

Indiana Electricity Projections: The 2018 Forecast Update

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Summary

This report represents an update to the *2017 Forecast: Indiana Electricity Projections* that was released by the State Utility Forecasting Group (SUGF) in December 2017. To produce this update, SUGF incorporated more recent projections of future economic activities, population, and fossil fuel prices. The corporate tax rate was also updated to reflect changes that went into effect in January 2018. Due to time restrictions and data availability, SUGF's forecasting models were not re-calibrated from the 2017 report. Also, assumptions for utility energy efficiency programs, retirements of existing generators, and purchase power/sales agreements were not changed.

The key results of the update are:

- As compared to the previous forecast, long-term growth in electricity sales is expected to be lower, with the percentage average compound growth rate at 0.88 vs. 1.12 in the 2017 forecast.
- While sales growth in the residential and commercial sectors are slightly higher in this update, growth in the industrial sector is significantly lower (1.45 vs. 2.04).
- Peak demand growth is also lower (0.83 vs. 1.01).
- With the slower growth in peak demand, future resource needs are delayed and reduced. The first year in which additional resource needs are identified is pushed back from 2021 to 2023. Long-term resource needs are reduced (about 5,700 MW in 2030 vs. 6,300 MW in the 2017 forecast), with the reduced needs coming from future baseload resources.
- While real (inflation-adjusted) prices are still projected to increase in the next few years, they peak earlier (2021 vs. 2023) and are about 0.7 cents per kilowatt-hour lower in the long-term than previously projected.

This report focuses on a comparison of the 2017 forecast to this update. For information on the SUGF models and assumptions, please refer to the 2017 forecast report.

Updated Inputs

Economic

For this forecast, an update to SUGF's 2017 Forecast, SUGF adopted the February 2018 economic projections from the Center for Econometric Model Research (CEMR) at Indiana University as its base scenario. CEMR also produced high and low growth alternatives to the base projection for SUGF's use in the high and low scenarios.

The key Indiana economic projections are:

- Real personal income (a residential sector model driver) is expected to grow at a 1.68 percent annual rate, slightly lower than the 1.86 annual rate in the previous forecast.
- Non-manufacturing employment (the commercial sector model driver) is expected to grow at a 0.91 percent annual rate over the forecast horizon, which is a little higher than the 0.87 annual rate from the previous forecast.

- Despite a small decline in manufacturing employment (at an average annual rate of -0.25%), manufacturing Gross State Product (GSP) (the industrial sector model driver) is expected to rise at a 2.37 percent annual rate as gains in productivity far outpace the drop in employment. This growth rate is slightly lower than the 2.47 percent annual rate seen in the previous forecast.

A summary comparison of CEMR’s projections used in SUFG’s previous and current electricity projections is provided in Table 1.

Demographic

The population projections utilized in SUFG’s electricity forecasts were also updated and were obtained from the Indiana Business Research Center at Indiana University (IBRC). The IBRC population growth forecast for Indiana is 0.36 percent per year, for the period 2015-2035, slightly less than the 0.41 percent used in the previous forecast.

Table 1. Growth Rates for CEMR Projections of Selected Economic Activity Measures (Percent)

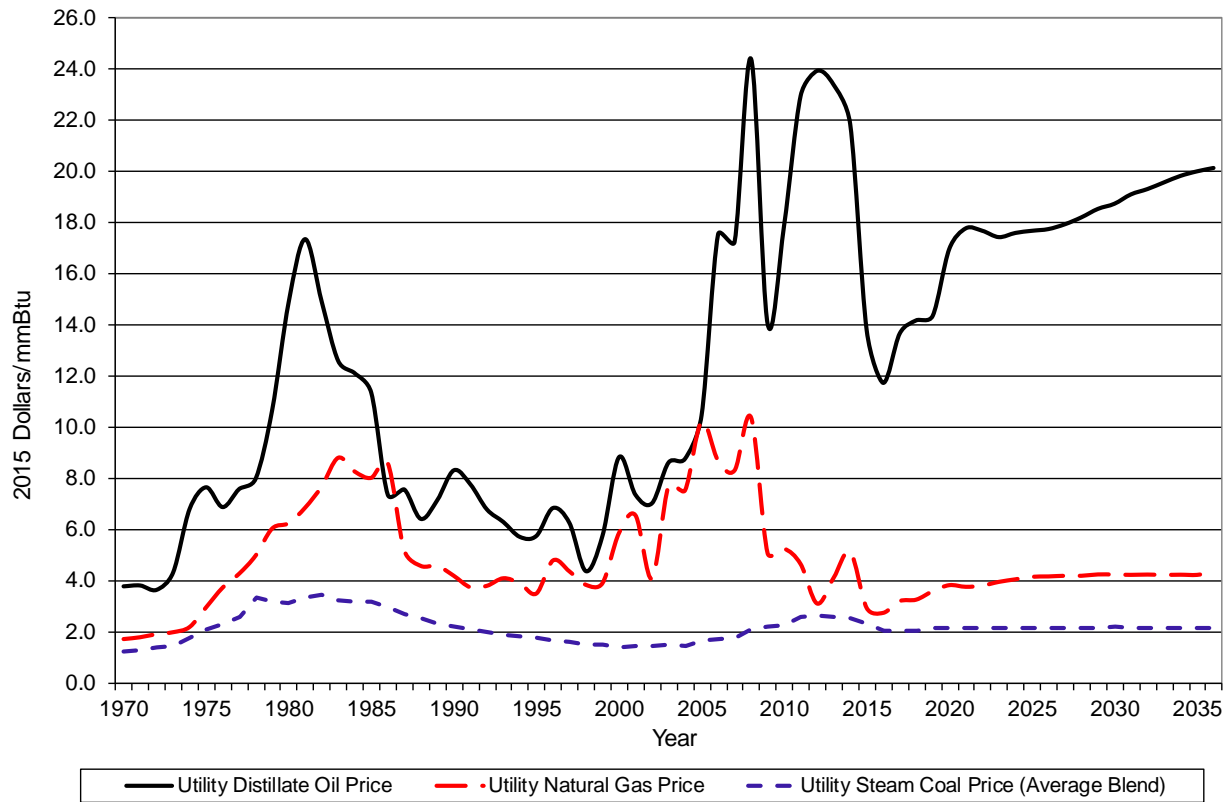
	Long-Run Forecast	
	Feb 2018	Feb 2017
	2016-2035	2016-2035
<i>United States</i>		
Real Personal Income	2.20	2.35
Total Employment	0.84	0.77
Real Gross Domestic Product	2.42	2.53
Personal Consumer Expenditure Deflator	1.94	1.92
<i>Indiana</i>		
Real Personal Income	1.68	1.86
Employment		
Total Establishment	0.74	0.66
Manufacturing	-0.25	-0.55
Non-Manufacturing	0.91	0.87
Real Gross State Product		
Total	2.37	2.47
Manufacturing	2.83	2.98
Non-Manufacturing	2.17	2.25

