.6	1,154	-10	-0.9	13,448	-34	-0.2
2031	977	6	0.6	1,147	-7	-0.6	13,446	-1	0.0
2032	983	6	0.6	1,143	-4	-0.3	13,487	40	0.3
2033	989	6	0.6	1,135	-8	-0.7	13,472	-15	-0.1
2034	995	6	0.6	1,129	-6	-0.5	13,481	10	0.1
2035	1,001	6	0.6	1,123	-6	-0.5	13,494	13	0.1
2036	1,007	6	0.6	1,123	-1	-0.1	13,565	71	0.5
2037	1,013	6	0.6	1,117	-6	-0.5	13,576	11	0.1
2038	1,019	6	0.6	1,113	-4	-0.3	13,610	34	0.2
2039	1,025	6	0.6	1,110	-3	-0.3	13,647	37	0.3
2040	1,031	6	0.6	1,108	-2	-0.1	13,707	60	0.4

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 1-7.

Table 1-7
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	4,777	10	0.2	63	5	8.6	301,232	25,307	9.2
2011	4,769	-8	-0.2	62	-1	-1.6	295,536	-5,696	-1.9
2012	4,772	3	0.1	61	-1	-1.6	289,869	-5,668	-1.9
2013	4,768	-4	-0.1	60	-1	-1.6	286,350	-3,519	-1.2
2014	4,834	66	1.4	58	-2	-3.3	280,037	-6,312	-2.2
2015	5,048	214	4.4	55	-3	-5.2	276,787	-3,250	-1.2
2016	5,073	25	0.5	54	-1	-1.8	272,595	-4,191	-1.5
2017	5,103	30	0.6	52	-2	-3.7	266,588	-6,007	-2.2
2018	5,108	5	0.1	55	3	5.8	281,646	15,058	5.6
2019	5,152	44	0.9	53	-2	-3.6	272,513	-9,133	-3.2
2020	5,182	30	0.6	50	-3	-5.7	259,104	-13,408	-4.9
2021	5,214	32	0.6	54	4	8.0	281,531	22,427	8.7
2022	5,245	31	0.6	55	1	1.9	288,450	6,919	2.5
2023	5,276	31	0.6	55	0	0.0	290,165	1,715	0.6
2024	5,307	31	0.6	55	0	0.0	291,889	1,723	0.6
2025	5,339	32	0.6	55	0	0.0	293,621	1,732	0.6
2026	5,370	31	0.6	55	0	0.0	295,362	1,741	0.6
2027	5,402	32	0.6	54	-1	-1.8	291,711	-3,652	-1.2
2028	5,434	32	0.6	54	0	0.0	293,438	1,727	0.6
2029	5,466	32	0.6	54	0	0.0	295,174	1,736	0.6
2030	5,499	33	0.6	53	-1	-1.9	291,421	-3,753	-1.3
2031	5,531	32	0.6	53	0	0.0	293,143	1,722	0.6
2032	5,564	33	0.6	53	0	0.0	294,874	1,731	0.6
2033	5,596	32	0.6	53	0	0.0	296,614	1,740	0.6
2034	5,629	33	0.6	52	-1	-1.9	292,733	-3,881	-1.3
2035	5,663	34	0.6	52	0	0.0	294,458	1,725	0.6
2036	5,696	33	0.6	52	0	0.0	296,192	1,734	0.6
2037	5,730	34	0.6	52	0	0.0	297,934	1,743	0.6
2038	5,763	33	0.6	52	0	0.0	299,686	1,752	0.6
2039	5,797	34	0.6	52	0	0.0	301,447	1,761	0.6
2040	5,831	34	0.6	52	0	0.0	303,217	1,770	0.6

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. South Kentucky RECC currently has 28 customer in this class and is projected to increase to 33 customers by 2040. Large commercial results are reported in Table 1-8.

Table 1-8
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	14	0	0.0	9,838	270	2.8	137,728	3,780	2.8
2011	15	1	7.1	9,470	-368	-3.7	142,054	4,325	3.1
2012	18	3	20.0	7,813	-1,657	-17.5	140,630	-1,423	-1.0
2013	18	0	0.0	8,266	453	5.8	148,780	8,149	5.8
2014	20	2	11.1	8,916	651	7.9	178,328	29,548	19.9
2015	22	2	10.0	8,673	-243	-2.7	190,817	12,489	7.0
2016	25	3	13.6	7,709	-965	-11.1	192,713	1,896	1.0
2017	28	3	12.0	6,863	-846	-11.0	192,162	-552	-0.3
2018	27	-1	-3.6	7,013	150	2.2	189,362	-2,800	-1.5
2019	28	1	3.7	6,534	-480	-6.8	182,947	-6,414	-3.4
2020	30	2	7.1	5,809	-725	-11.1	174,271	-8,677	-4.7
2021	30	0	0.0	6,407	598	10.3	192,220	17,950	10.3
2022	30	0	0.0	6,535	128	2.0	196,065	3,844	2.0
2023	30	0	0.0	6,666	131	2.0	199,986	3,921	2.0
2024	31	1	3.3	6,852	186	2.8	212,415	12,429	6.2
2025	31	0	0.0	6,989	137	2.0	216,663	4,248	2.0
2026	31	0	0.0	7,129	140	2.0	220,997	4,333	2.0
2027	31	0	0.0	7,272	143	2.0	225,417	4,420	2.0
2028	31	0	0.0	7,417	145	2.0	229,925	4,508	2.0
2029	31	0	0.0	7,565	148	2.0	234,523	4,598	2.0
2030	31	0	0.0	7,717	151	2.0	239,214	4,690	2.0
2031	31	0	0.0	7,871	154	2.0	243,998	4,784	2.0
2032	32	1	3.2	8,041	170	2.2	257,307	13,309	5.5
2033	32	0	0.0	8,202	161	2.0	262,454	5,146	2.0
2034	32	0	0.0	8,366	164	2.0	267,703	5,249	2.0
2035	32	0	0.0	8,533	167	2.0	273,057	5,354	2.0
2036	32	0	0.0	8,704	171	2.0	278,518	5,461	2.0
2037	32	0	0.0	8,878	174	2.0	284,088	5,570	2.0
2038	32	0	0.0	9,055	178	2.0	289,770	5,682	2.0
2039	33	1	3.1	9,212	157	1.7	303,995	14,225	4.9
2040	33	0	0.0	9,396	184	2.0	310,074	6,080	2.0

