Blue Grass Energy Cooperative Corporation

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

Blue Grass Energy
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

Introduction
Executive Summary

Blue Grass Energy Cooperative Corporation (Blue Grass Energy), located in Nicholasville, Kentucky, is an electric distribution cooperative that serves members in 23 counties. This load forecast report contains Blue Grass Energy's long-range forecast of energy and peak demand.

Blue Grass 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 Blue Grass 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 Blue Grass 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 Blue Grass Energy. Cooperation helps to ensure that the forecast meets both parties' needs. Blue Grass 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 Blue Grass 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 & Hwy. Lighting Sales (MWh)	Total Sales (MWh)	Office Use (MWh)	% Loss	Purchased Power (MWh)
2010	847,476	0	156,216	0	254,250	1,151	1,259,092	1,537	5.3	1,331,800
2011	810,544	0	152,956	0	263,778	1,107	1,228,385	1,408	2.9	1,265,921
2012	764,053	0	152,835	0	260,891	1,150	1,178,929	1,331	4.2	1,231,817
2013	801,630	0	160,427	0	324,733	1,164	1,287,955	1,411	4.2	1,346,400
2014	834,060	0	164,359	0	337,889	1,182	1,337,490	1,457	4.3	1,398,378
2015	790,929	0	166,787	0	341,839	1,182	1,300,737	1,449	4.2	1,359,813
2016	804,233	0	172,856	0	345,184	1,200	1,323,473	1,341	4.3	1,383,686
2017	769,128	0	165,630	0	343,883	1,121	1,279,762	1,253	4.2	1,337,803
2018	894,229	0	169,509	0	352,797	838	1,417,373	1,383	1.8	1,444,803
2019	839,928	0	164,731	0	340,136	887	1,345,683	1,293	3.7	1,398,957
2020	856,507	0	154,690	0	318,595	898	1,330,691	1,344	4.0	1,387,536
2021	877,920	0	168,877	0	351,447	907	1,399,150	1,344	4.0	1,458,848
2022	889,552	0	174,500	0	439,214	921	1,504,188	1,344	4.0	1,568,262
2023	897,383	0	177,967	0	445,400	937	1,521,687	1,344	4.0	1,586,490
2024	907,592	0	179,998	0	458,825	951	1,547,367	1,344	4.0	1,613,240
2025	912,839	0	180,600	0	465,809	964	1,560,213	1,344	4.0	1,626,621
2026	923,461	0	181,611	0	472,933	978	1,578,984	1,344	4.0	1,646,175
2027	935,470	0	182,743	0	488,464	991	1,607,668	1,344	4.0	1,676,054
2028	951,517	0	184,058	0	495,876	1,003	1,632,453	1,344	4.0	1,701,872
2029	960,738	0	186,157	0	511,700	1,014	1,659,609	1,344	4.0	1,730,159
2030	969,684	0	188,402	0	519,411	1,025	1,678,523	1,344	4.0	1,749,861
2031	978,676	0	189,990	0	527,276	1,035	1,696,978	1,344	4.0	1,769,085
2032	993,112	0	192,260	0	535,299	1,045	1,721,715	1,344	4.0	1,794,853
2033	1,001,840	0	194,550	0	543,482	1,055	1,740,927	1,344	4.0	1,814,865
2034	1,015,332	0	196,162	0	560,093	1,065	1,772,652	1,344	4.0	1,847,912
2035	1,029,422	0	198,492	0	568,607	1,074	1,797,595	1,344	4.0	1,873,895
2036	1,047,952	0	200,854	0	577,291	1,084	1,827,182	1,344	4.0	1,904,715
2037	1,059,933	0	202,528	0	586,149	1,095	1,849,704	1,344	4.0	1,928,175
2038	1,075,508	0	204,945	0	595,184	1,105	1,876,742	1,344	4.0	1,956,339
2039	1,091,129	0	207,387	0	604,399	1,115	1,904,031	1,344	4.0	1,984,766
2040	1,110,074	0	209,856	0	613,799	1,125	1,934,855	1,344	4.0	2,016,874

