Owen Electric Cooperative

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

Table of Contents

	Page Number
Introduction and Executive Summary	3
Narrative	9
Key Assumptions	11
Methodology and Results	15
- Residential Forecast	18
- Public Building Forecast	20
- Small Commercial	22
- Large Commercial	24
- Public Street & Highway Lighting	26
- Peak Day Weather Scenarios	28

Introduction
Executive Summary

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

Owen Electric 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 Owen Electric for reasonability. Final projects reflect a rigorous analysis of historical data combined with the experience and judgment of the President/CEO and staff of Owen Electric. 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 of EKPC and Owen Electric. Cooperation helps to ensure that the forecast meets both parties' needs. Owen Electric 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 Owen Electric 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)	Large Comm. Special Contract Sales (MWh)	Other Sales (MWh)	Total Sales (MWh)	Office Use (MWh)	% Loss	Purchased Power (MWh)
2010	778,309	0	201,794	26,529	215,136	951,655	802	2,174,225	2,183	2.2	2,224,298
2011	752,695	0	209,209	25,770	235,552	942,911	897	2,167,034	2,062	2.8	2,230,480
2012	717,477	0	210,731	23,826	245,435	947,037	868	2,145,374	1,925	3.1	2,215,190
2013	736,495	0	243,824	24,880	259,185	960,258	870	2,225,513	2,113	2.1	2,275,532
2014	748,500	0	214,493	26,190	284,938	988,418	781	2,263,320	2,182	3.1	2,339,181
2015	746,252	0	239,044	25,911	293,438	782,217	690	2,087,552	2,113	2.1	2,134,263
2016	757,168	0	238,718	24,756	282,098	894,673	1,053	2,198,467	2,265	2.3	2,252,572
2017	724,410	0	238,286	24,401	293,806	958,756	922	2,240,581	2,344	1.8	2,284,295
2018	812,290	0	247,241	26,622	302,998	991,481	894	2,381,526	2,543	1.8	2,423,377
2019	797,853	0	244,223	26,345	322,941	981,841	872	2,374,074	2,455	1.8	2,409,450
2020	796,360	0	230,078	24,052	325,318	905,538	898	2,282,245	2,344	2.0	2,330,377
2021	820,680	0	248,379	26,021	324,191	1,608,395	898	3,028,564	2,344	2.0	3,091,654
2022	827,344	0	252,471	26,407	343,958	2,236,599	898	3,687,677	2,344	2.0	3,763,977
2023	833,089	0	254,723	26,499	352,174	2,236,599	898	3,703,983	2,344	2.0	3,780,610
2024	837,509	0	255,843	26,486	355,905	2,236,913	898	3,713,555	2,344	2.0	3,790,374
2025	843,233	0	257,274	26,482	362,380	2,238,645	898	3,728,913	2,344	2.0	3,806,039
2026	847,774	0	259,850	26,513	367,119	2,244,449	898	3,746,603	2,344	2.0	3,824,083
2027	853,485	0	262,553	26,536	371,762	2,240,854	898	3,756,089	2,344	2.0	3,833,760
2028	863,098	0	265,414	26,536	378,483	2,238,630	898	3,773,059	2,344	2.0	3,851,070
2029	868,259	0	266,664	26,528	382,600	2,241,100	898	3,786,051	2,344	2.0	3,864,322
2030	873,350	0	268,311	26,532	389,520	2,244,515	898	3,803,126	2,344	2.0	3,881,739
2031	879,020	0	270,318	26,528	396,371	2,236,370	898	3,809,506	2,344	2.0	3,888,247
2032	890,103	0	273,256	26,522	400,717	2,238,892	898	3,830,389	2,344	2.0	3,909,549
2033	896,616	0	275,182	26,521	407,758	2,241,100	898	3,848,076	2,344	2.0	3,927,591
2034	907,335	0	277,692	26,522	412,389	2,244,515	898	3,869,351	2,344	2.0	3,949,292
2035	919,107	0	280,605	26,524	417,105	2,236,370	898	3,880,610	2,344	2.0	3,960,777
2036	934,476	0	284,045	26,521	421,743	2,238,892	898	3,906,577	2,344	2.0	3,987,264
2037	944,173	0	286,485	26,518	428,969	2,241,100	898	3,928,145	2,344	2.0	4,009,264
2038	956,832	0	288,410	26,514	436,244	2,244,515	898	3,953,413	2,344	2.0	4,035,039
2039	969,864	0	291,450	26,506	440,980	2,236,370	898	3,966,068	2,344	2.0	4,047,947
2040	985,990	0	294,893	26,503	448,424	2,238,892	898	3,995,601	2,344	2.0	4,078,072