Fossil Fuel Price Projections

In this forecast, SUFG has used February 2018 fossil fuel price projections from EIA for the East North Central Region of the U.S. [EIA]. All projections are in terms of real prices (2015 dollars), i.e., projections with the effects of inflation removed. The general trajectories of these projections are very similar to those used in the previous forecast, but in the case of natural gas prices and oil prices the levels are significantly lower than previously.

The fossil fuel price projections for the utility sector are presented in Figure 1.

Figure 1. Utility Real Fossil Fuel Prices



Projections

Energy and peak demand

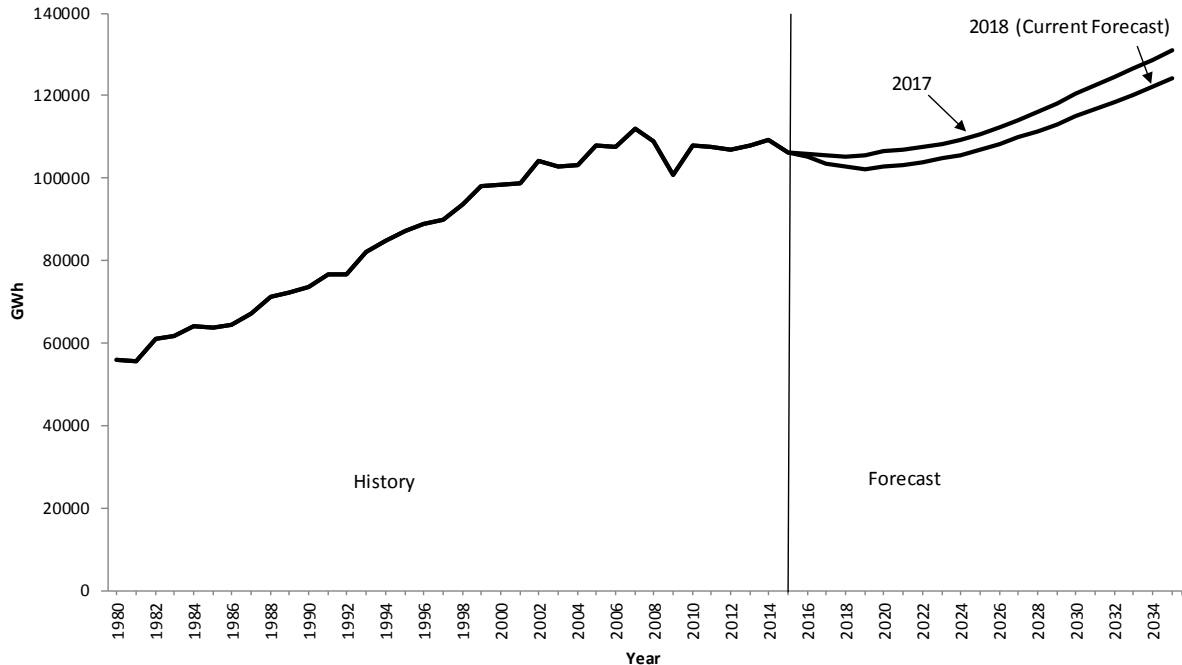
As shown in Table 2 and Figure 2, SUFG’s 2018 base scenario projection indicates annual growth of 0.88 percent for electricity requirements and 0.83 percent for peak demand. Table 2 also shows that the overall growth rate for electricity sales in this forecast is about 0.24 percent lower than the 2017 forecast. This is primarily due to the significantly lower growth in the industrial sector offsetting minimally higher growth in the residential and commercial sectors.

The trajectory of electricity requirements lies below the previous projection. A comparison of both projection trajectories shows that the 2018 forecast starts out lower in 2017, with the difference slightly widening over the next two years of the forecast period. Then, after 2019, the gap between the projections is roughly constant over the rest of the forecast horizon. The faster growth in the later forecast years that was observed in the 2017 forecast is also visible in the current projection.

Table 2. Average Compound Growth Rates (Percent) for Indiana Peak Demand and Annual Electricity Sales by Sector (2018 Update vs. 2017 Projections)

	2018 (2016-2035)	2017 (2016-2035)
Peak Demand		
	0.83	1.01
Annual Electricity Sales		
Sector		
Residential	0.54	0.48
Commercial	0.38	0.36
Industrial	1.45	2.04
Total	0.88	1.12

Figure 2. Indiana Electricity Requirements in GWh (Historical, Current, and Previous Forecasts)



Forecast peak demand growth is lower than that of electricity requirements (0.83 versus 0.88 percent) and follows a similar pattern in relation to the 2017 projection but with a more pronounced drop in the beginning of the forecast. Another measure of peak demand growth can be obtained by considering the

average year to year peak MW load change. In Figure 3, the annual increase is about 190 MW compared to about 230 MW per year in the previous forecast.

