



KANSAS CORPORATION COMMISSION
Report on Electric Supply and Demand

2015

Introduction

K.S.A. 2013 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 and (2) system peak capacity needs and (3) renewable generation needs associated with the 2009 Kansas renewable energy standards.

To ensure that 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 the states of 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 (page three) 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)
2012 Historical	Total System Capacity (MW)	73	2,015	6,596	532	407	1,306	601	246	574
	System Peak Responsibility (MW)	73	1,930	6,072	514	388	1,314	563	220	422
	System Capacity Surplus (Deficit)	0	86	524	18	18	(8)	38	26	152
2017 Projected	Total System Capacity (MW)	74	2,052	6,703	527	421	1,286	726	465	376
	System Peak Responsibility (MW)	69	1,770	5,811	519	427	1,248	538	445	218
	System Capacity Surplus (Deficit)	5	282	918	7	(6)	38	198	20	94
2022 Projected	Total System Capacity (MW)	74	1,901	6,888	515	441	1,147	677	396	376
	System Peak Responsibility (MW)	70	1,811	6,180	506	453	1,240	549	483	308
	System Capacity Surplus (Deficit)	4	90	731	9	(12)	(93)	128	(87)	68
2027 Projected	Total System Capacity (MW)	73	1,880	---	531	466	1,144	477	330	301
	System Peak Responsibility (MW)	72	1,866	---	523	481	1,265	558	516	337
	System Capacity Surplus (Deficit)	1	14	---	8	(15)	(121)	(81)	(186)	(36)
2032 Projected	Total System Capacity (MW)	72	1,880	---	546	491	1,143	477	---	67
	System Peak Responsibility (MW)	73	1,930	---	544	510	1,292	549	---	370
	System Capacity Surplus (Deficit)	(1)	(50)	---	3	(19)	(150)	(92)	---	(303)

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.

K.S.A. 2013 Supp. 66-1258 also stipulated that the KCC would establish rules and regulations governing specifics of RESA not covered within the statutes. In October 2010, the KCC finalized K.A.R. 82-16-1 through 82-16-6 establishing these rules and regulations. Of note within these administrative regulations is the KCC's decision of how the State's Renewable Energy Standard (RES) would be measured for the many electric distribution cooperative utilities operating in the State. Electric cooperative distribution utilities, while engaging in the retail sale and distribution of electricity from the transmission system to their customer's homes or businesses, do not own any generation or wholesale transmission facilities themselves. Instead, these utilities either enter into wholesale purchase contracts with Investor Owned Utilities, or often a Generation and Transmission (G&T) Cooperative² formed with other electric distribution cooperative utilities for the purposes of acting as a wholesale supplier. K.A.R. 82-16-2(b) indicates that compliance with RESA may be met by the G&T Cooperative on behalf of its members, rather than each individual distribution cooperative.

Table 2 (page five) shows each RESA affected utility's forecasted renewable capacity responsibility and nameplate renewable capacity (multiplied by a factor of 1.1 for renewable generators located within the State as defined by K.S.A. 66-1258(c)), with the exclusion of three independent distribution cooperatives who purchase power solely wholesale from Westar Energy (Nemaha-Marshall, Doniphan, and Kaw Valley electric cooperatives).

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.

² G&T Cooperatives operating in Kansas are Kansas Electric Power Cooperatives (KEPCo) and Sunflower Electric Power Corporation (Sunflower), though Sunflower's co-entity Mid-Kansas Electric Corporation (Mid-Kansas) acts as a similar entity.