Table 1-1 *(continued)*

Peaks Summary

Winter Season	Winter Non-Coincident Peak Demand (MW)	Summer Year	Summer Non-Coincident Peak Demand (MW)	Year	Purchased Power (MWh)	Load Factor (%)	Temperature at time of Winter Peak	Temperature at time of Summer Peak	Annual Degree Days
2009 - 10	420.2	2010	463.9	2010	2,224,298	54.7%	0° F	99° F	5,588
2010 - 11	454.4	2011	478.8	2011	2,230,480	53.2%	13° F	96° F	4,934
2011 - 12	435.5	2012	472.1	2012	2,215,190	53.4%	15° F	98° F	4,580
2012 - 13	459.3	2013	457.1	2013	2,275,532	56.6%	7° F	93° F	5,109
2013 - 14	503.2	2014	439.3	2014	2,339,181	53.1%	-6° F	91° F	5,391
2014 - 15	486.5	2015	436.2	2015	2,134,263	50.1%	-12° F	91° F	4,716
2015 - 16	446.2	2016	453.4	2016	2,252,572	56.6%	5° F	94° F	4,837
2016 - 17	435.3	2017	442.0	2017	2,284,295	59.0%	6° F	90° F	4,335
2017 - 18	480.1	2018	454.9	2018	2,423,377	57.6%	-7° F	96° F	5,536
2018 - 19	472.8	2019	498.0	2019	2,409,450	55.2%	-7° F	93° F	5,067
2019 - 20	470.4	2020	495.4	2020	2,330,377	53.5%	14° F	95° F	
2020 - 21	680.6	2021	669.7	2021	3,091,654	51.9%			
2021 - 22	694.0	2022	681.1	2022	3,763,977	61.9%		**Normals**	
2022 - 23	697.1	2023	684.4	2023	3,780,610	61.9%			
2023 - 24	697.7	2024	686.4	2024	3,790,374	62.0%	**-2° F**	**96° F**	**4,905**
2024 - 25	699.8	2025	687.3	2025	3,806,039	62.1%			
2025 - 26	701.1	2026	688.4	2026	3,824,083	62.3%			
2026 - 27	702.4	2027	689.7	2027	3,833,760	62.3%			
2027 - 28	705.4	2028	692.9	2028	3,851,070	62.3%			
2028 - 29	706.3	2029	693.3	2029	3,864,322	62.5%			
2029 - 30	708.6	2030	694.5	2030	3,881,739	62.5%			
2030 - 31	711.1	2031	695.9	2031	3,888,247	62.4%			
2031 - 32	712.9	2032	697.9	2032	3,909,549	62.6%			
2032 - 33	716.2	2033	699.7	2033	3,927,591	62.6%			
2033 - 34	718.6	2034	701.7	2034	3,949,292	62.7%			
2034 - 35	721.1	2035	704.1	2035	3,960,777	62.7%			
2035 - 36	724.0	2036	707.4	2036	3,987,264	62.9%			
2036 - 37	728.1	2037	710.0	2037	4,009,264	62.9%			
2037 - 38	732.4	2038	713.6	2038	4,035,039	62.9%			
2038 - 39	735.3	2039	716.2	2039	4,047,947	62.8%			
2039 - 40	739.9	2040	720.7	2040	4,078,072	62.9%			

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Executive Summary *(continued)*

Overall Results

- Total sales are projected to grow by 2.8 percent a year for the period 2020-2040, compared to a 2.2 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 0.4 percent.