Figure 3. Indiana Peak Demand Requirements in MW (Historical, Current, and Previous Forecasts)



Resource Requirements

Table 3 and Figure 4 show the future statewide resource requirements for the 2018 SUFG base scenario. This forecast indicates that the state does not need additional resources until 2023, which is two years later than the year identified in the 2017 projections. This forecast indicates a need for about 3,100 MW of additional resources by 2025, 5,700 MW by 2030 and 8,200 MW at the end of the forecast period in 2035. In the long term, the projected additional resource requirements are lower than in the 2017 forecast. This is due to the lower peak demand and electricity requirements projected in this forecast compared to the 2017 forecast report. Table 4 shows a comparison of total resource additions for the 2018 and 2017 projections.

While SUFG identifies resource needs in its forecasts and reports those needs according to generating unit types, it does not advocate any specific means of meeting them. Required resources could be met through conservation measures, purchases from merchant generators or other utilities, construction of new facilities or some combination thereof. The best method for meeting resource requirements may vary from one utility to another.

Figure 4. Indiana Total Demand and Supply in MW (SUG Base)

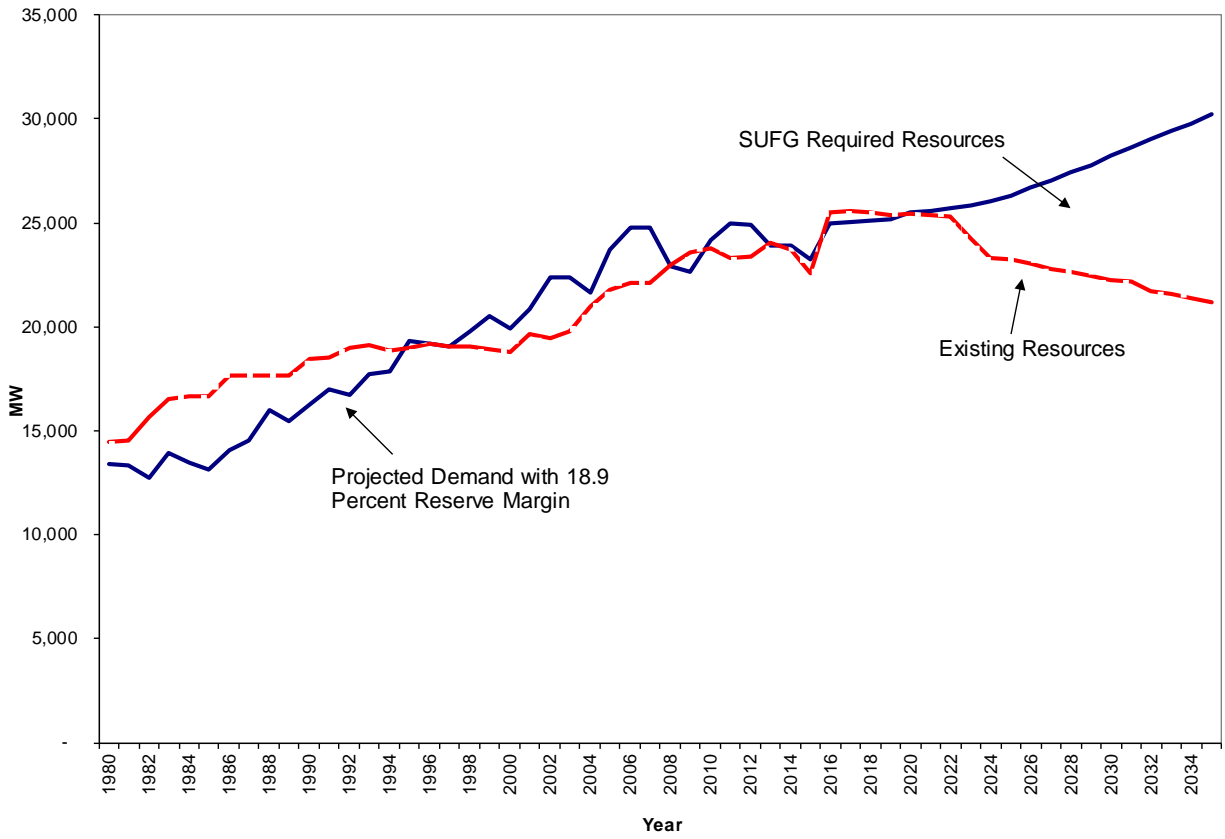


Table 3. Indiana Resource Plan in MW (SUG Base)

Year	Net Peak Demand	Existing/ Approved Capacity	Incremental Change in Capacity	Projected Additional Resource Requirements			Total Resources	Reserve Margin (percent)
				Peaking	Baseload	Total		
2016	21,009	25,494		0	0	0	25,494	21
2017	20,831	25,594	100	0	0	0	25,594	23
2018	20,717	25,488	-106	0	0	0	25,488	23
2019	20,640	25,354	-133	0	0	0	25,354	23
2020	20,849	25,440	85	0	0	0	25,440	22
2021	20,915	25,384	-56	0	0	0	25,384	21
2022	21,078	25,334	-50	0	0	0	25,334	20
2023	21,257	24,256	-1078	948	644	1,592	25,847	22
2024	21,410	23,299	-956	1,422	1,502	2,924	26,223	22
2025	21,645	23,235	-64	1,422	1,716	3,138	26,373	22
2026	21,916	23,036	-199	1,659	2,145	3,804	26,840	22
2027	22,226	22,797	-239	2,133	2,145	4,278	27,075	22
2028	22,481	22,660	-137	2,133	2,360	4,493	27,152	21
2029	22,761	22,456	-204	2,844	2,360	5,204	27,659	22
2030	23,090	22,254	-201	3,318	2,360	5,678	27,932	21
2031	23,353	22,145	-109	3,318	2,574	5,892	28,037	20
2032	23,626	21,734	-411	4,029	2,574	6,603	28,337	20
2033	23,945	21,565	-169	4,266	2,789	7,055	28,620	20
2034	24,233	21,376	-189	4,266	3,218	7,484	28,860	19
2035	24,591	21,166	-210	4,503	3,647	8,150	29,316	19

