Nolin Rural Electric Cooperative Corporation

2020 Load Forecast

November 2020

Prepared by: EKPC's Load Forecasting Department

NOLIN
A Touchstone Energy® Cooperative

EAST KENTUCKY POWER COOPERATIVE
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Introduction
Executive Summary

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

Nolin 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 Nolin RECC for reasonability. Final projects reflect a rigorous analysis of historical data combined with the experience and judgment of the President/CEO and staff of Nolin 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 Nolin RECC. Cooperation helps to ensure that the forecast meets both parties' needs. Nolin 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 Nolin 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 & Highway Lighting Sales (MWh)	Total Sales (MWh)	Office Use (MWh)	% Loss	Purchased Power (MWh)
2010	509,124	0	110,652	0	149,669	1,628	771,073	1,051	4.3	806,403
2011	473,937	0	108,623	0	154,020	1,675	738,255	967	4.1	770,751
2012	461,023	0	107,827	0	168,695	1,659	739,203	877	3.6	767,821
2013	491,335	0	108,337	0	171,577	1,653	772,903	1,008	3.0	798,149
2014	506,653	0	107,017	0	174,722	1,678	790,070	1,071	3.5	820,106
2015	479,456	0	105,169	0	178,029	1,710	764,364	1,035	3.7	795,034
2016	485,604	0	106,634	0	175,625	1,495	769,359	1,008	3.6	798,911
2017	465,457	0	105,023	0	163,002	1,404	734,887	979	3.2	760,404
2018	511,053	0	110,944	0	161,775	1,366	785,138	1,002	4.0	819,131
2019	493,709	0	110,497	0	149,682	1,356	755,245	992	3.6	784,861
2020	491,557	0	102,759	0	125,747	1,321	721,384	1,003	3.6	749,679
2021	503,025	0	115,733	0	127,811	1,321	747,890	1,003	3.6	777,186
2022	503,691	0	120,324	0	130,346	1,321	755,683	1,003	3.6	785,273
2023	504,499	0	123,357	0	131,989	1,321	761,165	1,003	3.6	790,963
2024	505,091	0	125,413	0	133,089	1,321	764,915	1,003	3.6	794,854
2025	505,862	0	126,488	0	134,230	1,321	767,902	1,003	3.6	797,954
2026	509,527	0	127,646	0	135,458	1,321	773,953	1,003	3.6	804,233
2027	514,070	0	128,726	0	136,605	1,321	780,723	1,003	3.6	811,259
2028	521,311	0	129,665	0	137,601	1,321	789,899	1,003	3.6	820,782
2029	525,432	0	130,618	0	138,613	1,321	795,985	1,003	3.6	827,098
2030	529,277	0	131,756	0	139,821	1,321	802,175	1,003	3.6	833,522
2031	533,666	0	132,683	0	150,002	1,321	817,672	1,003	3.6	849,605
2032	541,835	0	133,775	0	151,237	1,321	828,168	1,003	3.6	860,497
2033	546,270	0	134,872	0	152,476	1,321	834,940	1,003	3.6	867,524
2034	553,053	0	136,002	0	153,755	1,321	844,131	1,003	3.6	877,063
2035	560,288	0	137,116	0	155,014	1,321	853,740	1,003	3.6	887,034
2036	570,406	0	138,206	0	156,246	1,321	866,179	1,003	3.6	899,944
2037	576,418	0	139,271	0	157,450	1,321	874,461	1,003	3.6	908,538
2038	583,959	0	140,321	0	158,637	1,321	884,238	1,003	3.6	918,685
2039	591,522	0	141,379	0	159,833	1,321	894,056	1,003	3.6	928,874
2040	601,081	0	142,603	0	161,217	1,321	906,222	1,003	3.6	941,500