- Load factor increases from 51.9% to 62.9% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Public Buildings	Small Commercial	Large Commercial	Public Street and Highway Lighting	Total Sales
5-Year	2014-2019	1.3%	0.1%	2.6%	2.5%	2.2%	1.0%
	2020-2025	1.2%	1.9%	2.3%	2.2%	0.0%	10.3%
10-Year	2009-2019	1.1%	0.8%	2.0%	1.9%	3.1%	1.7%
	2020-2030	0.9%	1.0%	1.5%	1.8%	0.0%	5.2%
15-Year	2004-2019	1.3%	5.1%	2.8%	5.8%	2.9%	1.1%
	2020-2035	1.0%	0.7%	1.3%	1.7%	0.0%	3.6%
20-Year	1999-2019	2.2%	5.2%	3.4%	10.6%	9.1%	2.0%
	2020-2040	1.1%	0.5%	1.2%	1.6%	0.0%	2.8%

Narrative

Owen Electric Cooperative is a RUS-funded electric distribution cooperative. Located in Northern Kentucky, Owen Electric Cooperative serves portions of Boone, Kenton, Campbell, Grant, Pendleton, Carroll, Scott, Gallatin and Owen Counties (see Figure 1-1). The headquarters is located in Owenton, KY (Owen County).

Owen Electric Cooperative's service area is due south of Cincinnati, Ohio and north of Georgetown, Kentucky. The system has a balance of large industrial and commercial customers combined with a large residential base due to the close proximity to Cincinnati.

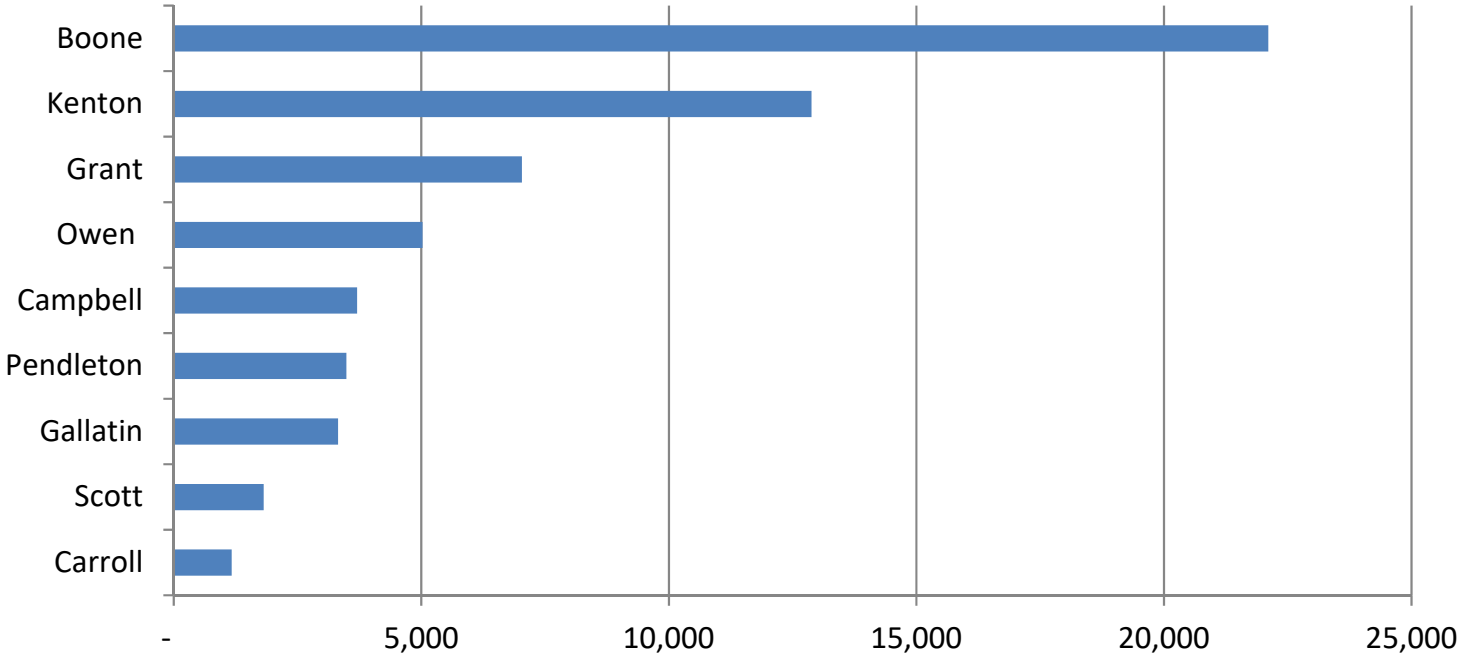
The average household contains 2.49 people and 74% of all homes are headed by someone age 55 or greater.