Table 1-1 *(continued)*

Peaks Summary

Winter		*Summer*					*Temperature*	
Season	Non-Coincident Peak Demand (MW)	Year	Non-Coincident Peak Demand (MW)	Year	Purchased Power (MWh)	Load Factor (%)	Winter Peak	Summer Peak
2009 - 10	324.8	2010	265.5	2010	1,331,800	46.8%	2° F	91° F
2010 - 11	348.4	2011	269.3	2011	1,265,921	41.5%	10° F	94° F
2011 - 12	287.5	2012	267.7	2012	1,231,817	48.9%	15° F	103° F
2012 - 13	312.0	2013	272.5	2013	1,346,400	49.3%	10° F	93° F
2013 - 14	418.3	2014	259.6	2014	1,398,378	38.2%	0° F	91° F
2014 - 15	427.7	2015	257.5	2015	1,359,813	36.3%	-18° F	91° F
2015- 16	341.2	2016	269.7	2016	1,383,686	46.3%	4° F	95° F
2016 - 17	338.3	2017	266.3	2017	1,337,803	45.1%	4° F	94° F
2017 - 18	405.0	2018	275.6	2018	1,444,803	40.7%	-3° F	97° F
2018 - 19	371.0	2019	276.3	2019	1,398,957	43.0%	2° F	97° F
2019 - 20	315.4	2020	265.9	2020	1,387,536	50.2%	12° F	93° F
2020 - 21	415.4	2021	288.7	2021	1,458,848	40.1%		
2021 - 22	448.1	2022	294.7	2022	1,568,262	40.0%		
2022 - 23	451.9	2023	297.4	2023	1,586,490	40.1%		
2023 - 24	458.1	2024	302.4	2024	1,613,240	40.2%		
2024 - 25	459.4	2025	304.1	2025	1,626,621	40.4%		
2025 - 26	462.5	2026	306.5	2026	1,646,175	40.6%		
2026 - 27	468.0	2027	312.1	2027	1,676,054	40.9%		
2027 - 28	472.9	2028	315.0	2028	1,701,872	41.1%		
2028 - 29	476.9	2029	320.3	2029	1,730,159	41.4%		
2029 - 30	478.9	2030	322.3	2030	1,749,861	41.7%		
2030 - 31	480.9	2031	324.3	2031	1,769,085	42.0%		
2031 - 32	485.1	2032	327.2	2032	1,794,853	42.2%		
2032 - 33	486.9	2033	329.7	2033	1,814,865	42.6%		
2033 - 34	492.4	2034	335.7	2034	1,847,912	42.8%		
2034 - 35	496.1	2035	338.9	2035	1,873,895	43.1%		
2035 - 36	501.6	2036	342.6	2036	1,904,715	43.3%		
2036 - 37	504.4	2037	345.9	2037	1,928,175	43.6%		
2037 - 38	508.6	2038	349.6	2038	1,956,339	43.9%		
2038 - 39	512.8	2039	353.2	2039	1,984,766	44.2%		
2039 - 40	518.2	2040	356.9	2040	2,016,874	44.4%		

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Executive Summary *(continued)*

Overall Results

- Total sales are projected to grow by 1.9 percent a year for the period 2020-2040, compared to a 1.7 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 1.2 percent over the 19 year forecast (2021-2040). Summer peak demands for the same period indicate growth of 1.1 percent.

- Load factor increases from 40.1% to 44.4% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Small Commercial	Large Commercial	Public Street & Hwy. Lighting	Total Sales
5-Year	2014-2019	0.1%	0.0%	0.1%	-5.6%	0.1%
	2020-2025	1.3%	3.1%	7.9%	1.4%	3.2%
10-Year	2009-2019	0.7%	4.5%	1.8%	-2.4%	1.4%
	2020-2030	1.2%	2.0%	5.0%	1.3%	2.3%
15-Year	2004-2019	1.0%	2.5%	1.5%	0.2%	1.3%
	2020-2035	1.2%	1.7%	3.9%	1.2%	2.0%
20-Year	1999-2019	1.7%	2.2%	2.0%	1.6%	1.9%
	2020-2040	1.3%	1.5%	3.3%	1.1%	1.9%