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

		Utilities Subject to Renewable Energy Standard (RES) under K.S.A. 66-1258							Kansas City Board of Public Utilities (KC-BPU) ¹	Kansas Power Pool (KPP) ²
		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)			
2012 Historical	System Renewable Capacity (MW)	14	178	737	133	57	142	73	41	
	Renewable Capacity Responsibility—10% (MW)	7	170	475	43	32	71	47	38	
	Renewable Capacity Surplus (Deficit)	7	8	262	89	25	71	26	3	
2017 Projected	System Renewable Capacity (MW)	12	332	936	130	57	198	111	27	
	Renewable Capacity Responsibility—15% (MW)	9	243	691	67	55	154	71	42	
	Renewable Capacity Surplus (Deficit)	3	89	245	63	2	45	41	(15)	
2022 Projected	System Renewable Capacity (MW)	6	332	1,046	130	57	198	111	27	
	Renewable Capacity Responsibility—20% (MW)	12	331	958	92	81	162	97	58	
	Renewable Capacity Surplus (Deficit)	(6)	1	88	38	(24)	37	14	(31)	
2027 Projected	System Renewable Capacity (MW)	(2) ³	340	1,046	130	57	195	111	27	
	Renewable Capacity Responsibility—20% (MW)	12	341	---	91	86	170	99	64	
	Renewable Capacity Surplus (Deficit)	(14)	(1)	---	39	(29)	25	13	(37)	
2031 Projected	System Renewable Capacity (MW)	(8)	340	1,045	130	57	114	110	27	
	Renewable Capacity Responsibility—20% (MW)	12	350	---	93	90	177	99	70	
	Renewable Capacity Surplus (Deficit)	(20) ⁴	(20)	---	36	(33)	(63)	11	(43)	

¹ KC-BPU is a municipal utility not subject to K.S.A. 66-1258. However, KC-BPU has publicly stated that it will voluntarily comply with the Renewable Energy Standard (RES) contained within the statute. Data shown is 2012.

² KPP, also an organization of municipal utilities, included renewable energy information in its compliance filing with the Commission, yet is not required to comply with the State RPS.

³ Negative System Capacity due to the equation subtracts renewable capacity for other jurisdictions and states, which was greater than that that was available as a whole.

⁴ 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	2009	74	10	84	63	8	72	(12)
	2010	69	9	78	66	5	71	(7)
	2011	68	9	77	70	3	73	(4)
	2012	65	9	73	70	3	73	0
	2013	58	8	66	70	3	73	7
	2014	61	8	69	69	3	72	3
Projected	2015	61	8	69	67	4	72	3
	2016	61	8	69	70	4	74	5
	2017	61	8	69	70	4	74	5
	2018	61	8	69	70	4	74	5
	2019	61	8	69	70	4	74	5
	2020	62	8	69	70	4	74	5
	2021	62	8	70	70	4	74	4
	2022	62	8	70	70	4	74	4
	2023	62	8	70	70	4	74	4
	2024	63	8	71	70	4	74	3
	2025	63	9	71	70	4	74	3
	2026	63	9	71	70	3	73	2
	2027	64	9	72	70	3	73	1
	2028	64	9	72	70	3	73	1
	2029	64	9	72	70	3	72	0
	2030	64	9	73	70	3	72	(1)
	2031	65	9	73	70	3	72	(1)
	2032	65	9	73	70	3	72	(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	2009	1632	223	1855	1781	-7	1774	(80)
	2010	1686	230	1916	1816	41	1857	(59)
	2011	1754	239	1993	2053	-8	2045	52
	2012	1698	232	1930	2038	-23	2015	86
	2013	1556	212	1768	2033	-33	2000	232
	2014	1605	219	1824	2057	-35	2022	198
Projected	2015	1612	210	1750	2051	45	2096	346
	2016	1623	212	1763	1974	57	2031	268
	2017	1629	212	1770	1974	78	2052	282
	2018	1634	213	1776	1974	78	2052	276
	2019	1640	214	1783	1974	82	2056	273
	2020	1647	215	1791	1974	82	2056	265
	2021	1656	216	1801	1819	82	1901	100
	2022	1665	217	1811	1819	82	1901	90
	2023	1674	219	1822	1819	89	1908	86
	2024	1684	220	1833	1819	61	1880	47
	2025	1693	221	1843	1819	61	1880	37
	2026	1703	223	1855	1819	61	1880	25
	2027	1713	224	1866	1819	61	1880	14
	2028	1724	225	1879	1819	61	1880	1
	2029	1735	227	1891	1819	61	1880	(12)
	2030	1747	229	1905	1819	61	1880	(25)
	2031	1758	230	1918	1819	61	1880	(38)
	2032	1769	232	1930	1819	61	1880	(50)