Narrative *(continued)*

Counties Served

Owen Electric provides service to members in 9 counties.

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 Personal Income
5 Year Growth Rates	2014-2019	0.7%	0.8%	2.4%	4.4%
	2020-2025	0.9%	1.0%	2.3%	3.9%
10 Year Growth Rates	2009-2019	0.7%	0.8%	2.0%	4.2%
	2020-2030	0.9%	1.0%	1.6%	4.4%
15 Year Growth Rates	2004-2019	1.0%	1.0%	1.3%	4.0%
	2020-2035	0.9%	1.0%	1.3%	4.5%
20 Year Growth Rates	1999-2019	1.1%	1.1%	1.3%	4.5%
	2020-2040	0.8%	1.0%	1.2%	4.5%

- *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.*

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Key Assumptions *(continued)*
Appliance Saturations

- 43% of customers use electric as a primary fuel for heating, while 18% use it as a secondary fuel.
  - 12% use electric furnaces and 38% use electric heat pumps.
- 88% of customers use central air and 11% use electric/window units.
- 68% 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 89%
- Freezer 56%
- Smart TV 80%

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 based on 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 reports historical data for Owen Electric as reported on RUS 7.

Typically, a preliminary forecast is prepared during the first quarter depending on when Owen Electric 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 Owen Electric 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	2,224,298,492	8.3%	2,174,224,766	8.4%	48,987,095	2.2%	418.0	57,478	4,493	12.8	$120,929,457	5.4
2011	2,230,479,730	0.3%	2,167,034,042	-0.3%	62,428,840	2.8%	422.6	57,596	4,509	12.8	$131,922,578	5.9
2012	2,215,189,552	-0.7%	2,145,373,505	-1.0%	68,774,769	3.1%	366.6	57,809	4,514	12.8	$133,358,817	6.0
2013	2,275,532,176	2.7%	2,225,512,514	3.7%	48,817,580	2.1%	410.3	58,095	4,522	12.8	$139,857,103	6.1
2014	2,339,180,734	2.8%	2,263,319,725	1.7%	73,961,813	3.2%	454.3	58,578	4,530	12.9	$146,111,508	6.2
2015	2,134,263,162	-8.8%	2,087,552,188	-7.8%	44,822,453	2.1%	445.3	59,409	4,522	13.1	$124,320,035	5.8
2016	2,252,572,338	5.5%	2,198,467,313	5.3%	52,246,251	2.3%	403.9	60,120	4,562	13.2	$128,491,616	5.7
2017	2,284,294,624	1.4%	2,240,580,652	1.9%	41,669,963	1.8%	401.4	60,886	4,516	13.5	$127,568,419	5.6
2018	2,423,377,414	6.1%	2,381,525,588	6.3%	39,721,263	1.6%	465.2	61,596	4,565	13.5	$136,273,364	5.6
2019	2,409,450,179	-0.6%	2,374,073,792	-0.3%	33,281,435	1.4%	479.6	62,278	4,591	13.6	$133,210,722	5.5
Average						2.3%						

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

Introduction

The preliminary forecast was presented to Owen Electric staff. Changes were made to the forecast as needed based on new information, such as new large loads or subdivisions.