Narrative

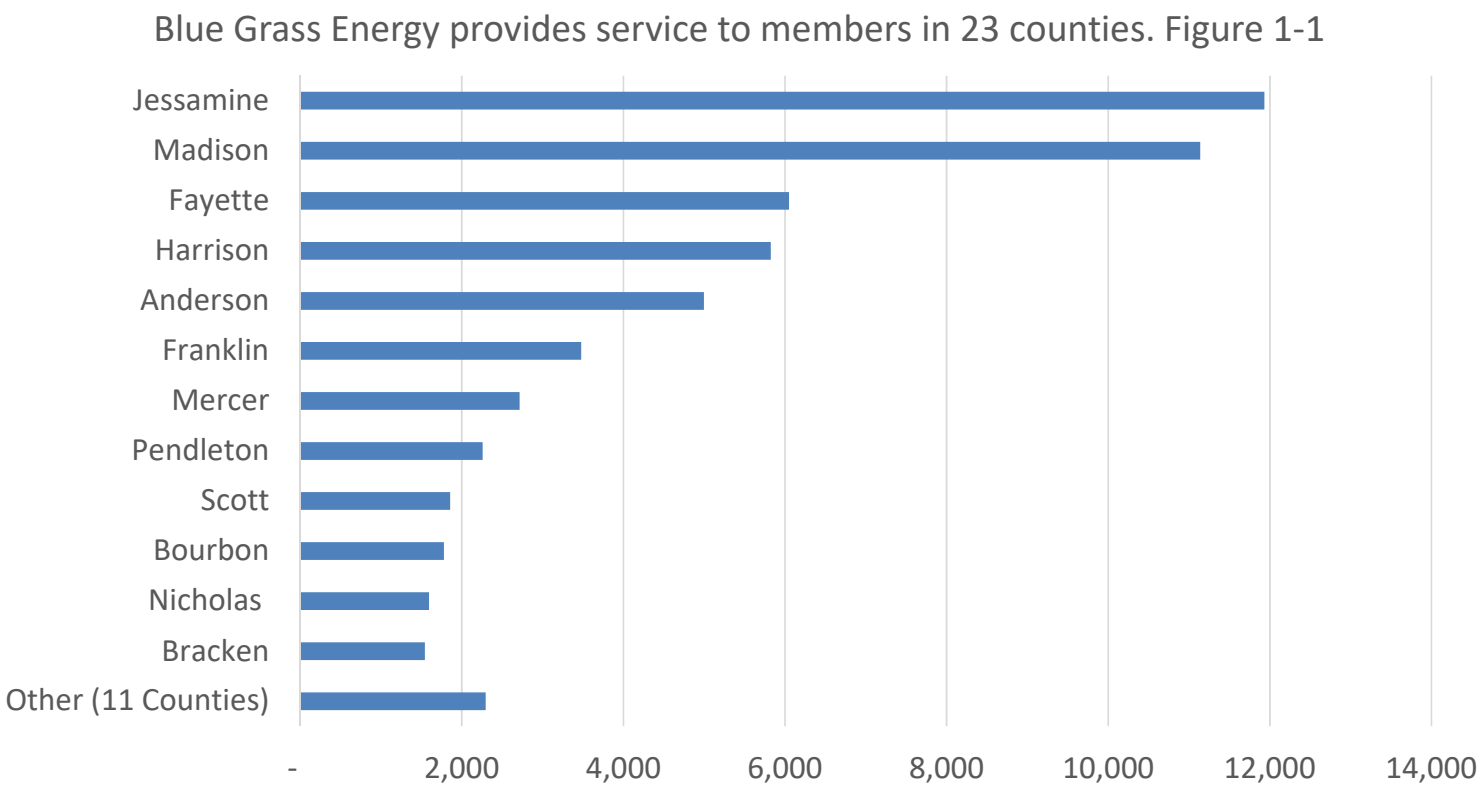
The service area of Blue Grass Energy is located in central Kentucky serving 23 counties, reaching from Berea to the Ohio river. The counties served by Blue Grass Energy include; Anderson, Bourbon, Bracken, Fayette, Franklin, Harrison, Jessamine, Madison, Mercer, Nicholas, Pendleton, and Scott, with some members in each of the eleven other counties.