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, and therefore there has been a movement to consolidate electric rates with the ultimate goal of uniform rates across the two entities. 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 ²	Net Contracts	Total System Capacity	
Historical	2009	4569	623	5192	6,626	-504	6,122	930
	2010	5469	724	6034	6,608	8	6,616	582
	2011	5549	749	6244	6,555	-20	6,535	291
	2012	5410	729	6072	6,521	74	6,596	523
	2013	5187	707	5894	6,356	34	6,391	496
	2014	5224	712	5936	6,356	104	6,460	539
Projected	2015	5226	682	5687	6,344	106	6,450	793
	2016	5270	689	5741	6,344	180	6,524	819
	2017	5328	697	5811	6,364	339	6,703	918
	2018	5390	706	5885	6,379	338	6,717	858
	2019	5451	715	5958	6,379	511	6,890	959
	2020	5515	724	6033	6,379	518	6,897	882
	2021	5579	733	6108	6,379	517	6,896	812
	2022	5640	742	6180	6,379	509	6,888	731
	2023	5695	749	6245	6,379	718	7,097	726
	2024	5749	757	6309	6,379	718	7,097	662
	2025	--	--	--	--	--	--	--
	2026	--	--	--	--	--	--	--
	2027	--	--	--	--	--	--	--
	2028	--	--	--	--	--	--	--
	2029	--	--	--	--	--	--	--
	2030	--	--	--	--	--	--	--
	2031	--	--	--	--	--	--	--
	2032	--	--	--	--	--	--	--

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 Accredited Generation assumes retirement of: Abilene GT 1 in 2013, Neosho 3 in 2012, and Tecumseh GT 1&2 in 2012.

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	2009	401	55	456	90	411	501	45
	2010	440	60	500	90	452	542	42
	2011	455	62	518	122	459	581	64
	2012	452	62	514	123	409	532	17
	2013	435	59	494	123	385	508	13
	2014	433	59	492	123	383	506	14
Projected	2015	449	61	510	123	400	523	13
	2016	453	62	515	123	399	522	7
	2017	457	62	519	123	404	527	7
	2018	461	63	524	123	408	531	8
	2019	465	63	529	123	411	534	5
	2020	469	64	533	123	416	539	6
	2021	442	60	503	123	389	512	9
	2022	445	61	506	123	392	515	9
	2023	448	61	510	123	396	519	10
	2024	451	62	513	123	399	522	10
	2025	454	62	516	123	402	525	9
	2026	457	62	520	123	405	528	9
	2027	460	63	523	123	408	531	8
	2028	463	63	526	123	411	534	8
	2029	467	64	531	123	414	537	6
	2030	471	64	535	123	417	540	5
	2031	475	65	539	123	420	543	4
	2032	478	65	544	123	423	546	3

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	2009	309	42	351	102	264	366	15
	2010	323	44	365	99	264	363	(3)
	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
Projected	2015	385	49	411	91	310	401	(11)
	2016	392	50	419	91	335	426	7
	2017	399	51	427	91	330	421	(6)
	2018	404	52	432	91	330	421	(11)
	2019	409	52	437	91	330	421	(16)
	2020	414	53	441	91	325	416	(25)
	2021	419	54	447	91	325	416	(31)
	2022	424	54	453	91	350	441	(12)
	2023	429	55	459	91	350	441	(18)
	2024	434	56	464	91	350	441	(23)
	2025	439	56	470	91	350	441	(29)
	2026	444	57	475	91	350	441	(34)
	2027	449	58	481	91	375	466	(15)
	2028	454	58	487	91	375	466	(21)
	2029	459	59	492	91	375	466	(26)
	2030	464	60	498	91	400	491	(7)
	2031	469	60	504	91	400	491	(13)
	2032	474	61	510	91	400	491	(19)

¹The 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. The company anticipates growing its interruptible load from 20 MW in 2012 to 53 MW in 2032.