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 Owen Electric'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 Owen Electric'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	54,991	186	0.3	1,179	87	8.0	778,309	60,108	8.4
2011	55,052	61	0.1	1,139	-40	-3.4	752,695	-25,614	-3.3
2012	55,237	185	0.3	1,082	-57	-5.0	717,477	-35,219	-4.7
2013	55,496	259	0.5	1,106	24	2.2	736,495	19,018	2.7
2014	55,937	441	0.8	1,115	9	0.8	748,500	12,005	1.6
2015	56,754	817	1.5	1,096	-19	-1.7	746,252	-2,248	-0.3
2016	57,433	679	1.2	1,099	3	0.3	757,168	10,916	1.5
2017	58,125	692	1.2	1,039	-60	-5.5	724,410	-32,758	-4.3
2018	58,810	685	1.2	1,151	112	10.8	812,290	87,880	12.1
2019	59,460	650	1.1	1,118	-33	-2.9	797,853	-14,437	-1.8
2020	60,241	781	1.3	1,102	-17	-1.5	796,360	-1,493	-0.2
2021	60,970	729	1.2	1,122	20	1.8	820,680	24,320	3.1
2022	61,702	732	1.2	1,117	-4	-0.4	827,344	6,663	0.8
2023	62,430	728	1.2	1,112	-5	-0.5	833,089	5,746	0.7
2024	63,167	737	1.2	1,105	-7	-0.6	837,509	4,420	0.5
2025	63,912	745	1.2	1,099	-5	-0.5	843,233	5,724	0.7
2026	64,641	729	1.1	1,093	-7	-0.6	847,774	4,541	0.5
2027	65,378	737	1.1	1,088	-5	-0.5	853,485	5,711	0.7
2028	66,110	732	1.1	1,088	0	0.0	863,098	9,613	1.1
2029	66,844	734	1.1	1,082	-6	-0.5	868,259	5,161	0.6
2030	67,579	735	1.1	1,077	-5	-0.5	873,350	5,091	0.6
2031	68,322	743	1.1	1,072	-5	-0.4	879,020	5,670	0.6
2032	69,074	752	1.1	1,074	2	0.2	890,103	11,083	1.3
2033	69,834	760	1.1	1,070	-4	-0.4	896,616	6,513	0.7
2034	70,602	768	1.1	1,071	1	0.1	907,335	10,719	1.2
2035	71,308	706	1.0	1,074	3	0.3	919,107	11,772	1.3
2036	72,021	713	1.0	1,081	7	0.7	934,476	15,369	1.7
2037	72,741	720	1.0	1,082	0	0.0	944,173	9,697	1.0
2038	73,469	728	1.0	1,085	4	0.3	956,832	12,658	1.3
2039	74,203	734	1.0	1,089	4	0.4	969,864	13,032	1.4
2040	74,945	742	1.0	1,096	7	0.7	985,990	16,126	1.7