Table 4. Indiana Total Resource Additions in MW (2018 Base vs. 2017 Base)

Forecast	2020	2021	2022	2023	2024	2025	2026	2027
2018	0	0	0	1,592	2,924	3,138	3,804	4,278
2017	0	452	689	1,637	3,183	3,635	4,086	4,775

	2028	2029	2030	2031	2032	2033	2034	2035
2018	4,493	5,204	5,678	5,892	6,603	7,055	7,484	8,150
2017	4,989	5,633	6,321	6,795	7,461	8,364	8,816	9,267

Prices

SUG's base scenario equilibrium real electricity price trajectory for the current and previous forecasts are shown in Table 5 and Figure 5. Real prices in the latest forecast are projected to increase by 14 percent from 2017 to 2021 and then slowly decrease afterwards. The change in prices early in the forecast horizon is significant, thus the electricity requirements projection for this portion of the forecast period is affected. The current price forecast is lower than the previous one and begins

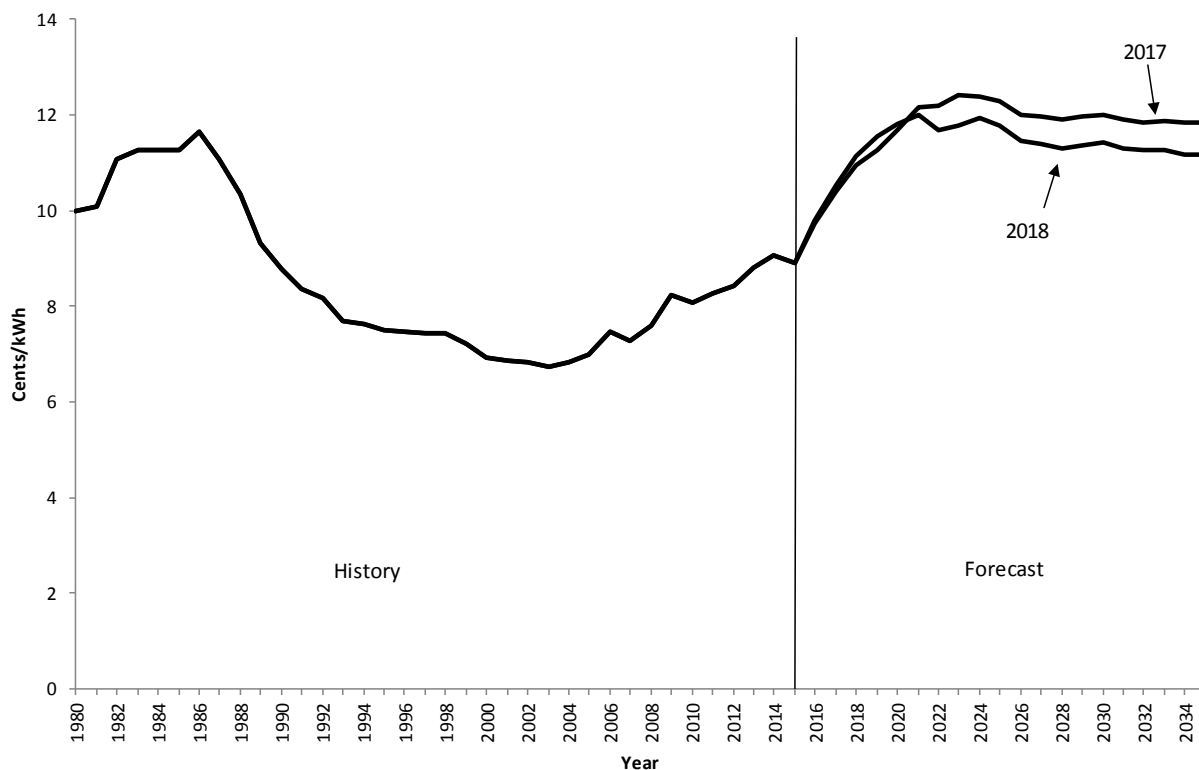
declining earlier due to a decrease in new resource additions, lower projected natural gas prices, and lower tax rates.

As in previous forecasts, SUFG’s price projections reflect costs associated with existing environmental regulations but do not include proposed or future rules. Expected costs associated with updating the transmission and distribution networks are also included. Significant deviations from those projected costs would impact future electricity prices.

Table 5. Indiana Real Price Average Compound Growth Rates (Percent)

Average Compound Growth Rates (ACGR)		
Forecast	ACGR	Time Period
2018	0.69	2016-2035
2017	1.03	2016-2035

Figure 5. Indiana Real Price Projections in cents/kWh (2015 Dollars) (Historical, Current, and Previous Forecasts)



Scenarios

SUFG has used alternative macroeconomic scenarios, reflecting low and high growth in real personal income, non-manufacturing employment and gross state product. These low probability scenarios are used to indicate the forecast range, or dispersion of possible future trajectories.

Tables 6 and Figure 6 provide the statewide electricity requirements for the base, low and high scenarios. As shown in those figures, the annual growth rates for energy requirements for the low and high scenarios are 0.40 percent lower and 0.38 percent higher, respectively, than the base scenario. These differences are due to economic growth assumptions in the scenario-based projections.

