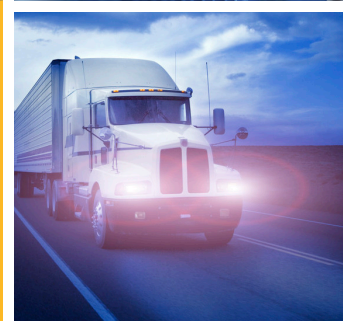
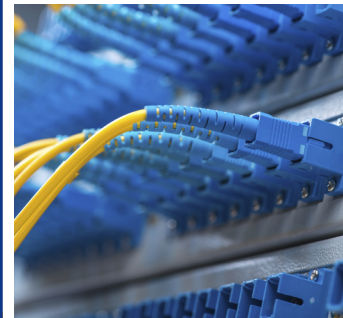




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ELECTRIC SUPPLY & DEMAND

REPORT | 2017



Introduction

K.S.A. 2011 Supp. 66-1282 became effective July 1, 2011, and requires the Kansas Corporation Commission (KCC or Commission) to compile a report regarding electric supply and demand for all electric utilities in Kansas. The statute requires this report to include, but not be limited to: (1) Generation capacity needs; (2) system peak capacity needs; and (3) renewable generation needs associated with the 2009 Kansas renewable energy standards.

To ensure that the KCC Staff has the information it needs to compile these reports, the KCC issued an Order on October 25, 2012, requiring Westar Energy, Kansas City Power & Light Company, Empire District Electric Company, Kansas Power Pool, Kansas Municipal Energy Agency, Kansas Electric Power Cooperatives, Midwest Energy, Sunflower Electric Power Corporation, Mid-Kansas Electric Company, and Kansas City Board of Public Utilities to file annually, the data required to compile this report with the Commission under Docket 13-GIME-256-CPL.

Section 1: Generation Capacity Needs and System Peak Capacity Planning

All major utilities¹ in Kansas are members of the Southwest Power Pool (SPP), which operates as the Regional Transmission Organization (RTO) throughout the State, as well as in Nebraska, Oklahoma, and parts of Missouri, Texas, Arkansas, Louisiana, Mississippi, and New Mexico. SPP additionally serves as the Regional Entity of the North American Electric Reliability Corporation (NERC), and is mandated by the Federal Energy Regulatory Commission (FERC) to ensure reliable operation of the electric grid within the region, including ensuring adequate power supplies and reserves are maintained by its members.

In furtherance of the FERC mandate, SPP publishes a series of regulations—called the SPP Criteria—governing the system operations of its members. SPP additionally requires its members to annually submit 10 year capacity and load projections to show how the utility will meet its ongoing system peak capacity responsibility (System Peak Responsibility), including the 12% capacity margin requirement outlined in the Criteria.² System Peak Responsibility may be satisfied by capacity from owned generation units, capacity purchased through long term wholesale power contracts (often called Power Purchase Agreements (PPAs)), full or partial requirements contracts, and short-term capacity contracts.³

Table 1 (pg. 3) shows the current and 20 year forecasted capacity and System Peak Responsibility (system peak load plus SPP’s 12% required capacity margin) for utilities operating in Kansas. This includes smaller municipal and cooperatives utilities that purchase electricity wholesale from larger state utilities through full requirements contracts, wherein these municipal and cooperative utilities’ peak loads are incorporated into the larger utility’s system requirements. Finally, two of the State’s investor-owned utilities, Kansas City Power & Light (KCP&L) and Empire District Electric Company (Empire), are multi-jurisdictional; therefore, the data shown in this report represents only their Kansas loads (peak demand) and their system capacity has been scaled to represent the capacity allocated to serving their Kansas load.

¹ Specifically, all utilities listed in this report are members of SPP.

² See SPP Criteria section 2.1.9; “Each Load Serving Member’s Minimum Required Capacity Margin [the amount by which a Load Serving Member’s System Capacity exceeds its System Peak Responsibility] shall be twelve percent.”

³ Note Table 1.1 and the tables listed in Appendix A are intended to represent a utility’s long-term position, and thus do not include short-term capacity contracts. Short-term capacity contracts are defined as a capacity contract greater than three months but less than a year in duration.

Table 1—Overview of Current and Projected Total System Capacity and System Capacity Responsibility for Utilities Operating in Kansas

		Investor Owned Utilities (IOUs)			Cooperatives			Municipal Utilities		
		Empire District Electric Company (Empire)	Kansas City Power & Light (KCP&L)	Westar Energy (Westar)	Kansas Electric Power Coop. (KEPCo)	Midwest Energy (Midwest)	Sunflower Electric Power Corporation (Sunflower)	Kansas City Board of Public Utilities (KC-BPU)	Kansas Municipal Energy Agency (KMEA)	Kansas Power Pool (KPP)
2014 Historical	Total System Capacity (MW)	72	2,051	6,480	506	401	1,423	727	438	445
	System Peak Responsibility (MW)	70	1,768	5,936	492	358	1,266	567	386	241
	System Capacity Surplus (Deficit)	2	283	544	14	43	157	160	52	204
2019 Projected	Total System Capacity (MW)	74	2,069	6,510	510	398	1,128	729	454	351
	System Peak Responsibility (MW)	70	1,897	5,880	500	388	1,175	561	494	241
	System Capacity Surplus (Deficit)	4	172	630	10	10	(47)	168	(40)	110
2024 Projected	Total System Capacity (MW)	74	1,964	6,606	490	448	1,128	729	417	317
	System Peak Responsibility (MW)	71	1,891	6,195	480	413	1,173	568	543	245
	System Capacity Surplus (Deficit)	3	73	411	10	35	(45)	161	(126)	72
2029 Projected	Total System Capacity (MW)	73	1,964	---	502	448	1,128	729	417	301
	System Peak Responsibility (MW)	72	1,931	---	495	436	1,213	573	582	251
	System Capacity Surplus (Deficit)	1	33	---	7	12	(85)	156	(165)	50
2034 Projected	Total System Capacity (MW)	73	2,029	---	512	--	--	729	417	300
	System Peak Responsibility (MW)	74	1,984	---	510	--	--	575	620	257
	System Capacity Surplus (Deficit)	(1)	45	---	2	--	--	154	(203)	43

Section 2: Renewable Energy Planning

In May 2009, the Kansas Legislature passed Senate Substitute bill for H. 2369, in part creating the Renewable Energy Standard Act (RESA) which requires all non-municipal utilities in Kansas to satisfy a portion of the utility's generation needs through renewable generation sources. In particular, the RESA—incorporated into statute as K.S.A. 66-1256 through 66-1262—requires all utilities subject to its requirements to own or purchase renewable generation such that the nameplate capacity¹ of these generators is equal to 10% of the utility's average prior three-year annual peak retail sales for the years 2011 through 2015, 15% for the years 2016 through 2019, and 20% for all years after 2020.

Effective January 1, 2016, the Renewable Energy Standard Act was amended and the requirement to own or purchase renewable generation became a voluntary initiative. While most of the affected utilities continue to invest in renewable generation, it is no longer a requirement under state law. Table 2 (pg. 6) shows each RESA affected utility's forecasted renewable capacity responsibility and nameplate renewable capacity.

¹ K.S.A. 66-1257(c) defines 'net renewable generation capacity' as the gross generation capacity of a renewable generation resource over a four-hour period free from limitations including ambient conditions. As most renewable generation is completely driven by ambient weather conditions (i.e., if and to what degree the wind is blowing), it is hard to apply the defined statute in its strictest sense. However, the KCC through K.A.R. 82-16-1(e) has interpreted this statutory definition as implying nameplate capacity.