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Table 1-1 *(continued)*

Peaks Summary

Winter		Summer						
Season	Noncoincident Peak Demand (MW)	Year	Noncoincident Peak Demand (MW)	Year	Purchased Power (MWh)	Load Factor (%)	Temperature at time of Winter Peak	Temperature at time of Summer Peak
2009 - 10	192.8	2010	165.9	2010	806,403	47.7%	11° F	102° F
2010 - 11	203.8	2011	165.0	2011	770,751	43.2%	14° F	97° F
2011 - 12	170.4	2012	165.9	2012	767,821	51.3%	17° F	104° F
2012 - 13	180.7	2013	152.7	2013	798,149	50.4%	11° F	94° F
2013 - 14	241.1	2014	151.9	2014	820,106	38.8%	4° F	94° F
2014 - 15	259.5	2015	155.8	2015	795,034	35.0%	-6° F	94° F
2015 - 16	199.1	2016	160.2	2016	798,911	45.7%	7° F	95° F
2016 - 17	203.5	2017	158.1	2017	760,404	42.7%	9° F	97° F
2017 - 18	230.0	2018	159.3	2018	819,131	40.7%	0° F	98° F
2018 - 19	205.4	2019	156.7	2019	784,861	43.6%	3° F	98° F
2019 - 20	174.3	2020	152.6	2020	749,679	49.0%	17° F	95° F
2020 - 21	231.6	2021	161.0	2021	777,186	38.3%		
2021 - 22	232.6	2022	162.0	2022	785,273	38.5%		
2022 - 23	232.9	2023	162.2	2023	790,963	38.8%		
2023 - 24	234.2	2024	162.7	2024	794,854	38.6%		
2024 - 25	234.3	2025	163.1	2025	797,954	38.9%		
2025 - 26	235.4	2026	163.9	2026	804,233	39.0%		
2026 - 27	236.8	2027	165.0	2027	811,259	39.1%		
2027 - 28	239.3	2028	166.5	2028	820,782	39.2%		
2028 - 29	240.3	2029	167.5	2029	827,098	39.3%		
2029 - 30	241.2	2030	168.7	2030	833,522	39.5%		
2030 - 31	243.7	2031	170.8	2031	849,605	39.8%		
2031 - 32	246.3	2032	172.8	2032	860,497	39.9%		
2032 - 33	247.4	2033	174.1	2033	867,524	40.0%		
2033 - 34	249.4	2034	175.8	2034	877,063	40.1%		
2034 - 35	251.6	2035	177.6	2035	887,034	40.2%		
2035 - 36	255.0	2036	180.0	2036	899,944	40.3%		
2036 - 37	256.6	2037	181.8	2037	908,538	40.4%		
2037 - 38	258.9	2038	183.7	2038	918,685	40.5%		
2038 - 39	261.2	2039	185.7	2039	928,874	40.6%		
2039 - 40	264.4	2040	188.0	2040	941,500	40.7%		

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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 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 0.7 percent over the 19 year forecast (2021-2040). Summer peak demands for the same period indicate growth of 0.8 percent.

- Load factor increases from 38.3% to 40.7% through the forecast period.

Executive Summary *(continued)*

Overall Results – Table 1-2

	Time Period	Residential	Small Commercial	Large Commercial	Public Street and Highway Lighting	Total Sales
5-Year	2014-2019	-0.5%	0.6%	-3.0%	-4.2%	-0.9%
	2020-2025	0.6%	4.2%	1.3%	0.0%	1.3%
10-Year	2009-2019	0.7%	0.7%	0.7%	0.7%	0.7%
	2020-2030	0.7%	0.7%	0.7%	0.7%	0.7%
15-Year	2004-2019	1.1%	0.5%	-0.7%	-0.2%	0.6%
	2020-2035	0.9%	1.9%	1.4%	0.0%	1.1%
20-Year	1999-2019	1.6%	0.9%	0.9%	1.1%	1.4%
	2020-2040	1.0%	1.7%	1.3%	0.0%	1.1%