Resource plans are developed for the low and high scenarios using the same methodology as the base plan. Demand-side resources, including energy efficiency and demand response loads, are the same in all three scenarios, as are retirements of generating units. Table 7 shows the statewide resource requirements for each scenario. Approximately 9,900 MW over the horizon are required in the high scenario compared to approximately 7,100 MW in the low scenario.

Table 6. Indiana Electricity Requirements Average Compound Growth Rates by Scenario (Percent)

Average Compound Growth Rates			
Forecast Period	Base	Low	High
2016-2035	0.88	0.48	1.26

Figure 6. Indiana Electricity Requirements by Scenario in GWh



Table 7. Indiana Additional Resource Requirements in MW (SUGF Scenarios)

Year	Base			Low			High		
	Peaking	Baseload	Total	Peaking	Baseload	Total	Peaking	Baseload	Total
2016	0	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0
2018	0	0	0	0	0	0	0	0	0
2019	0	0	0	0	0	0	0	0	0
2020	0	0	0	0	0	0	0	0	0
2021	0	0	0	0	0	0	0	215	215
2022	0	0	0	0	0	0	237	215	452
2023	948	644	1,592	711	644	1,355	474	1,073	1,547
2024	1,422	1,502	2,924	1,185	1,287	2,472	948	1,931	2,879
2025	1,422	1,716	3,138	1,185	1,287	2,472	1,185	2,145	3,330
2026	1,659	2,145	3,804	1,422	1,287	2,709	1,659	2,574	4,233
2027	2,133	2,145	4,278	1,422	1,931	3,353	1,659	2,789	4,448
2028	2,133	2,360	4,493	1,659	2,145	3,804	1,896	3,003	4,899
2029	2,844	2,360	5,204	1,659	2,574	4,233	2,370	3,432	5,802
2030	3,318	2,360	5,678	1,896	2,789	4,685	2,370	3,861	6,231
2031	3,318	2,574	5,892	1,896	3,218	5,114	2,607	4,076	6,683
2032	4,029	2,574	6,603	2,133	3,647	5,780	3,081	4,505	7,586
2033	4,266	2,789	7,055	2,133	3,861	5,994	3,318	4,934	8,252
2034	4,266	3,218	7,484	2,370	4,076	6,446	3,792	5,363	9,155
2035	4,503	3,647	8,150	2,844	4,290	7,134	4,503	5,363	9,866

Appendix

SUFG 2018 Base Energy Requirements (GWh) and Summer Peak Demand (MW) for Indiana

Year	Retail Sales					Losses	Energy Required	Summer Demand
	Res	Com	Ind	Other	Total			
Hist 1988	22,444	16,808	26,546	633	66,431	4,650	71,081	13,447
Hist 1989	22,251	17,205	27,394	661	67,511	4,726	72,237	12,979
Hist 1990	22,037	17,659	28,311	650	68,657	4,806	73,463	13,659
Hist 1991	24,215	18,580	28,141	629	71,564	5,009	76,573	14,278
Hist 1992	22,916	18,556	29,540	619	71,632	5,014	76,646	14,055
Hist 1993	25,060	19,627	31,562	511	76,760	5,373	82,133	14,916
Hist 1994	25,176	20,116	33,395	507	79,193	5,544	84,737	15,010
Hist 1995	26,510	20,646	33,659	510	81,326	5,693	87,019	16,251
Hist 1996	26,833	20,909	34,920	536	83,197	5,824	89,021	16,162
Hist 1997	26,792	21,295	35,499	530	84,116	5,888	90,004	16,021
Hist 1998	27,663	22,166	37,012	520	87,360	6,115	93,476	16,638
Hist 1999	29,180	23,078	38,916	543	91,717	6,420	98,137	17,246
Hist 2000	28,684	23,721	38,957	529	91,890	6,432	98,322	16,738
Hist 2001	29,437	23,953	38,293	526	92,208	6,455	98,663	17,511
Hist 2002	32,363	24,980	39,594	540	97,476	6,823	104,300	18,831
Hist 2003	31,177	24,940	39,285	589	95,992	6,719	102,711	18,794
Hist 2004	31,042	25,351	39,380	644	96,417	6,749	103,166	18,193
Hist 2005	33,691	26,857	39,702	619	100,869	7,061	107,930	19,944
Hist 2006	32,527	26,836	40,683	604	100,649	7,045	107,695	20,855
Hist 2007	35,019	27,782	41,112	646	104,558	7,319	111,877	20,858
Hist 2008	34,158	27,536	39,389	653	101,736	7,121	108,857	19,275
Hist 2009	32,689	26,223	34,631	661	94,204	6,594	100,798	19,054
Hist 2010	35,217	26,989	37,934	694	100,834	7,058	107,892	20,315
Hist 2011	34,117	26,714	39,129	646	100,607	7,042	107,649	21,002
Hist 2012	33,217	26,704	39,448	603	99,972	6,998	106,970	20,972
Hist 2013	33,753	26,807	39,506	607	100,673	7,047	107,720	20,122
Hist 2014	34,010	26,752	40,830	619	102,211	7,155	109,366	20,111
Hist 2015	32,538	26,609	39,484	597	99,228	6,946	106,173	19,532
Frcst 2016	32,307	26,637	38,404	597	97,945	7,175	105,120	21,009
Frcst 2017	32,107	26,486	37,312	597	96,501	7,066	103,567	20,831
Frcst 2018	31,982	26,358	36,752	597	95,689	7,013	102,702	20,717
Frcst 2019	31,950	26,235	36,477	597	95,258	6,985	102,243	20,640
Frcst 2020	32,451	26,216	36,558	597	95,822	7,028	102,850	20,849
Frcst 2021	32,345	26,124	36,926	597	95,991	7,052	103,043	20,915
Frcst 2022	32,356	26,055	37,816	597	96,823	7,118	103,941	21,078
Frcst 2023	32,349	26,033	38,622	597	97,601	7,185	104,786	21,257
Frcst 2024	32,252	26,035	39,371	597	98,255	7,244	105,500	21,410
Frcst 2025	32,505	26,045	40,223	597	99,369	7,339	106,708	21,645
Frcst 2026	32,786	26,165	41,287	597	100,834	7,459	108,293	21,916
Frcst 2027	33,005	26,307	42,335	597	102,243	7,573	109,817	22,226
Frcst 2028	33,236	26,481	43,402	597	103,716	7,691	111,407	22,481
Frcst 2029	33,524	26,713	44,444	597	105,277	7,816	113,093	22,761
Frcst 2030	34,005	26,970	45,430	597	107,003	7,951	114,954	23,090
Frcst 2031	34,318	27,269	46,413	597	108,597	8,075	116,672	23,353
Frcst 2032	34,628	27,567	47,415	597	110,206	8,200	118,406	23,626
Frcst 2033	34,940	27,899	48,419	597	111,855	8,327	120,182	23,945
Frcst 2034	35,247	28,271	49,460	597	113,575	8,459	122,034	24,233
Frcst 2035	35,759	28,645	50,518	597	115,519	8,607	124,125	24,591
Average Compound Growth Rates (%)								
Year-Year	Res	Com	Ind	Other	Total	Losses	Energy Required	Summer Demand
1990-1995	3.77	3.17	3.52	-4.74	3.44	3.44	3.44	3.54
1995-2000	1.59	2.82	2.97	0.74	2.47	2.47	2.47	0.59
2000-2005	3.27	2.51	0.38	3.19	1.88	1.88	1.88	3.57
2005-2010	0.89	0.10	-0.91	2.29	-0.01	-0.01	-0.01	0.37
2010-2015	-1.57	-0.28	0.80	-2.97	-0.32	-0.32	-0.32	-0.78
2015-2020	-0.05	-0.30	-1.53	0.00	-0.70	0.24	-0.63	1.31
2020-2025	0.03	-0.13	1.93	0.00	0.73	0.87	0.74	0.75
2025-2030	0.91	0.70	2.46	0.00	1.49	1.61	1.50	1.30
2030-2035	1.01	1.21	2.15	0.00	1.54	1.60	1.55	1.27
2016-2035	0.54	0.38	1.45	0.00	0.87	0.96	0.88	0.83