Table 2—Overview of Voluntary Renewable Capacity for Utilities Operating in Kansas

		Empire District Electric Company (Empire)	Kansas City Power & Light (KCP&L)	Westar Energy (Westar)	Kansas Electric Power Coop. (KEPCo)	Midwest Energy (Midwest)	Sunflower Electric Power Corporation (Sunflower)	Kansas City Board of Public Utilities (KC-BPU)	Kansas Power Pool (KPP)
2014 Historical	System Renewable Capacity (MW)	12	240	740	134	57	254	82	36
	Renewable Capacity Responsibility—10% (MW)	6	166	477	43	35	75	46	0
	Renewable Capacity Surplus (Deficit)	7	74	263	91	22	179	36	36
2019 Projected	System Renewable Capacity (MW)	9	513	1938	134	118	198	329	51
	Renewable Capacity Responsibility—15% (MW)	9	254	700	66	53	0	74	0
	Renewable Capacity Surplus (Deficit)	3	259	1238	68	65	198	255	51
2024 Projected	System Renewable Capacity (MW)	6	453	1,939	134	118	198	329	51
	Renewable Capacity Responsibility—20% (MW)	12	337	977	85	75	0	100	0
	Renewable Capacity Surplus (Deficit)	(6)	116	962	49	43	198	229	51
2029 Projected	System Renewable Capacity (MW)	(9) ¹	453	--	134	118	114	329	46
	Renewable Capacity Responsibility—20% (MW)	12	343	--	87	79	0	101	0
	Renewable Capacity Surplus (Deficit)	(15)	110	--	47	39	114	228	46
2034 Projected	System Renewable Capacity (MW)	(8)	344	--	134	--	--	329	33
	Renewable Capacity Responsibility—20% (MW)	12	352	--	90	--	--	101	0
	Renewable Capacity Surplus (Deficit)	(20) ²	(8)	--	44	--	--	228	33

¹ Negative System Capacity due to the equation subtracting renewable capacity for other jurisdictions and states, which was greater than that that was available as a

²whole. Empire’s deficiency of 20 MW is a result of PPA’s that expire with Kansas wind farms in 2025 and 2028, coupled with a need to meet Missouri’s RPS.

Appendix A: Utility System Capacities and Peak Responsibilities

Appendix A-1—Empire District Electric Company (Empire)

The Empire District Electric Company (Empire) is a regulated investor-owned utility operating in the states of Kansas, Missouri, Arkansas, and Oklahoma. Only a very small portion of Empire’s overall service territory falls within Kansas, consisting of approximately 9,928 retail customers in Cherokee county (located in the extreme southeastern corner of the state).

		System Peak ¹			System Capacity ²			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	68	9	77	71	3	74	-3
	2012	65	9	73	70	3	74	1
	2013	58	8	66	70	3	73	7
	2014	62	8	70	70	3	72	2
	2015	61	8	69	65	4	69	0
Projected	2016	59	8	66	70	4	74	8
	2017	61	8	68	70	4	74	6
	2018	61	8	69	70	4	74	5
	2019	62	8	70	70	4	74	4
	2020	62	8	70	70	4	74	4
	2021	63	8	71	70	4	74	3
	2022	63	9	71	70	4	74	3
	2023	63	9	71	70	4	74	3
	2024	63	9	71	70	4	74	3
	2025	63	9	72	70	4	74	2
	2026	64	9	72	70	3	74	2
	2027	64	9	72	70	3	74	2
	2028	64	9	72	70	3	74	2
	2029	64	9	72	70	3	73	1
	2030	64	9	73	70	3	73	0
	2031	65	9	73	70	3	73	0
	2032	65	9	73	70	3	73	0
	2033	65	9	73	70	3	73	0
	2034	65	9	74	70	3	73	-1

¹ Empire’s system peak is scaled in this table to reflect the Kansas portion of Empire’s service territory (demand created by customers).

² Empire’s system capacity is scaled in this table to reflect the Kansas portion of Empire’s service territory; approximately 5.5% of Empire’s overall system peak.

Appendix A-2—Kansas City Power & Light Company (KCP&L)

The Kansas City Power and Light Company (KCP&L), a wholly owned subsidiary of Great Plains Energy Inc., is a regulated investor-owned utility that operates in northeast Kansas and western Missouri. System-wide KCP&L, including its GMO territory, is responsible for serving more than 800,000 retail customers, approximately 250,000 of which are located in Kansas.

		System Peak ¹			System Capacity ²			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ³	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	1,755	239	1,995	2,053	-8	2,045	50
	2012	1,698	232	1,930	2,038	-22	2,015	85
	2013	1,556	212	1,768	2,033	-33	2,000	232
	2014	1,605	219	1,824	2,087	-35	2,051	227
	2015	1,623	221	1,844	2,098	36	2,134	290
Projected	2016	1,700	232	1,932	2,011	-47	1,964	32
	2017	1,701	203	1,898	2,012	56	2,067	169
	2018	1,717	203	1,897	2,012	83	2,095	198
	2019	1,727	204	1,899	2,012	58	2,069	170
	2020	1,737	203	1,890	2,012	99	2,111	221
	2021	1,743	202	1,882	2,012	128	2,140	258
	2022	1,752	202	1,885	1,857	128	1,985	100
	2023	1,762	203	1,891	1,857	135	1,992	101
	2024	1,775	203	1,899	1,857	107	1,964	65
	2025	1,784	204	1,902	1,857	107	1,964	62
	2026	1,795	205	1,909	1,857	107	1,964	55
	2027	1,807	206	1,919	1,857	107	1,964	45
	2028	1,821	207	1,931	1,857	107	1,964	33
	2029	1,832	208	1,940	1,857	107	1,964	24
	2030	1,844	209	1,949	1,953	107	2,060	111
	2031	1,856	210	1,961	1,953	107	2,060	99
	2032	1,870	212	1,975	1,953	91	2,044	69
	2033	1,880	213	1,984	1,953	76	2,029	45
	2034	1,892	214	1,995	1,953	76	2,029	34

¹ KCP&L's system peak is scaled in this table to reflect the Kansas portion of KCP&L's service territory (demand created by customers).

² KCP&L's system capacity is scaled in this table to reflect the Kansas portion of KCP&L's service territory; approximately 47% of KCP&L's overall system.

³ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

Appendix A-3—Westar Energy, Inc. (Westar)

Westar Energy, Inc. (Westar) is a vertically-integrated investor-owned utility operating in south-central and northeast Kansas. In the south-central portion of the state Westar operates as Kansas Gas and Electric Company (Westar South). In the northeastern portion of the state Westar operates under its corporate name of Westar Energy (Westar North). Although technically comprised of two separate companies, Westar’s entire system is dispatched as one system unit. Westar is responsible for providing electric service to approximately 700,000 retail customers across both systems.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ¹	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	5549	695	6,244	6555	-19	6536	292
	2012	5410	662	6,072	6521	75	6596	524
	2013	5187	707	5,894	6356	35	6391	497
	2014	5224	712	5,936	6370	110	6480	544
	2015	5167	649	5,816	6313	133	6446	630
Projected	2016	5184	707	5,891	5939	300	6239	348
	2017	5306	451	5,757	5968	355	6323	566
	2018	5357	462	5,819	5983	355	6338	519
	2019	5407	473	5,880	5983	527	6510	630
	2020	5461	487	5,948	5983	527	6510	562
	2021	5511	499	6,010	5983	527	6510	500
	2022	5562	511	6,073	5983	626	6609	536
	2023	5612	521	6,133	5918	685	6603	470
	2024	5664	531	6,195	5921	685	6606	411
	2025	5713	542	6,255	5658	835	6493	238
	2026	5140	467	5607	5658	835	6493	886
	2027	--	--	--	--	--	--	--
	2028	--	--	--	--	--	--	--
	2029	--	--	--	--	--	--	--
	2030	--	--	--	--	--	--	--
	2031	--	--	--	--	--	--	--
2032	--	--	--	--	--	--	--	
2033	--	--	--	--	--	--	--	
2034	--	--	--	--	--	--	--	