Methodology and Results *(continued)*

Public Building Forecast

Public building sales are projected using two equations, a customer equation and an energy equation. Both are determined through regression analysis and utilize inputs relating to the economy, electric price, and the residential customer forecast. 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 (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	251	1	0.4	8,808	685	8.4	26,529	2,161	8.9
2011	260	9	3.6	8,260	-548	-6.2	25,770	-758	-2.9
2012	260	0	0.0	7,637	-623	-7.5	23,826	-1,944	-7.5
2013	264	4	1.5	7,854	217	2.8	24,880	1,054	4.4
2014	264	0	0.0	8,267	414	5.3	26,190	1,310	5.3
2015	263	-1	-0.4	8,210	-57	-0.7	25,911	-280	-1.1
2016	261	-2	-0.8	7,904	-306	-3.7	24,756	-1,154	-4.5
2017	264	3	1.1	7,702	-202	-2.6	24,401	-355	-1.4
2018	264	0	0.0	8,403	701	9.1	26,622	2,221	9.1
2019	261	-3	-1.1	8,411	8	0.1	26,345	-278	-1.0
2020	260	-1	-0.4	7,709	-702	-8.4	24,052	-2,292	-8.7
2021	261	1	0.4	8,308	599	7.8	26,021	1,969	8.2
2022	261	0	0.0	8,431	123	1.5	26,407	386	1.5
2023	261	0	0.0	8,461	29	0.3	26,499	91	0.3
2024	262	1	0.4	8,424	-36	-0.4	26,486	-13	0.0
2025	262	0	0.0	8,423	-1	0.0	26,482	-4	0.0
2026	262	0	0.0	8,433	10	0.1	26,513	31	0.1
2027	263	1	0.4	8,408	-25	-0.3	26,536	24	0.1
2028	263	0	0.0	8,408	0	0.0	26,536	0	0.0
2029	263	0	0.0	8,406	-2	0.0	26,528	-8	0.0
2030	264	1	0.4	8,375	-31	-0.4	26,532	3	0.0
2031	264	0	0.0	8,374	-1	0.0	26,528	-4	0.0
2032	264	0	0.0	8,372	-2	0.0	26,522	-6	0.0
2033	265	1	0.4	8,340	-32	-0.4	26,521	-1	0.0
2034	265	0	0.0	8,340	0	0.0	26,522	1	0.0
2035	265	0	0.0	8,341	1	0.0	26,524	2	0.0
2036	266	1	0.4	8,309	-32	-0.4	26,521	-3	0.0
2037	266	0	0.0	8,308	-1	0.0	26,518	-3	0.0
2038	266	0	0.0	8,306	-1	0.0	26,514	-4	0.0
2039	267	1	0.4	8,273	-34	-0.4	26,506	-8	0.0
2040	267	0	0.0	8,272	-1	0.0	26,503	-3	0.0

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 1-7.

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	2,199	65	3.0	92	-2	-2.5	201,794	943	0.5
2011	2,244	45	2.0	93	1	1.6	209,209	7,415	3.7
2012	2,275	31	1.4	93	-1	-0.6	210,731	1,522	0.7
2013	2,298	23	1.0	106	13	14.5	243,824	33,093	15.7
2014	2,338	40	1.7	92	-14	-13.5	214,493	-29,331	-12.0
2015	2,361	23	1.0	101	10	10.4	239,044	24,551	11.4
2016	2,390	29	1.2	100	-1	-1.3	238,718	-326	-0.1
2017	2,462	72	3.0	97	-3	-3.1	238,286	-433	-0.2
2018	2,485	23	0.9	99	3	2.8	247,241	8,955	3.8
2019	2,516	31	1.2	97	-2	-2.4	244,223	-3,018	-1.2
2020	2,536	20	0.8	91	-6	-6.5	230,078	-14,145	-5.8
2021	2,567	31	1.2	97	6	6.7	248,379	18,302	8.0
2022	2,595	28	1.1	97	1	0.6	252,471	4,091	1.6
2023	2,623	28	1.1	97	0	-0.2	254,723	2,253	0.9
2024	2,645	22	0.8	97	0	-0.4	255,843	1,120	0.4
2025	2,665	20	0.8	97	0	-0.2	257,274	1,431	0.6
2026	2,692	27	1.0	97	0	0.0	259,850	2,576	1.0
2027	2,716	24	0.9	97	0	0.1	262,553	2,703	1.0
2028	2,737	21	0.8	97	0	0.3	265,414	2,862	1.1
2029	2,759	22	0.8	97	0	-0.3	266,664	1,250	0.5
2030	2,782	23	0.8	96	0	-0.2	268,311	1,646	0.6
2031	2,807	25	0.9	96	0	-0.1	270,318	2,008	0.7
2032	2,833	26	0.9	96	0	0.2	273,256	2,937	1.1
2033	2,861	28	1.0	96	0	-0.3	275,182	1,926	0.7
2034	2,888	27	0.9	96	0	0.0	277,692	2,510	0.9
2035	2,916	28	1.0	96	0	0.1	280,605	2,913	1.0
2036	2,944	28	1.0	96	0	0.3	284,045	3,440	1.2
2037	2,972	28	1.0	96	0	-0.1	286,485	2,440	0.9
2038	3,000	28	0.9	96	0	-0.3	288,410	1,925	0.7
2039	3,027	27	0.9	96	0	0.2	291,450	3,040	1.1
2040	3,056	29	1.0	96	0	0.2	294,893	3,443	1.2