SUFG 2018 Low Energy Requirements (GWh) and Summer Peak Demand (MW) for Indiana

Year	Retail Sales					Losses	Energy Required	Summer Demand
	Res	Com	Ind	Other	Total			
Hist 1988	22,444	16,808	26,546	633	66,431	4,650	71,081	13,447
Hist 1989	22,251	17,205	27,394	661	67,511	4,726	72,237	12,979
Hist 1990	22,037	17,659	28,311	650	68,657	4,806	73,463	13,659
Hist 1991	24,215	18,580	28,141	629	71,564	5,009	76,573	14,278
Hist 1992	22,916	18,556	29,540	619	71,632	5,014	76,646	14,055
Hist 1993	25,060	19,627	31,562	511	76,760	5,373	82,133	14,916
Hist 1994	25,176	20,116	33,395	507	79,193	5,544	84,737	15,010
Hist 1995	26,510	20,646	33,659	510	81,326	5,693	87,019	16,251
Hist 1996	26,833	20,909	34,920	536	83,197	5,824	89,021	16,162
Hist 1997	26,792	21,295	35,499	530	84,116	5,888	90,004	16,021
Hist 1998	27,663	22,166	37,012	520	87,360	6,115	93,476	16,638
Hist 1999	29,180	23,078	38,916	543	91,717	6,420	98,137	17,246
Hist 2000	28,684	23,721	38,957	529	91,890	6,432	98,322	16,738
Hist 2001	29,437	23,953	38,293	526	92,208	6,455	98,663	17,511
Hist 2002	32,363	24,980	39,594	540	97,476	6,823	104,300	18,831
Hist 2003	31,177	24,940	39,285	589	95,992	6,719	102,711	18,794
Hist 2004	31,042	25,351	39,380	644	96,417	6,749	103,166	18,193
Hist 2005	33,691	26,857	39,702	619	100,869	7,061	107,930	19,944
Hist 2006	32,527	26,836	40,683	604	100,649	7,045	107,695	20,855
Hist 2007	35,019	27,782	41,112	646	104,558	7,319	111,877	20,858
Hist 2008	34,158	27,536	39,389	653	101,736	7,121	108,857	19,275
Hist 2009	32,689	26,223	34,631	661	94,204	6,594	100,798	19,054
Hist 2010	35,217	26,989	37,934	694	100,834	7,058	107,892	20,315
Hist 2011	34,117	26,714	39,129	646	100,607	7,042	107,649	21,002
Hist 2012	33,217	26,704	39,448	603	99,972	6,998	106,970	20,972
Hist 2013	33,753	26,807	39,506	607	100,673	7,047	107,720	20,122
Hist 2014	34,010	26,752	40,830	619	102,211	7,155	109,366	20,111
Hist 2015	32,538	26,609	39,484	597	99,228	6,946	106,173	19,532
Frcst 2016	32,292	26,564	38,367	597	97,820	7,165	104,985	21,009
Frcst 2017	32,077	26,348	37,059	597	96,081	7,034	103,115	20,689
Frcst 2018	31,937	26,127	36,294	597	94,955	6,957	101,912	20,519
Frcst 2019	31,899	25,924	35,813	597	94,233	6,907	101,139	20,413
Frcst 2020	32,368	25,800	35,689	597	94,454	6,924	101,378	20,577
Frcst 2021	32,242	25,622	35,811	597	94,271	6,921	101,192	20,602
Frcst 2022	32,223	25,421	36,434	597	94,674	6,955	101,629	20,705
Frcst 2023	32,189	25,271	36,958	597	95,014	6,989	102,003	20,828
Frcst 2024	32,074	25,152	37,435	597	95,258	7,017	102,275	20,987
Frcst 2025	32,303	25,025	37,973	597	95,898	7,076	102,973	21,137
Frcst 2026	32,559	25,005	38,719	597	96,880	7,160	104,040	21,367
Frcst 2027	32,762	25,006	39,468	597	97,833	7,239	105,071	21,599
Frcst 2028	32,963	25,034	40,225	597	98,819	7,319	106,138	21,795
Frcst 2029	33,220	25,109	40,978	597	99,903	7,408	107,311	22,013
Frcst 2030	33,678	25,205	41,669	597	101,149	7,505	108,654	22,291
Frcst 2031	33,967	25,336	42,368	597	102,267	7,593	109,860	22,498
Frcst 2032	34,256	25,464	43,085	597	103,401	7,682	111,083	22,719
Frcst 2033	34,550	25,621	43,777	597	104,544	7,769	112,313	22,986
Frcst 2034	34,840	25,808	44,481	597	105,726	7,860	113,585	23,229
Frcst 2035	35,337	25,988	45,170	597	107,091	7,962	115,053	23,520
Average Compound Growth Rates (%)								
Year-Year	Res	Com	Ind	Other	Total	Losses	Energy Required	Summer Demand
1990-1995	3.77	3.17	3.52	-4.74	3.44	3.44	3.44	3.54
1995-2000	1.59	2.82	2.97	0.74	2.47	2.47	2.47	0.59
2000-2005	3.27	2.51	0.38	3.19	1.88	1.88	1.88	3.57
2005-2010	0.89	0.10	-0.91	2.29	-0.01	-0.01	-0.01	0.37
2010-2015	-1.57	-0.28	0.80	-2.97	-0.32	-0.32	-0.32	-0.78
2015-2020	-0.10	-0.62	-2.00	0.00	-0.98	-0.06	-0.92	1.05
2020-2025	-0.04	-0.61	1.25	0.00	0.30	0.43	0.31	0.54
2025-2030	0.84	0.14	1.88	0.00	1.07	1.19	1.08	1.07
2030-2035	0.97	0.61	1.63	0.00	1.15	1.19	1.15	1.08
2016-2035	0.48	-0.12	0.86	0.00	0.48	0.56	0.48	0.60