Blue Grass Energy maintains approximately 4,800 miles of line serving nearly 59,000 members. The average residential member uses 1,249 kWh monthly.

The average household has 2.30 people; approximately 75 percent of all homes are headed by someone 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	0.9%	0.9%	0.7%	3.7%
	2020-2025	0.8%	1.1%	2.7%	3.8%
10 Year Growth Rates	2009-2019	0.8%	0.8%	1.2%	4.0%
	2020-2030	0.7%	1.0%	1.6%	4.4%
15 Year Growth Rates	2004-2019	1.0%	1.0%	0.7%	4.0%
	2020-2035	0.6%	0.9%	1.3%	4.4%
20 Year Growth Rates	1999-2019	1.1%	1.1%	0.5%	4.1%
	2020-2040	0.6%	0.9%	1.1%	4.4%

- *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

- 67% of customers use electric as a primary fuel for heating, while 18% use it as a secondary fuel.
  - 15% use electric furnaces and 57% use electric heat pumps.
- 88% of customers use central air and 14% 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 90%
- Freezer 55%
- Smart TV 72%

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 Blue Grass Energy as reported on RUS Form 7.

Typically, a preliminary forecast is prepared during the first quarter depending on when Blue Grass Energy 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 Blue Grass 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	1,331,799,549	8.0%	1,259,092,303	7.3%	71,170,567	5.3%	333.1	54,980	4,632	11.9	$85,524,292	6.4
2011	1,265,921,359	-4.9%	1,228,384,746	-2.4%	36,128,787	2.9%	313.2	55,087	4,650	11.8	$88,640,890	7.0
2012	1,231,817,325	-2.7%	1,178,929,210	-4.0%	51,557,504	4.2%	278.4	55,297	4,682	11.8	$88,003,611	7.1
2013	1,346,399,876	9.3%	1,287,954,843	9.2%	57,034,255	4.2%	299.4	55,725	4,693	11.9	$96,070,322	7.1
2014	1,398,378,224	3.9%	1,337,490,207	3.8%	59,431,197	4.3%	381.2	56,075	4,710	11.9	$100,047,737	7.2
2015	1,359,812,906	-2.8%	1,300,737,458	-2.7%	57,626,774	4.2%	416.4	56,584	4,731	12.0	$92,479,477	6.8
2016	1,383,686,451	1.8%	1,323,472,948	1.7%	58,873,003	4.3%	381.2	57,319	4,742	12.1	$92,099,188	6.7
2017	1,337,802,640	-3.3%	1,279,761,676	-3.3%	56,787,549	4.2%	381.2	57,913	4,762	12.2	$88,796,456	6.6
2018	1,444,803,232	8.0%	1,417,373,431	10.8%	26,046,678	1.8%	387.7	58,443	4,788	12.2	$94,998,004	6.6
2019	1,398,957,054	-3.2%	1,345,682,744	-5.1%	51,980,860	3.7%	357.7	58,968	4,810	12.3	$91,669,653	6.6
Average						3.9%						6.5