¹ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

Appendix A-4—Kansas Electric Power Cooperative, Inc. (KEPCo)

The Kansas Electric Power Cooperatives, Inc. (KEPCo) is a deregulated Generation and Transmission Cooperative whose membership is composed of 19 rural distribution cooperatives located throughout central and eastern Kansas.¹ KEPCo’s 19 member cooperatives collectively serve approximately 110,000 customers—as indicated by number of meters.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	455	63	518	122	459	581	63
	2012	452	62	514	123	409	532	18
	2013	435	59	494	123	385	508	14
	2014	433	59	492	123	383	506	14
	2015	432	59	491	123	385	508	17
Projected	2016	425	58	483	123	371	494	11
	2017	435	59	494	124	380	504	10
	2018	437	60	497	124	383	507	10
	2019	440	60	500	124	386	510	10
	2020	443	60	503	124	389	513	10
	2021	415	57	472	124	357	481	9
	2022	418	57	475	124	360	484	9
	2023	420	57	477	124	363	487	10
	2024	423	57	480	124	366	490	10
	2025	425	58	483	124	369	493	10
	2026	428	58	486	124	372	496	10
	2027	430	59	489	124	374	498	9
	2028	433	59	492	124	376	500	8
	2029	435	60	495	124	378	502	7
	2030	438	60	498	124	379	503	5
	2031	441	60	501	124	381	505	4
	2032	443	61	504	124	383	507	3
	2033	446	61	507	125	385	510	3
	2034	449	61	510	125	387	512	2

¹ Member cooperatives of KEPCo are: Prairie Land, Rolling Hills, Bluestem, Brown-Atchison, Leavenworth-Jefferson, DS&O Electric, Flint Hills, Lyon-Coffey, Victory, Ninnescah, Ark Valley, Sedgwick County, Butler, Heartland, Radiant, CMS Electric, Sumner-Cowley, Caney Valley, and Twin Valley.

Appendix A-5—Midwest Energy, Inc. (Midwest)

Midwest Energy Inc. (Midwest) is a regulated electric and natural gas distribution cooperative operating in central and western Kansas. Unique in Kansas among the State’s cooperatives, the electric utility is vertically-integrated, possessing generation and transmission assets and providing retail service. Headquartered in Hays, Midwest provides electric service to approximately 48,750 retail customers.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ¹	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	357	47	392	97	275	372	20
	2012	362	47	388	97	310	407	18
	2013	344	44	364	91	310	401	36
	2014	338	43	358	91	310	401	42
	2015	385	49	411	91	319	410	1
Projected	2016	353	45	372	91	319	410	37
	2017	362	46	381	115	283	398	16
	2018	364	46	384	115	283	398	14
	2019	369	47	388	115	283	398	9
	2020	373	47	393	115	283	398	5
	2021	377	48	397	115	283	398	0
	2022	382	48	403	275	173	448	45
	2023	386	49	408	275	173	448	40
	2024	391	50	413	275	173	448	34
	2025	395	50	418	275	173	448	30
	2026	399	51	422	275	173	448	25
	2027	403	51	427	275	173	448	21
	2028	407	52	431	275	173	448	16
	2029	411	52	436	275	173	448	11
	2030	415	53	441	275	173	448	7
	2031	418	53	444	275	173	448	4
	2032	421	54	447	275	173	448	0
	2033	--	--	--	--	--	--	--
	2034	--	--	--	--	--	--	--

¹ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

Appendix A-6—Sunflower Electric Power Company (Sunflower)

Sunflower Electric Power Company (Sunflower) is a deregulated generation and transmission cooperative owned by six member rural distribution cooperatives in Western Kansas (Lane-Scott, Prairie Land, Southern Pioneer, Victory, Western, and Wheatland). In 2007, the six member distribution cooperatives comprising Sunflower formed the Mid-Kansas Electric Company (Mid-Kansas) with the purpose of acquiring the assets of Aquila Energy’s defunct Kansas Electric Network. Although Mid-Kansas has distinct assets and distinct customers from Sunflower, the two companies employ the same individuals; and therefore, for the purposes of this report these two entities are combined as a single system.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ¹	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	1,143	156	1,299	1,179	139	1,318	19
	2012	1,156	158	1,314	1,167	139	1,306	8
	2013	1,147	156	1,303	1,150	139	1,289	14
	2014	1,114	152	1,266	1,284	139	1,423	157
	2015	1,033	141	1,174	1,291	139	1,430	257
Projected	2016	1,013	138	1,151	1,131	139	1,270	119
	2017	1,021	139	1,160	1,123	139	1,262	101
	2018	1,028	140	1,168	1,128	124	1,252	84
	2019	1,034	141	1,175	1,128	0	1,128	47
	2020	1,043	142	1,185	1,128	0	1,128	58
	2021	1,005	137	1,142	1,128	0	1,128	14
	2022	1,015	138	1,153	1,128	0	1,128	26
	2023	1,023	140	1,163	1,128	0	1,128	35
	2024	1,032	141	1,173	1,128	0	1,128	45
	2025	1,040	142	1,182	1,128	0	1,128	54
	2026	1,046	143	1,189	1,128	0	1,128	61
	2027	1,053	144	1,197	1,128	0	1,128	69
	2028	1,060	145	1,205	1,127	0	1,127	78
	2029	1,067	146	1,213	1,122	0	1,122	91
	2030	1,073	146	1,219	1,122	0	1,122	98
	2031	1,079	147	1,226	1,122	0	1,122	04
	2032	1,085	148	1,233	1,122	0	1,122	111
	2033	1,093	149	1,242	1,092	0	1,092	150
	2034	--	--	--	--	--	--	--

¹ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

Appendix A-7—Kansas City Board of Public Utilities (KC-BPU)

The Kansas City Board of Public Utilities (KC-BPU) is a non-KCC jurisdictional municipal utility serving water customers in the Kansas City, Kansas Metropolitan areas of Wyandotte and Johnson Counties, and electric customers in the whole of Wyandotte County. In all, KC-BPU provides electric service to approximately 63,000 customers.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ¹	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	560	76	636	613	8	621	15
	2012	553	75	628	613	8	621	8
	2013	512	70	582	604	12	616	34
	2014	497	68	567	715	12	727	160
	2015	523	72	597	715	15	730	134
Projected	2016	480	66	548	672	57	729	181
	2017	492	67	559	672	57	729	170
	2018	494	67	561	672	57	729	168
	2019	494	67	561	672	57	729	168
	2020	496	68	564	672	57	729	166
	2021	496	68	564	672	57	729	166
	2022	498	68	566	672	57	729	163
	2023	498	68	566	672	57	729	163
	2024	500	68	568	672	57	729	161
	2025	500	68	568	672	57	729	161
	2026	502	68	570	672	57	729	159
	2027	502	68	570	672	57	729	159
	2028	504	69	573	672	57	729	156
	2029	504	69	573	672	57	729	156
	2030	506	69	575	672	57	729	154
	2031	506	69	575	672	57	729	154
	2032	506	69	575	672	57	729	154
	2033	506	69	575	672	57	729	154
	2034	506	69	575	672	57	729	154

¹ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

Appendix A-8—Kansas Municipal Energy Agency (KMEA)