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. Owen Electric currently has 25 customers in this class and is projected to increase to 36 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	20	5	33.3	10,757	-7,087	-39.7	215,136	-52,517	-19.6
2011	23	3	15.0	10,241	-515	-4.8	235,552	20,416	9.5
2012	21	-2	-8.7	11,687	1,446	14.1	245,435	9,883	4.2
2013	21	0	0.0	12,342	655	5.6	259,185	13,750	5.6
2014	23	2	9.5	12,389	46	0.4	284,938	25,753	9.9
2015	15	-8	-34.8	19,563	7,174	57.9	293,438	8,501	3.0
2016	20	5	33.3	14,105	-5,458	-27.9	282,098	-11,341	-3.9
2017	20	0	0.0	14,690	585	4.2	293,806	11,709	4.2
2018	22	2	10.0	13,773	-918	-6.2	302,998	9,191	3.1
2019	25	3	13.6	12,918	-855	-6.2	322,941	19,943	6.6
2020	26	1	2.7	12,675	-243	-1.9	325,318	2,377	0.7
2021	26	0	0.0	12,631	-44	-0.3	324,191	-1,128	-0.3
2022	27	1	3.9	12,898	268	2.1	343,958	19,767	6.1
2023	28	1	3.8	12,729	-169	-1.3	352,174	8,216	2.4
2024	28	0	0.0	12,864	135	1.1	355,905	3,731	1.1
2025	29	1	3.6	12,641	-223	-1.7	362,380	6,475	1.8
2026	29	0	0.0	12,806	165	1.3	367,119	4,738	1.3
2027	29	0	0.0	12,968	162	1.3	371,762	4,644	1.3
2028	30	1	3.5	12,758	-211	-1.6	378,483	6,720	1.8
2029	30	0	0.0	12,897	139	1.1	382,600	4,118	1.1
2030	31	1	3.4	12,702	-195	-1.5	389,520	6,920	1.8
2031	32	1	3.3	12,517	-185	-1.5	396,371	6,851	1.8
2032	32	0	0.0	12,654	137	1.1	400,717	4,346	1.1
2033	33	1	3.2	12,482	-172	-1.4	407,758	7,041	1.8
2034	33	0	0.0	12,624	142	1.1	412,389	4,630	1.1
2035	33	0	0.0	12,769	144	1.1	417,105	4,716	1.1
2036	33	0	0.0	12,911	142	1.1	421,743	4,638	1.1
2037	34	1	3.1	12,742	-169	-1.3	428,969	7,226	1.7
2038	35	1	3.0	12,584	-158	-1.2	436,244	7,275	1.7
2039	35	0	0.0	12,721	137	1.1	440,980	4,736	1.1
2040	36	1	2.9	12,573	-148	-1.2	448,424	7,444	1.7