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

Introduction

The preliminary forecast was presented to Blue Grass 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 Blue Grass 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 reports Blue Grass 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 Blue Grass 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	52,322	142	0.3	1,350	99	8.0	847,476	64,585	8.2
2011	52,419	97	0.2	1,289	-61	-4.5	810,544	-36,932	-4.4
2012	52,597	178	0.3	1,211	-78	-6.1	764,053	-46,491	-5.7
2013	53,006	409	0.8	1,260	50	4.1	801,630	37,577	4.9
2014	53,336	330	0.6	1,303	43	3.4	834,060	32,430	4.0
2015	53,808	472	0.9	1,225	-78	-6.0	790,929	-43,131	-5.2
2016	54,534	726	1.3	1,229	4	0.3	804,233	13,304	1.7
2017	55,101	567	1.0	1,163	-66	-5.3	769,128	-35,106	-4.4
2018	55,571	470	0.9	1,341	178	15.3	894,229	125,102	16.3
2019	56,024	453	0.8	1,249	-92	-6.8	839,928	-54,301	-6.1
2020	56,772	748	1.3	1,257	8	0.6	856,507	16,579	2.0
2021	57,436	664	1.2	1,274	17	1.3	877,920	21,413	2.5
2022	58,101	665	1.2	1,276	2	0.2	889,552	11,633	1.3
2023	58,769	668	1.1	1,272	-3	-0.3	897,383	7,830	0.9
2024	59,399	630	1.1	1,273	1	0.1	907,592	10,210	1.1
2025	60,052	653	1.1	1,267	-7	-0.5	912,839	5,247	0.6
2026	60,712	660	1.1	1,268	1	0.1	923,461	10,622	1.2
2027	61,380	668	1.1	1,270	3	0.2	935,470	12,009	1.3
2028	62,056	676	1.1	1,278	8	0.6	951,517	16,047	1.7
2029	62,738	682	1.1	1,276	-2	-0.1	960,738	9,221	1.0
2030	63,366	628	1.0	1,275	-1	-0.1	969,684	8,946	0.9
2031	63,999	633	1.0	1,274	-1	-0.1	978,676	8,992	0.9
2032	64,639	640	1.0	1,280	6	0.5	993,112	14,435	1.5
2033	65,286	647	1.0	1,279	-2	-0.1	1,001,840	8,728	0.9
2034	65,938	652	1.0	1,283	4	0.3	1,015,332	13,492	1.3
2035	66,598	660	1.0	1,288	5	0.4	1,029,422	14,090	1.4
2036	67,264	666	1.0	1,298	10	0.8	1,047,952	18,531	1.8
2037	67,936	672	1.0	1,300	2	0.1	1,059,933	11,980	1.1
2038	68,616	680	1.0	1,306	6	0.5	1,075,508	15,575	1.5
2039	69,302	686	1.0	1,312	6	0.4	1,091,129	15,621	1.5
2040	69,995	693	1.0	1,322	10	0.7	1,110,074	18,945	1.7

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	2,594	38	1.5	60	19	45.7	156,216	50,593	47.9
2011	2,607	13	0.5	59	-2	-2.6	152,956	-3,260	-2.1
2012	2,644	37	1.4	58	-1	-1.5	152,835	-121	-0.1
2013	2,663	19	0.7	60	2	4.2	160,427	7,592	5.0
2014	2,686	23	0.9	61	1	1.6	164,359	3,932	2.5
2015	2,724	38	1.4	61	0	0.1	166,787	2,427	1.5
2016	2,739	15	0.6	63	2	3.1	172,856	6,069	3.6
2017	2,784	45	1.6	59	-4	-5.7	165,630	-7,225	-4.2
2018	2,842	58	2.1	60	0	0.3	169,509	3,879	2.3
2019	2,905	63	2.2	57	-3	-4.9	164,731	-4,778	-2.8
2020	2,946	41	1.4	53	-4	-7.4	154,690	-10,041	-6.1
2021	2,988	42	1.4	57	4	7.6	168,877	14,187	9.2
2022	3,023	35	1.2	58	1	2.1	174,500	5,623	3.3
2023	3,059	36	1.2	58	0	0.8	177,967	3,467	2.0
2024	3,096	37	1.2	58	0	-0.1	179,998	2,031	1.1
2025	3,134	38	1.2	58	-1	-0.9	180,600	601	0.3
2026	3,172	38	1.2	57	0	-0.6	181,611	1,012	0.6
2027	3,211	39	1.2	57	0	-0.6	182,743	1,131	0.6
2028	3,250	39	1.2	57	0	-0.5	184,058	1,315	0.7
2029	3,289	39	1.2	57	0	-0.1	186,157	2,099	1.1
2030	3,329	40	1.2	57	0	0.0	188,402	2,245	1.2
2031	3,369	40	1.2	56	0	-0.4	189,990	1,588	0.8
2032	3,409	40	1.2	56	0	0.0	192,260	2,270	1.2
2033	3,449	40	1.2	56	0	0.0	194,550	2,290	1.2
2034	3,490	41	1.2	56	0	-0.4	196,162	1,612	0.8
2035	3,532	42	1.2	56	0	0.0	198,492	2,330	1.2
2036	3,574	42	1.2	56	0	0.0	200,854	2,362	1.2
2037	3,617	43	1.2	56	0	-0.4	202,528	1,674	0.8
2038	3,660	43	1.2	56	0	0.0	204,945	2,417	1.2
2039	3,703	43	1.2	56	0	0.0	207,387	2,443	1.2
2040	3,747	44	1.2	56	0	0.0	209,856	2,469	1.2