The Kansas Municipal Energy Agency (KMEA) is an organization that finances projects for the purchase, sale, generation, and transmission of electricity on behalf of its 77 member municipal electric utilities. In addition to these functions, KMEA also manages the Mutual Aid Program where municipalities assist one another in the event of emergencies that affect the electric system, conducts power supply and transmission feasibility studies, and advocates members’ positions before industry bodies, regulatory agencies, and legislative bodies.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ¹	Accredited Generation ²	Net Contracts	Total System Capacity	
Historical	2011	210	29	239	199	41	241	2
	2012	194	26	220	199	46	246	25
	2013	218	30	248	199	52	252	4
	2014	339	46	386	300	138	438	53
	2015	375	51	426	306	152	458	32
Projected	2016	399	54	454	327	201	528	74
	2017	420	57	478	327	201	528	50
	2018	429	59	488	327	186	513	25
	2019	435	59	494	327	127	454	40
	2020	441	60	501	327	131	459	43
	2021	447	61	508	327	104	432	76
	2022	464	63	527	327	104	432	96
	2023	471	64	535	327	104	432	103
	2024	478	65	543	327	89	417	127
	2025	485	66	551	327	89	417	134
	2026	491	67	558	327	89	417	142
	2027	498	68	566	327	89	417	150
	2028	505	69	574	327	89	417	157
	2029	512	70	582	327	89	417	165
	2030	519	71	589	327	89	417	173
	2031	525	72	597	327	89	417	181
	2032	532	73	605	327	89	417	188
	2033	539	74	613	327	89	417	196
	2034	546	74	620	327	89	417	204

¹ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

² Starting in 2013, these totals may be reduced considerably due to National Emissions Standards for Hazardous Air Pollutants (NEHSAP) for Reciprocating Internal Combustion Engines (RICE). KMEA does not know extent of this reduction yet.

Appendix A-9—Kansas Power Pool (KPP)

The Kansas Power Pool (KPP), created in May of 2005, is an organization that provides wholesale electric power, reserve sharing, collective resource planning and acquisition, network transmission service, and cost sharing of operations to its member municipal utilities. The KPP has continuously added new municipal electric utilities since its founding. Because of this, historical comparisons to previous years are inherently misleading and have been omitted from this report. As of the end 2013, the KPP is comprised of 34 municipal electric utilities and is responsible for a total system capacity of approximately 586 MWs.

		System Peak			System Capacity			System Capacity Surplus (Deficit)
		Total System Peak Load	12% Capacity Margin	System Peak Responsibility ¹	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2011	349	48	397	363	170	532	136
	2012	371	51	422	405	170	574	152
	2013	342	47	389	405	169	573	184
	2014	212	29	241	342	102	445	204
	2015	207	28	235	267	99	366	131
Projected	2016	219	30	249	267	109	376	126
	2017	205	28	232	267	59	326	93
	2018	208	28	236	267	59	326	89
	2019	212	29	241	267	84	351	109
	2020	210	29	239	267	84	351	112
	2021	212	29	241	267	84	351	109
	2022	214	29	243	267	109	376	133
	2023	214	29	243	267	50	317	73
	2024	216	29	245	267	50	317	72
	2025	217	30	246	267	50	317	70
	2026	218	30	247	267	50	317	69
	2027	219	30	249	267	35	301	53
	2028	220	30	250	267	35	301	51
	2029	221	30	251	267	35	301	50
	2030	222	30	252	267	35	301	49
	2031	223	30	254	267	33	300	46
	2032	224	31	255	267	33	300	45
	2033	225	31	256	267	33	300	44
	2034	227	31	257	267	33	300	43

¹ The System Peak Responsibility is the sum of the Total System Peak Load plus the 12% Capacity Margin less any interruptible load not included in this table.

Appendix B—Renewable Capacity Requirements
Appendix B-1—Empire District Electric Company (Empire)

Empire District Electric Company (Empire) currently has two long-term power purchase agreements with two wind farms operating in Kansas, Meridian Way in Cloud County and Elk River in Barber County. Empire also operates a hydro-electric dam in Missouri called Ozark Beach. Empire is a multi-jurisdictional utility operating in the states of Missouri, Kansas, Arkansas, and Oklahoma. In addition to Kansas’ voluntary RES, the utility must concurrently satisfy a separate RES in Missouri. Empire has enough renewable generation to satisfy both states through 2025 when the utility’s current long-term power purchase agreement to Elk River Wind Facility expires.

	Renewable Capacity		Renewable Capacity Inventory			Total Renewable Capacity ¹	Renewable Capacity Allocated to Kansas	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity	Cloud County (Meridian Way) Wind Farm	Elk River Wind Facility	Ozark Beach			
2012	10%	6	105	150	16	272	14	7
2013		6	105	150	16	272	14	8
2014		6	105	150	16	272	12	6
2015	15%	6	105	150	16	272	12	6
2016		9	105	150	16	272	12	3
2017		9	105	150	16	272	12	3
2018		9	105	150	16	272	9	0
2019	20%	9	105	150	16	272	9	0
2020		12	105	150	16	272	9	3
2021		12	105	150	16	272	6	6
2022		12	105	150	16	272	6	6
2023		12	105	150	16	272	6	6
2024		12	105	150	16	272	6	6
2025		12	105	150	16	122	6	6
2026		12	105	0	16	122	3	15
2027		12	105	0	16	122	3	15
2028		12	105	0	16	17	3	15
2029		12	0	0	16	16	9	21
2030	12	0	0	16	16	9	21	
2031	12	0	0	16	16	9	21	

¹ The Total Renewable Capacity includes the 10% adder allowed by the RES Act, approximately 1.28 MW for Empire in 2011-2025, 0.53 MW in 2026-2028 and 0 MW thereafter. The 10% adder for Empire is calculated on the percentage of renewables used to provide service to its Kansas load which is approximately 5% of Empire total system. The Total Renewable Capacity is calculated by adding the 10% amount to the sum of the Renewable Capacity columns. This value is the total amount of renewable energy available to Empire.

Appendix B-2—Kansas City Power & Light (KCP&L)

Kansas City Power & Light (KCP&L) owns and operates the Spearville Wind Farm in Ford County. Phase I was developed at 100.5 MW and Phase II was developed at 48 MW. Kansas City Power & Light is purchasing power from Phase III at Spearville, 100.8 MW, for a current facility capacity of 249.3MW. Kansas City Power & Light is also purchasing 131.1 MW from the Cimarron Energy Project in Gray County. The Cimarron Energy Project was developed by Competitive Power Venture’s Renewable Energy Division (CPV Renewable Energy). CPV Renewable Energy subsequently sold its rights to construct and operate this 131.1 MW to Duke Energy Generation Services. In addition to Kansas’ voluntary RES, the utility must concurrently satisfy a separate RES in place in Missouri.

	Renewable Capacity		Renewable Capacity Inventory ¹				Renewable Capacity Required for Other Jurisdictions	Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit) ³
	Renewable Energy Standard	Renewable Capacity	Spearville Wind Farm ⁴	Cimarron Energy Project (Cimarron II)	Slate Creek Wind Farm	Waverly Wind Farm			
2012	10%	167	249	131	--		219	178	11
2013		170	249	131	--		219	178	8
2014		166	249	131	--		218	240	74
2015		162	249	131	--		218	240	79
2016	15%	239	249	131	150	200	419	402	164
2017		246	249	131	150	200	488	446	201
2018		251	249	131	150	200	592	513	263
2019		254	249	131	150	200	592	513	259
2020	20%	339	249	131	150	200	592	513	175
2021		339	249	131	150	200	592	513	175
2022		338	249	131	150	200	592	513	176
2023		337	249	131	150	200	592	513	177
2024		337	249	131	150	200	592	453	117
2025		338	249	131	150	200	592	453	116
2026		339	249	131	150	200	592	453	115
2027		340	249	131	150	200	592	453	114
2028		341	249	131	150	200	592	453	113
2029		343	249	131	150	200	592	453	111
2030	345	249	131	150	200	592	453	109	
2031	347	249	131	150	200	592	453	107	

¹ The Renewable Capacity table does not show forecasted values of 50 MW for years 2016-2019, 200 MW for years 2020-2023, and 400 MW for years 2024-2031.

² The Total Renewable Capacity includes the 10% adder allowed by the RES Act and a minimal amount of net metering. The Total Renewable Capacity is calculated by adding the forecast from footnote 1 to the sum of the Renewable Capacity columns and then subtracting the Renewable Capacity Required for Other Jurisdictions.