Narrative

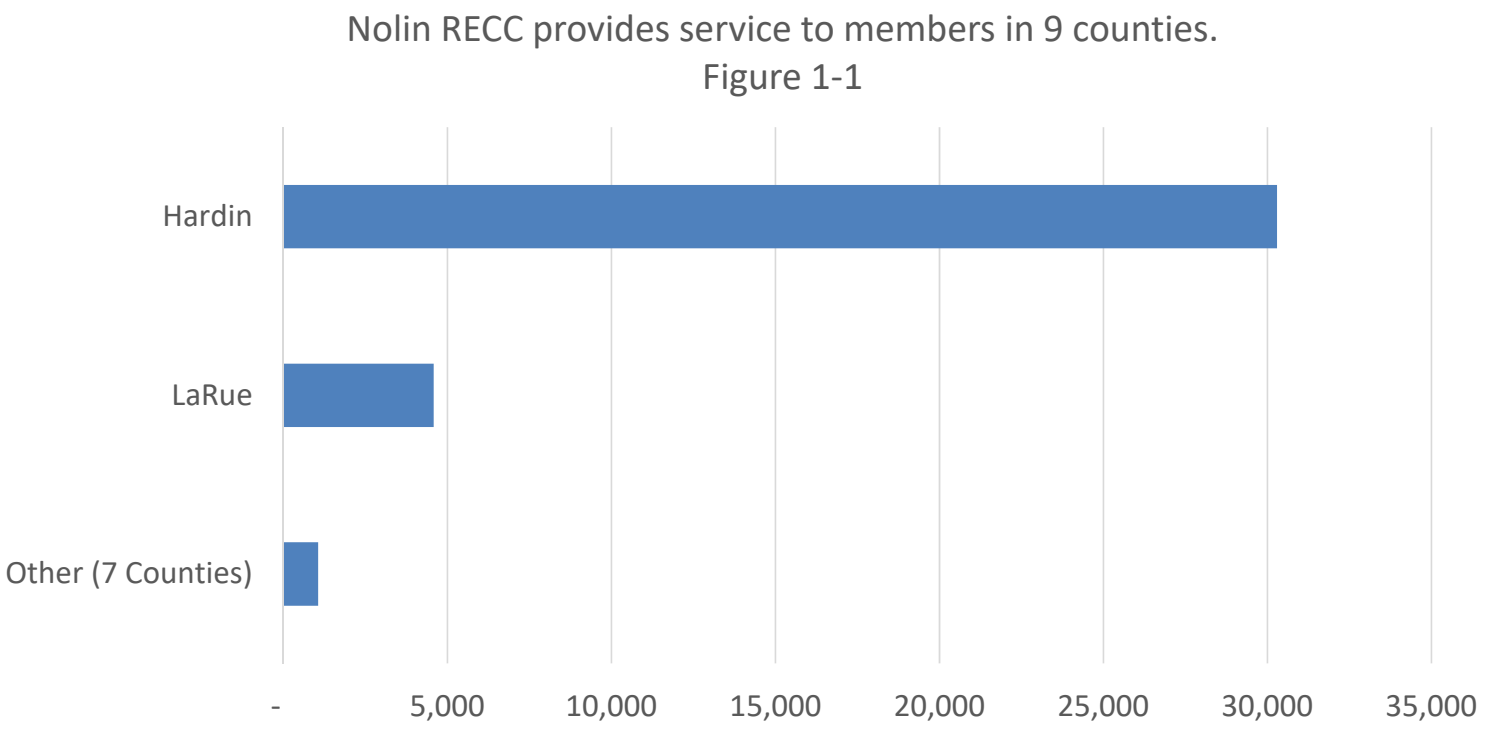
Nolin Rural Electric Cooperative Corporation, Kentucky 51 Hardin, with headquarters in Elizabethtown, Kentucky is located in north central Kentucky. It presently provides service for consumers in nine counties: Breckinridge, Bullitt, Grayson, Green, Hardin, Hart, Larue, Meade, and Taylor (see figure 1-1).

The north and central portion of the service area has experienced a reduced growth rate in the past three-year period. Growth rate should remain slow for the next two or three years, then level off with a moderate increase continuing. Growth is anticipated for residential, small and large commercial businesses. The remainder of the system, the south, west and east regions show slow growth patterns. This slow trend in residential growth in these areas is expected to continue.