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. Blue Grass Energy currently has 10 customers in this class and is projected to increase to 16 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	12	-16	-57.1	21,187	11,060	109.2	254,250	-29,333	-10.3
2011	12	0	0.0	21,982	794	3.7	263,778	9,528	3.7
2012	11	-1	-8.3	23,717	1,736	7.9	260,891	-2,887	-1.1
2013	11	0	0.0	29,521	5,804	24.5	324,733	63,842	24.5
2014	10	-1	-9.1	33,789	4,268	14.5	337,889	13,156	4.1
2015	10	0	0.0	34,184	395	1.2	341,839	3,950	1.2
2016	10	0	0.0	34,518	334	1.0	345,184	3,345	1.0
2017	11	1	10.0	31,262	-3,256	-9.4	343,883	-1,301	-0.4
2018	11	0	0.0	32,072	810	2.6	352,797	8,914	2.6
2019	10	-1	-9.1	34,014	1,941	6.1	340,136	-12,661	-3.6
2020	10	0	0.0	31,860	-2,154	-6.3	318,595	-21,541	-6.3
2021	11	1	10.0	31,950	90	0.3	351,447	32,851	10.3
2022	12	1	9.1	36,601	4,651	14.6	439,214	87,767	25.0
2023	12	0	0.0	37,117	516	1.4	445,400	6,187	1.4
2024	13	1	8.3	35,294	-1,822	-4.9	458,825	13,425	3.0
2025	13	0	0.0	35,831	537	1.5	465,809	6,984	1.5
2026	13	0	0.0	36,379	548	1.5	472,933	7,124	1.5
2027	14	1	7.7	34,890	-1,489	-4.1	488,464	15,531	3.3
2028	14	0	0.0	35,420	529	1.5	495,876	7,412	1.5
2029	15	1	7.1	34,113	-1,306	-3.7	511,700	15,824	3.2
2030	15	0	0.0	34,627	514	1.5	519,411	7,711	1.5
2031	15	0	0.0	35,152	524	1.5	527,276	7,865	1.5
2032	15	0	0.0	35,687	535	1.5	535,299	8,023	1.5
2033	15	0	0.0	36,232	546	1.5	543,482	8,183	1.5
2034	16	1	6.7	35,006	-1,226	-3.4	560,093	16,611	3.1
2035	16	0	0.0	35,538	532	1.5	568,607	8,514	1.5
2036	16	0	0.0	36,081	543	1.5	577,291	8,684	1.5
2037	16	0	0.0	36,634	554	1.5	586,149	8,858	1.5
2038	16	0	0.0	37,199	565	1.5	595,184	9,035	1.5
2039	16	0	0.0	37,775	576	1.5	604,399	9,216	1.5
2040	16	0	0.0	38,362	587	1.6	613,799	9,400	1.6