³ The Renewable Capacity Surplus (Deficit) is calculated by subtracting the Renewable Capacity Needed for Compliance from the Total Renewable Capacity.

⁴ The Spearville Wind Farm includes three phases. Phases I and II are owed by KCP&L, while KCP&L purchases power under a PPA from Phase III.

Appendix B-3—Westar Energy (Westar)

Westar Energy (Westar) currently owns Central Plains wind farm, and 50% of Flat Ridge wind farm in Wichita and Barber counties, respectively. Westar additionally has long-term power purchase agreement with Ironwood, Post Rock, and Meridian Way wind farms. The utility also has acquired a long-term power purchase agreement with Waste Management to receive electricity from that company’s Rolling Meadows landfill-gas generation facility located just north of Topeka in Shawnee County.

	Renewable Capacity		Renewable Capacity Inventory ¹													Total Renewable Capacity ¹	Renewable Capacity Surplus (Deficit)	
	Renewable Energy Standard	Renewable Capacity	Central Plains Wind Farm	Cloud County (Meridian Way) Wind Farm	Flat Ridge Wind Farm	Rolling Meadows Landfill	Post Rock Wind Farm	Ironwood Wind Farm	Cedar Bluff	Ninnescah	Kingman 1	Kingman 2	Western Plains	Westar Community Solar	Customer Owned DG			
2012	10%	475	99	96	100	6	201	168									737	262
2013		486	99	96	100	6	201	168									736	250
2014		477	99	96	100	6	201	168		1						3	740	263
2015		467	99	96	100	6	201	168								4	740	273
2016	15%	689	99	96	100	6	201	168	199							4	1,160	471
2017		688	99	96	100	6	201	168	199	218	103	103	281	1	5	1,937	1249	
2018		691	99	96	100	6	201	168	199	218	103	103	281	1	5	1,937	1246	
2019		700	99	96	100	6	201	168	199	218	103	103	281	1	6	1,938	1238	
2020	20%	947	99	96	100	6	201	168	199	218	103	103	281	1	6	1,938	991	
2021		955	99	96	100	6	201	168	199	218	103	103	281	1	6	1,938	983	
2022		962	99	96	100	6	201	168	199	218	103	103	281	1	6	1,938	976	
2023		969	99	96	100	6	201	168	199	218	103	103	281	1	6	1,939	970	
2024		977	99	96	100	6	201	168	199	218	103	103	281	1	6	1,939	962	
2025		986	99	96	100	6	201	168	199	218	103	103	281	1	7	1,939	953	
2026		--	99	96	100	6	201	168	199	218	103	103	281	1	7	1,939	1939	

¹ The Total Renewable Capacity includes the 10% adder allowed by the RES Act. The Total Renewable Capacity is calculated by summing of the Renewable Capacity columns.

Appendix B-4—Kansas Electric Power Cooperatives (KEPCo)

Kansas Electric Power Cooperatives (KEPCo), a federally defined rural non-profit utility, has received discounted power allocations from federally managed hydro-electric power marketers since the utility’s inception. In particular, KEPCo currently has contracts to receive 100MW of capacity from the Southwestern Power Administration (SWPA) and 14MW of capacity from the Western Area Power Administration (WAPA) through 2024. Southwestern Power Administration is a series of 24 U.S. Army Corps of Engineer hydro-electric dams throughout the States of Missouri, Oklahoma, Arkansas, and Texas. Western Area Power Administration is likewise a series 56 hydro-electric dams operated by the Bureau of Reclamation, U.S. Army Corps of Engineers, and International Boundary and Water Commission in a 15 state region. KEPCo’s current power purchase contracts with SWPA are expected to be renewed. KEPCo is also purchasing renewable energy from Westar and will continue to voluntarily participate in the Renewable Energy Standard through at least 2031.

	Renewable Capacity		Renewable Capacity Inventory				Renewable Capacity Required for Other Jurisdictions	Total Renewable Capacity ¹	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity	SWPA	WAPA	Westar (PPA)	Prairie Sky Solar			
2012	10%	45	100	14	18		0	133	88
2013		44	100	14	18		0	134	91
2014		43	100	13	18		0	134	91
2015		43	100	13	18		0	134	91
2016	15%	64	100	13	18		0	133	69
2017		65	100	13	18	1	0	134	69
2018		66	100	13	18	1	0	134	69
2019		66	100	13	18	1	0	134	68
2020	20%	89	100	13	18	1	0	134	46
2021		83	100	13	18	1	0	134	51
2022		84	100	13	18	1	0	134	51
2023		84	100	13	18	1	0	134	50
2024		85	100	13	18	1	0	134	50
2025		85	100	13	18	1	0	134	49
2026		86	100	13	18	1	0	134	49
2027		86	100	13	18	1	0	134	48
2028		87	100	13	18	1	0	134	48
2029		87	100	13	18	1	0	134	47
2030		88	100	13	18	1	0	134	47
2031	88	100	13	18	1	0	134	46	

¹ The Total Renewable Capacity includes the 10% adder allowed by the RES Act. The Total Renewable Capacity is calculated by summing the Renewable Capacity columns.

Appendix B-5—Midwest Energy (Midwest)

Midwest Energy (Midwest) currently has long-term power purchase agreement for 49.2 MW of capacity from the 250MW Smoky Hills Wind Farm in Lincoln and Ellsworth counties.

	Renewable Capacity		Renewable Capacity Inventory ¹				Renewable Capacity Required for Other Jurisdictions	Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity	Smoky Hills Wind Farm (Phase I)	Smoky Hills Wind Farm (Phase II)	WAPA	Kingman Wind			
2012	10%	32	25	24	3		0	57	25
2013		34	25	24	3		0	57	23
2014		35	25	24	3		0	57	22
2015		34	25	24	3		0	57	23
2016	15%	52	25	24	3		0	57	5
2017		53	25	24	3	55	0	117	65
2018		54	25	24	3	55	0	117	64
2019		53	25	24	3	55	0	117	65
2020	20%	71	25	24	3	55	0	117	46
2021		72	25	24	3	55	0	117	45
2022		73	25	24	3	55	0	117	44
2023		74	25	24	3	55	0	117	44
2024		75	25	24	3	55	0	117	43
2025		76	25	24	3	55	0	117	42
2026		77	25	24	3	55	0	117	41
2027		77	25	24	3	55	0	117	40
2028		78	25	24	3	55	0	117	39
2029		79	25	24	3	55	0	117	38
2030		80	25	24	3	55	0	117	38
2031	81	25	24	3	55	0	117	37	

¹ The Renewable Capacity table does not show forecasted values of 20 MW for years 2016-2030.

² The Total Renewable Capacity includes the 10% adder allowed by the RES Act. The Total Renewable Capacity is calculated by adding the forecast from footnote 1 to the sum of the Renewable Capacity columns.

Appendix B-6—Sunflower Electric Power Company (Sunflower)

Sunflower Electric Power Company (Sunflower) and the Mid-Kansas Electric Company (Mid-Kansas) currently have long-term power purchase agreements with two wind farms located in Kansas, Gray County and Smoky Hills located in Lincoln and Ellsworth counties. As federally defined non-profit rural utilities, these companies also receive electricity from the federally managed hydro-electric power marketer Western Area Power Administration (WAPA)¹.