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

Owen Electric 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	16	-2	-11.1	4,178	1,195	40.1	802	158	24.5
2011	16	0	0.0	4,670	492	11.8	897	94	11.8
2012	15	-1	-6.3	4,821	151	3.2	868	-29	-3.2
2013	15	0	0.0	4,833	12	0.3	870	2	0.3
2014	15	0	0.0	4,340	-493	-10.2	781	-89	-10.2
2015	15	0	0.0	3,835	-504	-11.6	690	-91	-11.6
2016	15	0	0.0	5,851	2,016	52.6	1,053	363	52.6
2017	14	-1	-6.7	5,486	-365	-6.2	922	-131	-12.5
2018	14	0	0.0	5,319	-168	-3.1	894	-28	-3.1
2019	15	1	7.1	4,843	-476	-8.9	872	-22	-2.4
2020	15	0	0.0	4,992	149	3.1	898	27	3.1
2021	15	0	0.0	4,992	0	0.0	898	0	0.0
2022	15	0	0.0	4,992	0	0.0	898	0	0.0
2023	15	0	0.0	4,992	0	0.0	898	0	0.0
2024	15	0	0.0	4,992	0	0.0	898	0	0.0
2025	15	0	0.0	4,992	0	0.0	898	0	0.0
2026	15	0	0.0	4,992	0	0.0	898	0	0.0
2027	15	0	0.0	4,992	0	0.0	898	0	0.0
2028	15	0	0.0	4,992	0	0.0	898	0	0.0
2029	15	0	0.0	4,992	0	0.0	898	0	0.0
2030	15	0	0.0	4,992	0	0.0	898	0	0.0
2031	15	0	0.0	4,992	0	0.0	898	0	0.0
2032	15	0	0.0	4,992	0	0.0	898	0	0.0
2033	15	0	0.0	4,992	0	0.0	898	0	0.0
2034	15	0	0.0	4,992	0	0.0	898	0	0.0
2035	15	0	0.0	4,992	0	0.0	898	0	0.0
2036	15	0	0.0	4,992	0	0.0	898	0	0.0
2037	15	0	0.0	4,992	0	0.0	898	0	0.0
2038	15	0	0.0	4,992	0	0.0	898	0	0.0
2039	15	0	0.0	4,992	0	0.0	898	0	0.0
2040	15	0	0.0	4,992	0	0.0	898	0	0.0

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically impact Owen Electric's peak demands.

Tables 1-10 report the impact of extreme weather on system demands.

Table 1-10: 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	681	689	695	700
2021 - 22	694	702	709	714
2022 - 23	697	705	712	717
2023 - 24	698	706	713	718
2024 - 25	700	708	715	720
2025 - 26	701	710	716	722
2026 - 27	702	711	718	723
2027 - 28	705	714	721	726
2028 - 29	706	715	722	727
2029 - 30	709	717	725	730
2030 - 31	711	720	727	733
2031 - 32	713	722	729	735
2032 - 33	716	725	733	738
2033 - 34	719	728	735	741
2034 - 35	721	730	738	744
2035 - 36	724	734	741	747
2036 - 37	728	738	745	751
2037 - 38	732	742	750	756
2038 - 39	735	745	753	759
2039 - 40	740	750	758	764

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	670	682	687	695
2022	681	694	698	707
2023	684	697	702	711
2024	686	700	704	713
2025	687	700	705	714
2026	688	702	706	715
2027	690	703	708	717
2028	693	707	711	721
2029	693	707	712	721
2030	695	708	713	723
2031	696	710	715	724
2032	698	712	717	727
2033	700	714	719	729
2034	702	716	721	731
2035	704	719	724	734
2036	707	722	727	738
2037	710	725	730	740
2038	714	729	734	744
2039	716	732	737	747
2040	721	736	742	752

EAST KENTUCKY POWER COOPERATIVE
A Touchstone Energy Cooperative