The south, west and east regions of the system are historically established agricultural areas and are expected to remain primarily agricultural.

Narrative *(continued)*

Counties Served



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Key Assumptions

Economic History and Forecast
Table 1-3

	Time Period	Population	Households	Total Employment	Total Real Personal Income
5 Year Growth Rates	2014-2019	0.5%	1.2%	1.2%	3.6%
	2020-2025	0.5%	0.8%	2.0%	2.7%
10 Year Growth Rates	2009-2019	0.7%	1.2%	1.5%	3.4%
	2020-2030	0.5%	0.8%	1.3%	3.5%
15 Year Growth Rates	2004-2019	0.9%	1.2%	1.0%	3.7%
	2020-2035	0.5%	0.8%	1.1%	3.8%
20 Year Growth Rates	1999-2019	0.8%	1.2%	1.1%	4.2%
	2020-2040	0.5%	0.9%	1.1%	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.*

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Key Assumptions *(continued)*
Appliance Saturations

- 72% of customers use electric as a primary fuel for heating, while 16% use it as a secondary fuel.
  - 15% use electric furnaces and 65% use electric heat pumps.
- 92% of customers use central air and 9% use electric/window units.
- 85% 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 58%
- 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 Louisville 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 for residential and commercial classifications. Table 1-4 shows historical data for Nolin RECC.

Typically, a preliminary forecast is prepared during the first quarter depending on when Nolin RECC experiences its winter peak. The first step is modeling the regional economy. Households, population density, and real gross county product are among the areas analyzed. The Regional model results are used in combination with the historical billing information, appliance saturation data, appliance efficiency data, and weather data to develop the long range forecast.

Table 1-4 Nolin RECC Comparative Annual Operating Data

Year	kWh Purchased And Generated	Change	kWh Sold	Change	kWh Loss	% Loss	Billing Peak Demand	Average Number Of Consumers	Miles Of Line	Consumers Per Mile	Cost Of Purchased Power	Cents / kWh
2010	806,403,463	11.1%	771,073,491	10.8%	34,278,501	4.3%	186.7	32,638	2,980	11.0	$50,824,374	6.3
2011	770,750,826	-4.4%	738,255,137	-4.3%	31,528,593	4.1%	190.9	32,948	2,991	11.0	$53,165,413	6.9
2012	767,821,147	-0.4%	739,203,463	0.1%	27,740,251	3.6%	163.1	33,534	3,010	11.1	$53,517,604	7.0
2013	798,149,091	3.9%	772,902,572	4.6%	24,238,890	3.0%	179.1	33,958	3,011	11.3	$56,176,766	7.0
2014	820,106,323	2.8%	790,069,654	2.2%	28,965,248	3.5%	223.3	34,314	3,017	11.4	$58,435,007	7.1
2015	795,034,070	-3.1%	764,364,464	-3.3%	29,634,588	3.7%	222.5	34,620	3,022	11.5	$53,516,376	6.7
2016	798,910,822	0.5%	769,358,870	0.7%	28,544,298	3.6%	190.9	34,892	3,025	11.5	$52,919,789	6.6
2017	760,403,789	-4.8%	734,886,550	-4.5%	24,538,422	3.2%	202.4	35,161	3,058	11.5	$50,513,897	6.6
2018	819,131,411	7.7%	785,137,881	6.8%	32,991,343	4.0%	226.1	35,440	3,036	11.7	$53,818,893	6.6
2019	784,861,333	-4.2%	755,244,506	-3.8%	28,624,940	3.6%	194.9	35,614	2,910	12.2	$51,398,427	6.5
Average						3.7%						