	Renewable Capacity		Renewable Capacity Inventory				Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity	Gray County Wind Farm	Smoky Hills Wind Farm (Phase I and II)	WAPA	Shooting Star Wind Farm		
2012	10%	71	51	74	5	--	142	71
2013		75	51	74	5	104	256	181
2014		76	51	74	3	104	254	178
2015		76	51	74	3	104	254	178
2016	15%	0	51	74	3	104	254	254
2017		0	--	74	3	104	198	198
2018		0	--	74	3	104	198	198
2019		0	--	74	3	104	198	198
2020	20%	0	--	74	3	104	198	198
2021		0	--	74	3	104	198	198
2022		0	--	74	3	104	198	198
2023		0	--	74	3	104	198	198
2024		0	--	74	3	104	198	198
2025		0	--	74	--	104	195	195
2026		0	--	74	--	104	195	195
2027		0	--	74	--	104	195	195
2028		0	--	24	--	104	140	140
2029		0	--	--	--	104	114	114
2030		0	--	--	--	104	114	114
2031	0	--	--	--	104	114	114	

¹ See Appendix B-4 for details about WAPA.

² The Total Renewable Capacity includes the 10% adder allowed by the RES Act. The Total Renewable Capacity is calculated by summing the Renewable Capacity columns, less the Western Area Power Administration (WAPA) amount. The summation value is multiplied by 1.1 to add in the 10% from the RES Act and finally the amount from WAPA is added back in.

Appendix B-7—Kansas City Board of Public Utilities (KC-BPU)

Kansas City Board of Public Utilities (KC-BPU) is a municipal utility that has always voluntarily complied with the State’s RES. Kansas City Board of Public Utilities currently has long-term power purchase agreements with the Smoky Hills wind farm in Lincoln and Ellsworth counties, as well as the federally managed hydro-electric power marketers Southwestern Power Authority (SWPA) and Western Area Power Authority (WAPA)¹. The Company has agreements with the Waste Corporation of Kansas and the City of Lawrence to purchase electricity from the Oak Grove Landfill and Bowersock Hydro-Electric Dam, respectively.

	Renewable Capacity		Renewable Capacity Inventory ²								Total Renewable Capacity ³	Renewable Capacity Surplus (Deficit) ⁴
	Renewable Energy Standard	Renewable Capacity	Smoky Hills Wind Farm	Oak Grove Landfill	Bowersock	Alexander Wind Farm	SWPA	WAPA	Cimarron Bend	Community Solar		
2012	10%	50	25	1.5	--	--	39	5			102	21
2013		45	25	2	--	--	39	5			303	206
2014		46	25	2	--	--	39	5			303	201
2015		49	25	4	4	25	39	5	0	0	303	204
2016	15%	72	25	4	4	25	39	5	0	0	102	30
2017		74	25	4	4	25	39	5	200	1	303	229
2018		74	25	4	4	25	39	5	200	1	303	229
2019		74	25	4	4	25	39	5	200	1	303	229
2020	20%	99	25	4	4	25	39	5	200	1	303	204
2021		99	25	4	4	25	39	5	200	1	303	204
2022		100	25	4	4	25	39	5	200	1	303	203
2023		100	25	4	4	25	39	5	200	1	303	203
2024		100	25	4	4	25	39	5	200	1	303	203
2025		100	25	4	4	25	39	5	200	1	303	203
2026		100	25	4	4	25	39	5	200	1	303	202
2027		100	25	4	4	25	39	5	200	1	303	202
2028		101	25	4	4	25	39	5	200	1	303	202
2029		101	25	4	4	25	39	5	200	1	303	202
2030	101	25	4	4	25	39	5	200	1	303	202	

¹ See Appendix B-4 for details about SWPA and WAPA.

² The Renewable Capacity table omits a forecasted value of 25 MW for years 2020-2030.

³ The Total Renewable Capacity includes the 10% adder allowed by the RES Act and a minimal amount of net metering. The Total Renewable Capacity is calculated by adding the forecast from footnote 1 to the sum of the Renewable Capacity columns.

⁴ The Renewable Capacity Surplus (Deficit) is calculated by subtracting the Renewable Capacity Needed for Compliance from the Total Renewable Capacity.

2031		101	25	4	4	25	39	5	200	1	303	202
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Appendix B-8—Kansas Power Pool (KPP)

Kansas Power Pool (KPP) is an association of municipal utilities whose participation in the State’s Renewable Energy Standard has always been voluntary. Kansas Power Pool currently has long-term power purchase agreements with Greensburg Wind Farm, LLC, to purchase electricity generated by ten 1.25MW wind turbines located just outside Greensburg, Kansas, in Kiowa County. These wind turbines were completed in March 2010 as part of a larger project to rebuild the city after the devastating 2007 tornado. The Power Pool also receives power from the federally managed hydro-electric power marketers Southwestern Power Authority (SWPA), Western Area Power Authority (WAPA)¹, and the Great River Dam Authority (GRDA).

	Renewable Capacity		Renewable Capacity Inventory					Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit) ³
	Renewable Energy Standard	Renewable Capacity	Greensburg Wind Farm	Marshall County Wind Farm	SWPA	WAPA	Great River Dam Authority		
2012	10%	0	--	--	--	--	--	51	51
2013		0	--	--	--	--	--	51	51
2014		0	--	--	--	--	--	51	51
2015		0	12.5	25	5.5	2.7	5.4	51	51
2016	15%	0	12.5	25	5.5	2.7	5.4	51	51
2017		0	12.5	25	5.5	2.7	5.4	51	51
2018		0	12.5	25	5.5	2.7	5.4	51	51
2019		0	12.5	25	5.5	2.7	5.4	51	51
2020	20%	0	12.5	25	5.5	2.7	5.4	51	51
2021		0	12.5	25	5.5	2.7	5.4	51	51
2022		0	12.5	25	5.5	2.7	5.4	51	51
2023		0	12.5	25	5.5	2.7	5.4	51	51
2024		0	12.5	25	5.5	2.7	5.4	51	51
2025		0	12.5	25	5.5	2.7	5.4	51	51
2026		0	12.5	25	5.5	2.7	5.4	51	51
2027		0	12.5	25	5.5	2.7	0	46	46
2028		0	12.5	25	5.5	2.7	0	46	46

¹ See Appendix B-4 for details about SWPA and WAPA.

² The Total Renewable Capacity includes the 10% adder allowed by the RES Act. The Total Renewable Capacity is calculated by summing the Renewable Capacity columns and adding 1.25 MW which is the 10% adder for the Greensburg Wind Farm

³ The Renewable Capacity Surplus (Deficit) is calculated by subtracting the Renewable Capacity from the Total Renewable Capacity.

2029		0	12.5	25	5.5	2.7	0	46	46
2030		0	12.5	25	5.5	2.7	0	46	46
2031		0	0	25	5.5	2.7	0	33	33