SUFG 2018 High Energy Requirements (GWh) and Summer Peak Demand (MW) for Indiana

Year	Retail Sales					Losses	Energy Required	Summer Demand	
	Res	Com	Ind	Other	Total				
Hist	1988	22,444	16,808	26,546	633	66,431	4,650	71,081	13,447
Hist	1989	22,251	17,205	27,394	661	67,511	4,726	72,237	12,979
Hist	1990	22,037	17,659	28,311	650	68,657	4,806	73,463	13,659
Hist	1991	24,215	18,580	28,141	629	71,564	5,009	76,573	14,278
Hist	1992	22,916	18,556	29,540	619	71,632	5,014	76,646	14,055
Hist	1993	25,060	19,627	31,562	511	76,760	5,373	82,133	14,916
Hist	1994	25,176	20,116	33,395	507	79,193	5,544	84,737	15,010
Hist	1995	26,510	20,646	33,659	510	81,326	5,693	87,019	16,251
Hist	1996	26,833	20,909	34,920	536	83,197	5,824	89,021	16,162
Hist	1997	26,792	21,295	35,499	530	84,116	5,888	90,004	16,021
Hist	1998	27,663	22,166	37,012	520	87,360	6,115	93,476	16,638
Hist	1999	29,180	23,078	38,916	543	91,717	6,420	98,137	17,246
Hist	2000	28,684	23,721	38,957	529	91,890	6,432	98,322	16,738
Hist	2001	29,437	23,953	38,293	526	92,208	6,455	98,663	17,511
Hist	2002	32,363	24,980	39,594	540	97,476	6,823	104,300	18,831
Hist	2003	31,177	24,940	39,285	589	95,992	6,719	102,711	18,794
Hist	2004	31,042	25,351	39,380	644	96,417	6,749	103,166	18,193
Hist	2005	33,691	26,857	39,702	619	100,869	7,061	107,930	19,944
Hist	2006	32,527	26,836	40,683	604	100,649	7,045	107,695	20,855
Hist	2007	35,019	27,782	41,112	646	104,558	7,319	111,877	20,858
Hist	2008	34,158	27,536	39,389	653	101,736	7,121	108,857	19,275
Hist	2009	32,689	26,223	34,631	661	94,204	6,594	100,798	19,054
Hist	2010	35,217	26,989	37,934	694	100,834	7,058	107,892	20,315
Hist	2011	34,117	26,714	39,129	646	100,607	7,042	107,649	21,002
Hist	2012	33,217	26,704	39,448	603	99,972	6,998	106,970	20,972
Hist	2013	33,753	26,807	39,506	607	100,673	7,047	107,720	20,122
Hist	2014	34,010	26,752	40,830	619	102,211	7,155	109,366	20,111
Hist	2015	32,538	26,609	39,484	597	99,228	6,946	106,173	19,532
Frcst	2016	32,316	26,698	38,442	597	98,053	7,183	105,236	21,009
Frcst	2017	32,128	26,620	37,566	597	96,910	7,098	104,008	20,972
Frcst	2018	32,010	26,550	37,202	597	96,359	7,064	103,423	20,906
Frcst	2019	32,006	26,509	37,133	597	96,244	7,059	103,303	20,875
Frcst	2020	32,518	26,562	37,420	597	97,097	7,125	104,222	21,120
Frcst	2021	32,427	26,585	38,033	597	97,641	7,176	104,817	21,240
Frcst	2022	32,454	26,617	39,199	597	98,866	7,272	106,139	21,449
Frcst	2023	32,462	26,713	40,217	597	99,988	7,366	107,354	21,660
Frcst	2024	32,373	26,837	41,231	597	101,037	7,455	108,492	21,881
Frcst	2025	32,636	26,974	42,352	597	102,559	7,580	110,139	22,137
Frcst	2026	32,937	27,228	43,732	597	104,494	7,736	112,230	22,470
Frcst	2027	33,177	27,518	45,063	597	106,354	7,884	114,238	22,820
Frcst	2028	33,416	27,846	46,383	597	108,241	8,033	116,274	23,124
Frcst	2029	33,704	28,237	47,717	597	110,254	8,192	118,446	23,454
Frcst	2030	34,194	28,662	48,992	597	112,445	8,362	120,807	23,825
Frcst	2031	34,518	29,139	50,316	597	114,570	8,528	123,098	24,160
Frcst	2032	34,840	29,630	51,740	597	116,806	8,701	125,507	24,510
Frcst	2033	35,168	30,171	53,221	597	119,157	8,881	128,037	24,911
Frcst	2034	35,492	30,765	54,690	597	121,545	9,065	130,610	25,286
Frcst	2035	36,026	31,381	56,157	597	124,161	9,263	133,424	25,722
Average Compound Growth Rates (%)									
Year-Year	Res	Com	Ind	Other	Total	Losses	Energy Required	Summer Demand	
1990-1995	3.77	3.17	3.52	-4.74	3.44	3.44	3.44	3.54	
1995-2000	1.59	2.82	2.97	0.74	2.47	2.47	2.47	0.59	
2000-2005	3.27	2.51	0.38	3.19	1.88	1.88	1.88	3.57	
2005-2010	0.89	0.10	-0.91	2.29	-0.01	-0.01	-0.01	0.37	
2010-2015	-1.57	-0.28	0.80	-2.97	-0.32	-0.32	-0.32	-0.78	
2015-2020	-0.01	-0.04	-1.07	0.00	-0.43	0.51	-0.37	1.58	
2020-2025	0.07	0.31	2.51	0.00	1.10	1.25	1.11	0.95	
2025-2030	0.94	1.22	2.96	0.00	1.86	1.98	1.87	1.48	
2030-2035	1.05	1.83	2.77	0.00	2.00	2.07	2.01	1.54	
2016-2035	0.57	0.85	2.01	0.00	1.25	1.35	1.26	1.07	