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

Blue Grass 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 (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	52	0	0.0	1,845	28	1.5	1,151	17	1.5
2011	49	-3	-5.8	1,882	38	2.0	1,107	-44	-3.8
2012	45	-4	-8.2	2,129	247	13.1	1,150	43	3.9
2013	45	0	0.0	2,156	27	1.2	1,164	14	1.2
2014	43	-2	-4.4	2,290	134	6.2	1,182	18	1.5
2015	42	-1	-2.3	2,346	55	2.4	1,182	0	0.0
2016	36	-6	-14.3	2,778	433	18.4	1,200	18	1.5
2017	17	-19	-52.8	5,495	2,717	97.8	1,121	-79	-6.6
2018	19	2	11.8	3,676	-1,820	-33.1	838	-283	-25.2
2019	29	10	52.6	2,550	-1,126	-30.6	887	49	5.9
2020	29	0	0.0	2,581	31	1.2	898	11	1.2
2021	29	0	0.0	2,606	25	1.0	907	9	1.0
2022	29	0	0.0	2,648	42	1.6	921	15	1.6
2023	29	0	0.0	2,691	44	1.6	937	15	1.6
2024	29	0	0.0	2,732	40	1.5	951	14	1.5
2025	29	0	0.0	2,770	39	1.4	964	13	1.4
2026	29	0	0.0	2,809	39	1.4	978	14	1.4
2027	29	0	0.0	2,847	38	1.3	991	13	1.3
2028	29	0	0.0	2,882	35	1.2	1,003	12	1.2
2029	29	0	0.0	2,914	32	1.1	1,014	11	1.1
2030	29	0	0.0	2,945	31	1.1	1,025	11	1.1
2031	29	0	0.0	2,975	29	1.0	1,035	10	1.0
2032	29	0	0.0	3,003	28	0.9	1,045	10	0.9
2033	29	0	0.0	3,031	28	0.9	1,055	10	0.9
2034	29	0	0.0	3,060	28	0.9	1,065	10	0.9
2035	29	0	0.0	3,088	28	0.9	1,074	10	0.9
2036	29	0	0.0	3,116	28	0.9	1,084	10	0.9
2037	29	0	0.0	3,145	29	0.9	1,095	10	0.9
2038	29	0	0.0	3,175	30	0.9	1,105	10	0.9
2039	29	0	0.0	3,204	29	0.9	1,115	10	0.9
2040	29	0	0.0	3,233	29	0.9	1,125	10	0.9

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically Blue Grass 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	-3	-12	-17	-25
Probability	*50%*	*20%*	*10%*	*3%*
Occurs Once E	**2 Years**	**5 Years**	**10 Years**	**30 Years**
Noncoincident Winter Peak Demand - MW				
Season	Normal		Extreme	
2020 - 21	415	434	444	461
2021 - 22	448	467	477	494
2022 - 23	452	471	481	498
2023 - 24	458	477	488	505
2024 - 25	459	479	489	507
2025 - 26	462	482	493	510
2026 - 27	468	488	499	516
2027 - 28	473	493	504	522
2028 - 29	477	497	508	526
2029 - 30	479	499	511	529
2030 - 31	481	502	513	531
2031 - 32	485	506	517	536
2032 - 33	487	508	520	538
2033 - 34	492	514	525	544
2034 - 35	496	518	529	549
2035 - 36	502	523	535	555
2036 - 37	504	526	538	558
2037 - 38	509	531	543	563
2038 - 39	513	535	547	567
2039 - 40	518	541	553	573

Summer Peak Day Maximum Temperatures				
	Normal		**Extreme**	
Degrees	96	99	101	103
Probability	*50%*	*20%*	*10%*	*3%*
	2 Years	**5 Years**	**10 Years**	**30 Years**
Noncoincident Summer Peak Demand - MW				
Year	Normal		Extreme	
2021	289	302	311	320
2022	295	308	317	327
2023	297	311	320	330
2024	302	316	326	335
2025	304	318	328	337
2026	306	321	330	340
2027	312	326	336	346
2028	315	329	339	349
2029	320	335	345	355
2030	322	337	347	357
2031	324	339	349	359
2032	327	342	353	363
2033	330	345	355	365
2034	336	351	362	372
2035	339	354	365	375
2036	343	358	369	379
2037	346	362	373	383
2038	350	365	376	387
2039	353	369	380	391
2040	357	373	384	395