Methodology and Results *(continued)*

Introduction

The preliminary forecast was presented to Nolin 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 Nolin 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 Nolin 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 Nolin 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	30,670	520	1.7	1,383	112	8.8	509,124	49,291	10.7
2011	30,926	256	0.8	1,277	-106	-7.7	473,937	-35,188	-6.9
2012	31,541	615	2.0	1,218	-59	-4.6	461,023	-12,914	-2.7
2013	32,067	526	1.7	1,277	59	4.8	491,335	30,312	6.6
2014	32,401	334	1.0	1,303	26	2.1	506,653	15,318	3.1
2015	32,678	277	0.9	1,223	-80	-6.2	479,456	-27,197	-5.4
2016	32,940	262	0.8	1,229	6	0.5	485,604	6,148	1.3
2017	33,167	227	0.7	1,169	-59	-4.8	465,457	-20,148	-4.1
2018	33,471	304	0.9	1,272	103	8.8	511,053	45,596	9.8
2019	33,660	189	0.6	1,222	-50	-3.9	493,709	-17,344	-3.4
2020	33,985	325	1.0	1,205	-17	-1.4	491,557	-2,152	-0.4
2021	34,279	294	0.9	1,223	18	1.5	503,025	11,468	2.3
2022	34,589	310	0.9	1,214	-9	-0.8	503,691	666	0.1
2023	34,881	292	0.8	1,205	-8	-0.7	504,499	808	0.2
2024	35,140	259	0.7	1,198	-7	-0.6	505,091	593	0.1
2025	35,394	254	0.7	1,191	-7	-0.6	505,862	771	0.2
2026	35,686	292	0.8	1,190	-1	-0.1	509,527	3,665	0.7
2027	35,985	299	0.8	1,190	1	0.1	514,070	4,543	0.9
2028	36,282	297	0.8	1,197	7	0.6	521,311	7,241	1.4
2029	36,583	301	0.8	1,197	0	0.0	525,432	4,121	0.8
2030	36,905	322	0.9	1,195	-2	-0.1	529,277	3,844	0.7
2031	37,274	369	1.0	1,193	-2	-0.2	533,666	4,390	0.8
2032	37,688	414	1.1	1,198	5	0.4	541,835	8,169	1.5
2033	38,028	340	0.9	1,197	-1	-0.1	546,270	4,435	0.8
2034	38,342	314	0.8	1,202	5	0.4	553,053	6,783	1.2
2035	38,653	311	0.8	1,208	6	0.5	560,288	7,236	1.3
2036	39,048	395	1.0	1,217	9	0.8	570,406	10,118	1.8
2037	39,392	344	0.9	1,219	2	0.2	576,418	6,011	1.1
2038	39,731	339	0.9	1,225	5	0.4	583,959	7,541	1.3
2039	40,067	336	0.8	1,230	5	0.4	591,522	7,564	1.3
2040	40,405	338	0.8	1,240	9	0.8	601,081	9,558	1.6