Appendix C—Commercial-Size Renewable Energy Generation

Appendix C-1—Existing Renewable Generators within Kansas

Renewable Generator (Total Nameplate Capacity)	County	Developer	Initial Month and Year of Operation	Utility Purchaser	Size
Gray County Wind Farm (112.2 MW)	Gray	NextEra (Florida Power & Light)	November 2001	Sunflower Electric (allocated to MKEC system)	51 MW
				Kansas City Power and Light – Greater Missouri Operations	60 MW
				<i>Unallocated</i>	1 MW
Elk River Wind Facility (150 MW)	Butler	PPM Energy (Ibedrola SA)	December 2005	Empire District Electric	150 MW
Spearville Wind Energy Facility Phase I (100.5 MW)	Ford	enXco (EDF Renewable Energy)	August 2006	Kansas City Power and Light	100.5 MW
Spearville Wind Energy Facility Phase II (48 MW)	Ford	enXco (EDF Renewable Energy)	December 2010	Kansas City Power and Light	48 MW
Spearville Wind Energy Facility Phase III (101 MW)	Ford	enXco (EDF Renewable Energy)	October 2012	Kansas City Power and Light	101 MW
Smoky Hills Phase 1 (100.8 MW)	Lincoln and Ellsworth	Trade Wind Energy	January 2008	Sunflower Electric	50.4 MW
				Kansas City Board of Public Utilities	25.2 MW
				Midwest Energy	25.2 MW
Smoky Hills Phase 2 (148.5 MW)	Lincoln and Ellsworth	Trade Wind Energy	January 2009	Sunflower Electric (allocated to MKEC system)	24 MW
				Midwest Energy	24 MW
				City Power and Light (Independence, Mo.)	15 MW
				City Utilities of Springfield, Mo.	50 MW
				<i>Unallocated (SPP EIM)¹</i>	35.5 MW
Cloud County (Meridian Way) Wind Farm (201 MW)	Cloud	Horizon Wind Energy	November 2008	Empire District Electric	105 MW
				Westar Energy	96 MW
Ironwood (168 MW)	Ford and Hodgeman	Duke Energy Generation Services	October 2012	Westar	168 MW
Post Rock (201 MW)	Ellsworth and Lincoln	Wind Capital Group	November 2012	Westar	201 MW
Flat Ridge Wind Farm (100 MW)	Barber	BP Alternative Energy	March 2009	Westar Energy	50 MW
Flat Ridge 2 Wind Farm (470.2 MW)	Harper, Kingman, Barber, and Sumner	BP Alternative Energy	December 2012	Associated Electric Cooperative	310.4 MW
				Arkansas Electric Coop Corp	51.2 MW
				<i>Southwestern Electric Power Company</i>	108.8 MW
Central Plains Wind Farm (99 MW)	Wichita	RES America	March 2009	Westar	99 MW

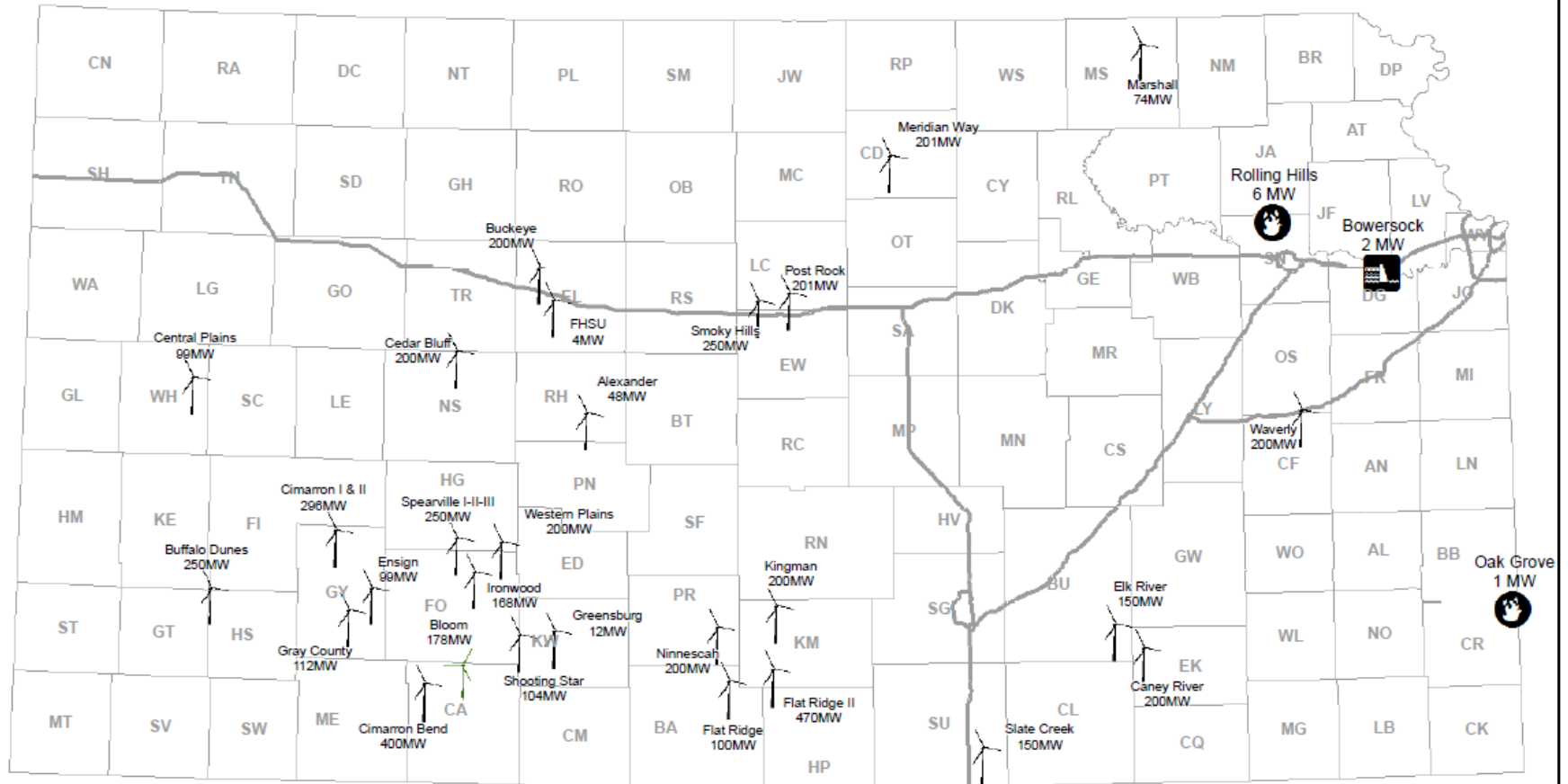
¹Unallocated wind energy can be sold through the Southwest Power Pool's Integrated Market.

Buffalo Dunes (250 MW)	Haskell/Grant	Trade Wind Energy	December 2013	Alabama Power Company	250 MW
Cimarron Energy Project (Cimarron I) (165 MW)	Gray	CPV Renewable Energy	November 2012	Tennessee Valley Authority	165 MW
Cimarron Energy Project (Cimarron II) (131 MW)	Gray	Duke Energy Generation Services	June 2012	Kansas City Power & Light	131 MW
Ensign Wind Energy (99 MW)	Gray	NextEra Energy Resources	November 2012	Kansas City Power and Light – Greater Missouri Operations	99 MW
Shooting Star (105 MW)	Kiowa	Infinity Wind Power	September 2012	Sunflower	105 MW
Caney River (200 MW)	Elk	Trade Wind Energy	December 2011	Tennessee Valley Authority	200 MW
Greensburg (12.5 MW)	Kiowa	John Deere / Excelon	March 2010	Kansas Power Pool	12.5 MW
Bowersock Hydro-electric Dam (7.1 MW)	Douglas	Kansas River Hydro Project	1922/2012	Kansas City Board of Public Utilities	7.1 MW
Rolling Meadows Landfill (5.6 MW)	Shawnee	Waste Management	January 2010	Westar Energy	5.6 MW
Oak Grove Landfill (1.6 MW)	Crawford	Waste Corporation of Kansas	March 2010	Kansas City Board of Public Utilities	1.6 MW
Alexander Wind Farm (50 MW)	Rush	New Jersey Resources Corp.	October 2015	Kansas City Board of Public Utilities & Yahoo! Inc.	48.3 MW
Buckeye Wind Energy (200 MW)	Ellis	Invenergy, LLC	December 2015	-----	200 MW
Waverly Wind	Coffey	EDP Renewables	2016	KCP&L	199.5 MW
Marshall Energy	Marshall	RPM Access	May 2016	Missouri Joint Municipal Electric Utility Commission	74 MW
Cedar Bluff Wind Farm	Ness	NextEra Energy Resources	December 2015	Westar Energy, Inc.	200 MW
Slate Creek Wind Project	Sumner	EDF Renewable Energy	December 2015	Great Plains Energy Inc.	150 MW
Midwest Energy Community Solar Garden	Thomas	Clean Energy Collective	February 2015	Midwest Energy	1 MW