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	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	1029	140	1169	1049	123	1172	3
	2010	1118	152	1270	1196	119	1315	45
	2011	1143	156	1299	1179	139	1318	19
	2012	1156	158	1314	1167	139	1306	(8)
	2013	1147	156	1303	1150	139	1289	(14)
	2014	1114	152	1266	1284	139	1423	157
Projected	2015	1138	155	1293	1288	139	1427	134
	2016	1091	149	1240	1145	139	1284	44
	2017	1098	150	1248	1143	143	1286	38
	2018	1103	150	1253	1143	143	1286	32
	2019	1111	152	1263	1143	4	1147	(116)
	2020	1119	153	1272	1143	4	1147	(125)
	2021	1086	148	1234	1143	4	1147	(87)
	2022	1091	149	1240	1143	4	1147	(93)
	2023	1095	149	1244	1143	4	1147	(98)
	2024	1100	150	1250	1143	4	1147	(103)
	2025	1104	151	1255	1140	4	1144	(111)
	2026	1109	151	1260	1140	4	1144	(117)
	2027	1113	152	1265	1140	4	1144	(121)
	2028	1119	153	1272	1140	4	1144	(128)
	2029	1124	153	1277	1139	4	1143	(135)
	2030	1128	154	1282	1139	4	1143	(139)
	2031	1133	155	1288	1139	4	1143	(145)
	2032	1137	155	1292	1139	4	1143	(150)

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	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	471	64	535	613	-14	599	64
	2010	501	68	569	613	-13	601	32
	2011	502	68	570	613	-13	601	30
	2012	495	68	563	613	-13	601	38
	2013	454	62	516	604	-6	599	83
	2014	459	62	519	604	106	710	190
Projected	2015	472	64	533	604	106	710	177
	2016	474	64	535	560	164	724	189
	2017	476	65	538	560	166	726	189
	2018	478	65	540	560	166	726	186
	2019	480	65	542	560	166	726	184
	2020	482	65	544	560	166	726	182
	2021	484	66	547	511	166	677	131
	2022	486	66	549	511	166	677	128
	2023	488	66	551	439	166	605	53
	2024	490	66	553	387	166	553	0
	2025	490	66	553	387	166	553	0
	2026	492	67	556	387	166	553	(2)
	2027	494	67	558	311	166	477	(81)
	2028	496	67	560	311	166	477	(83)
	2029	498	68	563	311	166	477	(86)
	2030	500	68	565	311	166	477	(88)
	2031	502	68	567	311	166	477	(90)
	2032	504	68	569	311	166	477	(92)

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	Accredited Generation ¹	Net Contracts	Total System Capacity	
Historical	2009	200	27	227	199	89	289	62
	2010	211	29	240	199	14	213	(27)
	2011	210	29	239	199	41	241	2
	2012	194	26	220	199	47	246	26
	2013	218	30	248	199	58	257	9
	2014	339	46	386	300	163	464	78
Projected	2015	375	51	426	306	239	545	119
	2016	386	53	439	306	159	465	27
	2017	392	53	445	306	159	465	20
	2018	401	55	456	306	159	465	10
	2019	404	55	459	306	85	391	(68)
	2020	411	56	467	306	89	396	(71)
	2021	418	57	475	306	89	396	(79)
	2022	425	58	483	306	89	396	(87)
	2023	431	59	490	306	89	396	(94)
	2024	436	59	495	306	89	396	(100)
	2025	441	60	501	306	89	396	(105)
	2026	448	61	509	306	24	330	(179)
	2027	454	62	516	306	24	330	(186)
	2028	460	63	523	306	24	330	(192)
	2029	466	64	530	306	24	330	(199)
	2030	472	64	537	306	24	330	(206)
	2031	478	65	543	306	24	330	(213)
	2032	--	--	--	--	--	--	--