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	1,933	-41	-2.1	57	4	7.8	110,652	5,838	5.6
2011	1,987	54	2.8	55	-3	-4.5	108,623	-2,029	-1.8
2012	2,004	17	0.9	54	-1	-1.6	107,827	-797	-0.7
2013	1,958	-46	-2.3	55	2	2.8	108,337	510	0.5
2014	1,927	-31	-1.6	56	0	0.4	107,017	-1,320	-1.2
2015	1,943	16	0.8	54	-1	-2.5	105,169	-1,847	-1.7
2016	1,932	-11	-0.6	55	1	2.0	106,634	1,465	1.4
2017	2,000	68	3.5	53	-3	-4.9	105,023	-1,611	-1.5
2018	1,983	-17	-0.8	56	3	6.5	110,944	5,921	5.6
2019	1,989	6	0.3	56	0	-0.7	110,497	-447	-0.4
2020	1,989	0	0.0	52	-4	-7.0	102,759	-7,738	-7.0
2021	2,014	25	1.3	57	6	11.2	115,733	12,974	12.6
2022	2,038	24	1.2	59	2	2.7	120,324	4,591	4.0
2023	2,062	24	1.2	60	1	1.3	123,357	3,032	2.5
2024	2,081	19	0.9	60	0	0.7	125,413	2,056	1.7
2025	2,097	16	0.8	60	0	0.1	126,488	1,075	0.9
2026	2,115	18	0.9	60	0	0.1	127,646	1,157	0.9
2027	2,133	18	0.9	60	0	0.0	128,726	1,081	0.8
2028	2,151	18	0.8	60	0	-0.1	129,665	938	0.7
2029	2,169	18	0.8	60	0	-0.1	130,618	953	0.7
2030	2,188	19	0.9	60	0	0.0	131,756	1,138	0.9
2031	2,210	22	1.0	60	0	-0.3	132,683	926	0.7
2032	2,235	25	1.1	60	0	-0.3	133,775	1,092	0.8
2033	2,255	20	0.9	60	0	-0.1	134,872	1,097	0.8
2034	2,274	19	0.8	60	0	0.0	136,002	1,131	0.8
2035	2,293	19	0.8	60	0	0.0	137,116	1,114	0.8
2036	2,317	24	1.0	60	0	-0.2	138,206	1,090	0.8
2037	2,337	20	0.9	60	0	-0.1	139,271	1,065	0.8
2038	2,358	21	0.9	60	0	-0.1	140,321	1,049	0.8
2039	2,378	20	0.8	59	0	-0.1	141,379	1,058	0.8
2040	2,398	20	0.8	59	0	0.0	142,603	1,224	0.9

Methodology and Results *(continued)*

Large Commercial Forecast

Large commercial customers are those with loads 1 MW or greater. Nolin RECC currently has 2 customers in this class and is projected to increase to 3 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	2	0	0.0	74,835	9,942	15.3	149,669	19,885	15.3
2011	2	0	0.0	77,010	2,175	2.9	154,020	4,351	2.9
2012	2	0	0.0	84,347	7,337	9.5	168,695	14,675	9.5
2013	2	0	0.0	85,789	1,441	1.7	171,577	2,882	1.7
2014	2	0	0.0	87,361	1,572	1.8	174,722	3,145	1.8
2015	2	0	0.0	89,014	1,653	1.9	178,029	3,307	1.9
2016	2	0	0.0	87,813	-1,202	-1.4	175,625	-2,404	-1.4
2017	2	0	0.0	81,501	-6,311	-7.2	163,002	-12,623	-7.2
2018	2	0	0.0	80,887	-614	-0.8	161,775	-1,228	-0.8
2019	2	0	0.0	74,841	-6,046	-7.5	149,682	-12,092	-7.5
2020	2	0	0.0	62,873	-11,968	-16.0	125,747	-23,936	-16.0
2021	2	0	0.0	63,906	1,032	1.6	127,811	2,065	1.6
2022	2	0	0.0	65,173	1,268	2.0	130,346	2,535	2.0
2023	2	0	0.0	65,994	821	1.3	131,989	1,642	1.3
2024	2	0	0.0	66,544	550	0.8	133,089	1,100	0.8
2025	2	0	0.0	67,115	571	0.9	134,230	1,141	0.9
2026	2	0	0.0	67,729	614	0.9	135,458	1,228	0.9
2027	2	0	0.0	68,303	573	0.8	136,605	1,147	0.8
2028	2	0	0.0	68,800	498	0.7	137,601	996	0.7
2029	2	0	0.0	69,306	506	0.7	138,613	1,012	0.7
2030	2	0	0.0	69,910	604	0.9	139,821	1,208	0.9
2031	3	1	50.0	50,001	-19,910	-28.5	150,002	10,181	7.3
2032	3	0	0.0	50,412	412	0.8	151,237	1,235	0.8
2033	3	0	0.0	50,825	413	0.8	152,476	1,240	0.8
2034	3	0	0.0	51,252	426	0.8	153,755	1,278	0.8
2035	3	0	0.0	51,671	420	0.8	155,014	1,259	0.8
2036	3	0	0.0	52,082	411	0.8	156,246	1,232	0.8
2037	3	0	0.0	52,483	402	0.8	157,450	1,205	0.8
2038	3	0	0.0	52,879	395	0.8	158,637	1,186	0.8
2039	3	0	0.0	53,278	399	0.8	159,833	1,196	0.8
2040	3	0	0.0	53,739	461	0.9	161,217	1,384	0.9