Indiana Base Average Retail Rates (Cents/kWh) (in 2015 Dollars)

Year	Res	Com	Ind	Average
1988	12.50	11.53	8.08	10.34
1989	11.68	9.89	7.38	9.31
1990	11.03	9.33	6.98	8.77
1991	10.38	8.79	6.67	8.37
1992	10.32	8.70	6.50	8.18
1993	9.71	8.15	6.09	7.69
1994	9.73	8.12	6.04	7.63
1995	9.57	8.06	5.81	7.50
1996	9.54	8.03	5.83	7.47
1997	9.74	7.94	5.74	7.45
1998	9.77	7.95	5.71	7.44
1999	9.50	7.78	5.45	7.20
2000	9.11	7.38	5.35	6.93
2001	8.92	7.42	5.19	6.85
2002	8.74	7.36	5.18	6.81
2003	8.71	7.26	5.10	6.73
2004	8.77	7.37	5.18	6.82
2005	8.78	7.51	5.32	6.98
2006	9.41	7.95	5.83	7.45
2007	9.05	7.93	5.54	7.27
2008	9.41	8.14	5.92	7.61
2009	10.00	8.73	6.46	8.25
2010	9.80	8.61	6.32	8.08
2011	10.16	8.84	6.51	8.28
2012	10.43	9.08	6.58	8.44
2013	10.88	9.44	6.90	8.82
2014	11.19	9.67	7.13	9.08
2015	11.15	9.45	6.88	8.90
2016	12.05	10.40	7.77	9.80
2017	13.02	11.19	8.26	10.54
2018	13.78	11.87	8.68	11.15
2019	14.37	12.35	8.87	11.55
2020	14.66	12.63	9.03	11.80
2021	14.97	12.89	9.15	11.99
2022	14.65	12.59	8.91	11.67
2023	14.74	12.74	9.09	11.78
2024	14.95	12.94	9.24	11.93
2025	14.80	12.83	9.14	11.79
2026	14.37	12.53	8.96	11.47
2027	14.29	12.49	8.96	11.41
2028	14.17	12.42	8.89	11.29
2029	14.24	12.53	9.00	11.37
2030	14.28	12.62	9.10	11.44
2031	14.12	12.50	9.00	11.29
2032	14.11	12.52	8.99	11.27
2033	14.10	12.56	9.02	11.27
2034	13.96	12.47	8.95	11.16
2035	13.97	12.51	8.99	11.18
Average Compound Growth Rates (%)				
Year-Year	Res	Com	Ind	Average
1990-1995	-2.80	-2.90	-3.61	-3.08
1995-2000	-0.99	-1.75	-1.63	-1.56
2000-2005	-0.72	0.36	-0.12	0.12
2005-2010	2.22	2.76	3.54	2.97
2010-2015	2.62	1.88	1.69	1.96
2015-2020	5.63	5.98	5.60	5.80
2020-2025	0.19	0.32	0.24	-0.02
2025-2030	-0.71	-0.34	-0.09	-0.60
2030-2035	-0.44	-0.16	-0.24	-0.45
2016-2035	0.78	0.98	0.77	0.69

Note: Energy Weighted Average Rates for Indiana IOUs.
Results for the low and high economic activity cases are similar and are not reported.

References

Center for Econometric Model Research, “Long-Range Projections 2017-2038,” Indiana University, February 2018.

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Energy Information Administration, “Annual Energy Outlook 2018,” February 2018.