¹ 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	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	--	--	--	--	--	--	--
	2010	--	--	--	--	--	--	--
	2011	349	48	397	363	170	532	135
	2012	371	51	422	405	170	574	152
	2013	342	47	389	405	169	573	184
	2014	212	29	241	342	102	445	204
Projected	2015	217	30	247	267	99	366	119
	2016	233	32	265	267	109	376	111
	2017	247	34	281	267	109	376	94
	2018	252	34	286	267	109	376	89
	2019	256	35	291	267	109	376	84
	2020	261	36	297	267	109	376	79
	2021	266	36	302	267	109	376	73
	2022	271	37	308	267	109	376	68
	2023	276	38	313	267	50	317	3
	2024	281	38	319	267	50	317	(3)
	2025	286	39	325	267	50	317	(9)
	2026	291	40	331	267	50	317	(15)
	2027	297	40	337	267	35	301	(36)
	2028	302	41	344	267	35	301	(42)
	2029	308	42	350	267	35	301	(49)
	2030	314	43	356	267	35	301	(55)
	2031	319	44	363	267	33	300	(63)
	2032	325	44	370	42	25	67	(303)

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’ RES, the utility must concurrently satisfy a separate RES in Missouri. Empire has enough renewable generation to satisfy both states requirements through 2025 when the utility’s current long-term power purchase agreement to Elk River Wind Facility expires.

	Renewable Capacity Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity			Total Renewable Capacity ¹	Renewable Capacity Allocated to Kansas	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	Cloud County (Meridian Way) Wind Farm	Elk River Wind Facility	Ozark Beach			
2012	10%	7	105	150	16	272	14	7
2013		6	105	150	16	272	14	7
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	272	6	(6)
2026		12	105	0	16	122	-2	(14)
2027		12	105	0	16	122	-2	(14)
2028		12	105	0	16	122	-2	(14)
2029		12	0	0	16	17	-8	(20)
2030		12	0	0	16	17	-8	(20)
2031	12	0	0	16	16	-8	(20)	

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’ RES, the utility must concurrently satisfy a separate RES in place in Missouri. With the addition of the Cimarron Energy Project, KCP&L has sufficient renewable generation to satisfy both states’ requirements though 2015.

	Renewable Capacity Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity ¹			Renewable Capacity Required for Other Jurisdictions	Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit) ³
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	Spearville Wind Farm ⁴	Cimarron Energy Project (Cimarron II)	Central Nebraska Public Power			
2012	10%	170	249	131	--	219	178	8
2013		155	249	131	--	219	177	22
2014		159	249	131	62	219	239	79
2015		160	249	131	62	219	239	78
2016	15%	242	249	131	62	335	332	90
2017		243	249	131	62	335	332	89
2018		244	249	131	62	335	332	88
2019		245	249	131	62	335	332	87
2020	20%	327	249	131	62	335	332	4
2021		329	249	131	62	335	332	3
2022		331	249	131	62	335	332	1
2023		333	249	131	62	335	332	(1)
2024		335	249	131	--	421	340	5
2025		337	249	131	--	421	340	3
2026		339	249	131	--	421	340	1
2027		341	249	131	--	421	340	(1)
2028		343	249	131	--	421	340	(3)
2029		345	249	131	--	421	340	(5)
2030		347	249	131	--	421	340	(7)
2031	350	249	131	--	421	340	(10)	