Methodology and Results *(continued)*

Public Street & Highway Lighting Forecast

Nolin 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 (kWh)	% Change	Total (MWh)	Annual Change (MWh)	% Change
2010	33	1	3.1	4,110	-30	-0.7	1,628	38	2.4
2011	33	0	0.0	4,230	120	2.9	1,675	47	2.9
2012	33	0	0.0	4,189	-41	-1.0	1,659	-16	-1.0
2013	34	1	3.0	4,052	-136	-3.3	1,653	-5	-0.3
2014	35	1	2.9	3,996	-57	-1.4	1,678	25	1.5
2015	36	1	2.9	3,959	-37	-0.9	1,710	32	1.9
2016	32	-4	-11.1	3,894	-65	-1.6	1,495	-215	-12.6
2017	32	0	0.0	3,657	-237	-6.1	1,404	-91	-6.1
2018	32	0	0.0	3,556	-101	-2.8	1,366	-39	-2.8
2019	33	1	3.1	3,425	-131	-3.7	1,356	-9	-0.7
2020	32	-1	-3.0	3,441	16	0.5	1,321	-35	-2.6
2021	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2022	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2023	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2024	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2025	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2026	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2027	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2028	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2029	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2030	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2031	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2032	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2033	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2034	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2035	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2036	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2037	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2038	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2039	32	0	0.0	3,441	0	0.0	1,321	0	0.0
2040	32	0	0.0	3,441	0	0.0	1,321	0	0.0

Methodology and Results *(continued)*

Peak Day Weather Scenarios

Extreme temperatures can dramatically influence Nolin 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					
	Mild	Normal		**Extreme**	
Degrees	10	0	-8	-14	-23
Probability	*99%*	*50%*	*20%*	*10%*	*3%*
Occurs Once Every		**2 Years**	**5 Years**	**10 Years**	**30 Years**
Non-Coincident Winter Peak Demand - MW					
Season	Mild	Normal		Extreme	
2020 - 21	219	232	241	249	260
2021 - 22	220	233	243	250	261
2022 - 23	220	233	243	250	262
2023 - 24	222	234	244	252	263
2024 - 25	222	234	244	252	264
2025 - 26	223	235	246	253	265
2026 - 27	224	237	247	255	267
2027 - 28	226	239	250	258	269
2028 - 29	227	240	251	259	271
2029 - 30	228	241	252	260	272
2030 - 31	230	244	254	262	275
2031 - 32	233	246	257	265	278
2032 - 33	234	247	258	267	279
2033 - 34	236	249	260	269	281
2034 - 35	238	252	263	271	284
2035 - 36	241	255	266	275	287
2036 - 37	242	257	268	276	289
2037 - 38	245	259	270	279	292
2038 - 39	247	261	273	281	294
2039 - 40	250	264	276	285	298

Summer Peak Day Maximum Temperatures				
	Normal		**Extreme**	
Degrees	98	100	102	104
Probability	*50%*	*20%*	*10%*	*3%*
	2 Years	**5 Years**	**10 Years**	**30 Years**
Non-Coincident Summer Peak Demand - MW				
Year	Normal		Extreme	
2021	161	166	171	176
2022	162	167	172	177
2023	162	167	173	178
2024	163	168	173	178
2025	163	168	174	179
2026	164	169	175	180
2027	165	170	176	181
2028	166	172	177	183
2029	168	173	178	184
2030	169	174	180	185
2031	171	176	182	187
2032	173	178	184	190
2033	174	180	185	191
2034	176	181	187	193
2035	178	183	189	195
2036	180	186	192	197
2037	182	188	193	199
2038	184	190	196	201
2039	186	192	198	204
2040	188	194	200	206

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