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

South Kentucky 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 1-9.

Table 1-9

Public Street & Highway Lighting 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	23	0	0.0	4,467	148	3.4	1,233	41	3.4
2011	23	0	0.0	4,566	99	2.2	1,260	27	2.2
2012	23	0	0.0	4,525	-42	-0.9	1,249	-11	-0.9
2013	23	0	0.0	4,477	-48	-1.1	1,236	-13	-1.1
2014	23	0	0.0	4,600	124	2.8	1,270	34	2.8
2015	23	0	0.0	4,617	16	0.4	1,274	5	0.4
2016	24	1	4.3	4,366	-250	-5.4	1,257	-17	-1.3
2017	22	-2	-8.3	3,944	-422	-9.7	1,041	-216	-17.2
2018	22	0	0.0	3,560	-383	-9.7	940	-101	-9.7
2019	22	0	0.0	3,442	-118	-3.3	909	-31	-3.3
2020	21	-1	-4.5	3,496	53	1.5	881	-28	-3.1
2021	21	0	0.0	3,491	-5	-0.1	880	-1	-0.1
2022	21	0	0.0	3,491	0	0.0	880	0	0.0
2023	21	0	0.0	3,491	0	0.0	880	0	0.0
2024	21	0	0.0	3,491	0	0.0	880	0	0.0
2025	21	0	0.0	3,491	0	0.0	880	0	0.0
2026	21	0	0.0	3,491	0	0.0	880	0	0.0
2027	21	0	0.0	3,491	0	0.0	880	0	0.0
2028	21	0	0.0	3,491	0	0.0	880	0	0.0
2029	21	0	0.0	3,491	0	0.0	880	0	0.0
2030	21	0	0.0	3,491	0	0.0	880	0	0.0
2031	21	0	0.0	3,491	0	0.0	880	0	0.0
2032	21	0	0.0	3,491	0	0.0	880	0	0.0
2033	21	0	0.0	3,491	0	0.0	880	0	0.0
2034	21	0	0.0	3,491	0	0.0	880	0	0.0
2035	21	0	0.0	3,491	0	0.0	880	0	0.0
2036	21	0	0.0	3,491	0	0.0	880	0	0.0
2037	21	0	0.0	3,491	0	0.0	880	0	0.0
2038	21	0	0.0	3,491	0	0.0	880	0	0.0
2039	21	0	0.0	3,491	0	0.0	880	0	0.0
2040	21	0	0.0	3,491	0	0.0	880	0	0.0

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically influence South Kentucky RECC's peak demands. Table 1-10 and reports the impact of extreme weather on system demands.

Table 1-10: Seasonal Peaks by Weather Scenario

Winter Peak Day Minimum Temperatures				
	Normal	Extreme		
Degrees	1	-7	-14	-16
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	429	458	512	573
2021 - 22	432	461	515	576
2022 - 23	434	463	517	579
2023 - 24	437	466	521	583
2024 - 25	435	464	519	582
2025 - 26	437	466	521	584
2026 - 27	439	468	524	586
2027 - 28	443	472	528	591
2028 - 29	443	473	529	592
2029 - 30	444	474	530	593
2030 - 31	444	474	531	594
2031 - 32	448	478	535	599
2032 - 33	447	478	535	599
2033 - 34	450	480	537	602
2034 - 35	452	482	540	605
2035 - 36	455	486	544	609
2036 - 37	457	487	545	611
2037 - 38	459	490	548	614
2038 - 39	463	494	552	619
2039 - 40	465	497	555	622

Summer Peak Day Maximum Temperatures				
	Normal	Extreme		
Degrees	96	100	102	104
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	288	304	321	321
2022	301	318	334	334
2023	305	321	338	338
2024	307	323	340	340
2025	309	326	342	342
2026	308	324	341	341
2027	309	326	342	342
2028	311	327	344	344
2029	313	329	346	346
2030	314	330	347	347
2031	314	331	348	348
2032	315	332	349	349
2033	318	335	353	353
2034	318	335	353	353
2035	320	337	354	354
2036	321	339	356	356
2037	324	341	359	359
2038	325	343	361	361
2039	327	345	363	363
2040	331	348	366	366