Appendix C-2—Announced New Renewable Generation within Kansas

Renewable Generator (Total Nameplate Capacity)	County	Developer	Initial Month and Year of Operation	Utility Purchaser	Size
Ringneck Prairie Wind Farm (70 MW)	Graham	Nordex	2020	-----	70 MW
Ninnescah	Pratt	NextEra Energy Resources	December 2016	Westar Energy Inc.	218 MW
Kingman 1	Kingman	NextEra Energy Resources	Early 2017	Westar Energy Inc.	103 MW
Kingman 2	Kingman	NextEra Energy Resources	Early 2017	Westar Energy Inc.	103 MW
Western Plains	Ford	Infinity Wind Power	Early 2017	Westar Energy Inc.	281 MW
Westar Community Solar	Reno	-----	December 2016	Westar Energy Inc.	1 MW
Cimarron Bend	Clark	Trade Wind Energy	January 2017	Kansas City Board of Public Utilities	400 MW
Bloom Wind	Clark/Ford	Norvento	-----	-----	178 MW

Commercial-Size Renewable Generation in Kansas



-  Hydro
-  Wind, Existing
-  Landfill Gas
-  Wind, Under Construction

Appendix D— Inventory of Major Power Plants Serving Kansas Loads

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2015 Net Generation (MWh)
Wolf Creek Nuclear Operating Corporation	Wolf Creek Nuclear (B)	Coffey	KCP&L (47%) Westar (47%) KEPCo (6%)	1,205	1985	8,630,179
Westar Energy, Inc. (Westar)	Jeffrey Energy Center Coal (B)	Pottawatomie	Westar (92%) Mid-Kansas (8%)	2,179	1978 - 1983	11,391,291
	Lawrence Energy Center Coal (B)	Douglas	Westar (100%)	531	1955 - 1971	2,382,764
	Hutchinson Natural gas (P)	Reno	Westar (100%)	396	1965 - 1983	6,481
	Tecumseh Coal (B) and Natural gas (P)	Shawnee	Westar (100%)	205	1957 - 1972	1,025,207
	Gordon Evans Natural gas (P) Diesel (P)	Sedgwick	Westar (100%)	821	1961 - 2001	283,633
	Murray Gill Natural gas (P)	Sedgwick	Westar (100%)	293	1952 - 1959	89,345
	Emporia Energy Center Natural gas (LF) and Natural gas (P)	Lyon	Westar (100%)	660	2008-2009	271,565
	Spring Creek Energy Center Natural gas (P)	Logan, Oklahoma	Westar (100%)	279	2001	23,383
	Central Plains Wind Farm Wind	Wichita	Westar (100%)	99	2009	293,767
	Flat Ridge 1 Wind Farm Wind	Barber	Westar (100%)	100	2009	149,968
Kansas City Power and Light (KCP&L)	LaCygne Coal (B)	Linn	KCP&L (50%) Westar (50%)	1,421.2	1973 - 1977	2,984,206
	Osawatomie Natural gas (P)	Miami	KCP&L (100%)	90	2003	1,540
	West Gardner Natural gas (P)	Johnson	KCP&L (100%)	360	2003	14,911

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2015 Net Generation (MWh)
	Iatan I Coal (B)	Platte, Missouri	KCP&L (70%) KCP&L-GMO (18%) Empire (12%)	704.7	1980	1,559,742
	Iatan II Coal (B)	Platte, Missouri	KCP&L (54.71%) KCP&L-GMO (18%) Empire (12%) MJMEUC (11.76%) KEPCo (3.53%)	881	2010	2,456,001
	Montrose Coal (B)	Henry, Missouri	KCP&L (100%)	510	1958 - 1964	604,304
	Hawthorn Coal (B)	Jackson, Missouri	KCP&L (100%)	564	1969	1,481,903
	Hawthorn Combine Cycle Natural gas (P)	Jackson, Missouri	KCP&L (100%)	306	1997 - 2000	29,202
	Hawthorn Combustion Turbine Natural gas (P)	Jackson, Missouri	KCP&L (100%)	180	2000	9,418
	Northeast Station Natural gas (P) and Distillate fuel oil (P)	Jackson, Missouri	KCP&L (100%)	520	1972 - 1985	297
	Spearville Wind Farm Wind	Ford	KCP&L (100%)	249	2006 - 2012	196,348
Kansas City Board of Public Utilities (KC-BPU)	Quindaro Coal (B)	Wyandotte	KC-BPU (100%)	183	1965 - 1971	284,001
	Quindaro Combustion Turbine Natural gas (P) and Distillate fuel oil (P)	Wyandotte	KC-BPU (100%)	115	1969 - 1977	35,865
	Nearman Creek Coal (B)	Wyandotte	KC-BPU (100%)	229	1981	1,204,133
	Nearman Creek Combustion Turbine Natural gas (P)	Wyandotte	KC-BPU (100%)	76 <i>(with 45MW additional announced)</i>	2006	6,635
	Kaw Natural gas (P)	Wyandotte	KC-BPU (100%)		1955 - 1962	(out of service)

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2015 Net Generation (MWh)
Kansas Electric Power Cooperatives (KEPCo)	Sharpe Distillate fuel oil (I)	Coffey	KEPCo (100%)	20	2002	25
Sunflower Electric Power Corporation (Sunflower)	Holcomb Station Coal (B)	Finney	Sunflower (100%)	358.8	1983	1,453,337
	Garden City Station Natural gas (I) and Natural gas (P)	Finney	Sunflower (100%)	239.2	1962 - 1979	102,697
Mid-Kansas Electric Company (Mid-Kansas)	Cimarron River Station Natural gas (I) and Natural gas (P)	Seward	Mid-Kansas (100%)	75	1963 - 1967	924
	Clifton Station Natural gas (P) and Distillate fuel oil (P)	Washington	Mid-Kansas (100%)	75.5	1974	3,107
	Fort Dodge Station Natural gas (LF) <i>(formerly Judson Large)</i>	Ford	Mid-Kansas (100%)	147.8	1968	166,146
	Great Bend Station Natural gas (I) <i>(formerly Arthur Mullergren)</i>	Barton	Mid-Kansas (100%)	96	1963	23,024
	Rubart Station Natural gas (I)	Grant	Mid-Kansas (100%)	110	2014	133,099
Empire District Electric Company (Empire)	Riverton Coal (B)	Cherokee	Empire (100%)	92	1950	0
	Riverton Combustion Turbine Natural gas (P)	Cherokee	Empire (100%)	236	1964 – 2007	104,582
	Asbury Coal (B)	Jasper, Missouri	Empire (100%)	189	1970 - 1986	1,079,076
	Empire Energy Center Natural gas (P)	Jasper, Missouri	Empire (100%)	300	1978 - 2003	27,722
	Ozark Beach Hydro (B)	Taney, Missouri	Empire (100%)	16	1931	41,927
	State Line Combine Cycle Natural gas (P)	Jasper, Missouri	Empire (60%) Westar (40%)	499	2001	1,827,310
	State Line Combustion Turbine Natural gas (P)	Jasper, Missouri	Empire (100%)	96	1995	18,633

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2015 Net Generation (MWh)
Plum Point Energy Associates, LLC	Plum Point Energy Coal (B)	Mississippi, Arkansas	EIF Plum Point (29.6%) John Hancock (27.25%) MJMEUC (22.11%) Empire (7.52%) East Texas Coop. (7.52%) Mississippi Municipal Energy Agency (6%)	670	2010	3,716,051
Midwest Energy, Inc. (Midwest)	Colby Dual Fuel (P)	Thomas	Midwest (100%)	13	1970	879
	Great Bend Dual Fuel (P)	Barton	Midwest (100%)	10	1948 - 1956	(51)
	Bird City Distillate fuel oil (P)	Cheyenne	Midwest (100%)	4	1965	(10)
	Goodman Energy Center Natural gas (P)	Ellis	Midwest (100%)	73.8	2008	34,446



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