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 Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity ¹						Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	Central Plains Wind Farm	Cloud County (Meridian Way) Wind Farm	Flat Ridge Wind Farm	Rolling Meadows Landfill	Post Rock Wind Farm	Ironwood Wind Farm		
2012	10%	475	99	96	100	6	201	168	737	262
2013		486	99	96	100	6	201	168	736	251
2014		477	99	96	100	6	201	168	736	259
2015		467	99	96	100	6	201	168	736	270
2016	15%	690	99	96	100	6	201	168	936	246
2017		691	99	96	100	6	201	168	936	245
2018		693	99	96	100	6	201	168	936	244
2019		699	99	96	100	6	201	168	936	238
2020	20%	940	99	96	100	6	201	168	1046	106
2021		949	99	96	100	6	201	168	1046	97
2022		958	99	96	100	6	201	168	1046	88
2023		967	99	96	100	6	201	168	1046	80
2024		975	99	96	100	6	201	168	1046	72
2025		--	99	96	100	6	201	168	1046	--
2026		--	99	96	100	6	201	168	1046	--
2027		--	99	96	100	6	201	168	1046	--
2028		--	99	96	100	6	201	168	1046	--
2029		--	99	--	50	6	201	168	1051	--
2030		--	99	--	50	--	201	168	1045	--
2031	--	99	--	50	--	201	168	1045	--	

¹ The Renewable Capacity table does not show forecasted values of 167 MW for years 2017-2019, and 417 MW for years 2020-2031.

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-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 is expected to be renewed. KEPCo is also purchasing renewable energy from Westar and will satisfy KEPCo’s member’s requirement under the Renewable Energy Standard through at least 2031.

	Renewable Capacity Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity			Renewable Capacity Required for Other Jurisdictions	Total Renewable Capacity ¹	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	SWPA	WAPA	Westar (PPA)			
2012	10%	43	100	14	17	0	133	89
2013		45	100	14	15	0	131	86
2014		45	100	13	15	0	130	85
2015		44	100	13	15	0	130	86
2016	15%	44	100	13	15	0	130	86
2017		67	100	13	15	0	130	63
2018		68	100	13	15	0	130	62
2019		69	100	13	15	0	130	61
2020	20%	69	100	13	15	0	130	61
2021		93	100	13	15	0	130	37
2022		92	100	13	15	0	130	38
2023		90	100	13	15	0	130	39
2024		89	100	13	15	0	130	41
2025		90	100	--	15	0	130	40
2026		90	100	--	15	0	130	39
2027		91	100	--	15	0	130	39
2028		91	100	--	15	0	130	38
2029		92	100	--	15	0	130	38
2030		93	100	--	15	0	130	37
2031	93	100	--	15	0	130	36	

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 Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity ¹			Renewable Capacity Required for Other Jurisdictions	Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	Smoky Hills Wind Farm (Phase I)	Smoky Hills Wind Farm (Phase II)	WAPA			
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		55	25	24	3	0	57	2
2018		58	25	24	3	0	57	-1
2019		59	25	24	3	0	57	-2
2020	20%	79	25	24	3	0	57	-22
2021		80	25	24	3	0	57	-23
2022		81	25	24	3	0	57	-24
2023		82	25	24	3	0	57	-25
2024		83	25	24	3	0	57	-26
2025		84	25	24	3	0	57	-27
2026		85	25	24	3	0	57	-28
2027		86	25	24	3	0	57	-29
2028		87	25	24	3	0	57	-30
2029		88	25	24	3	0	57	-31
2030		89	25	24	3	0	57	-32
2031	90	25	24	3	0	57	-33	

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 Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity				Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit)
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	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%	152	51	74	3	104	254	101
2017		154	--	74	3	104	198	45
2018		155	--	74	3	104	198	43
2019		157	--	74	3	104	198	42
2020	20%	158	--	74	3	104	198	40
2021		160	--	74	3	104	198	38
2022		162	--	74	3	104	198	37
2023		163	--	74	3	104	198	35
2024		165	--	74	3	104	198	34
2025		167	--	74	--	104	195	29
2026		168	--	74	--	104	195	27
2027		170	--	74	--	104	195	25
2028		172	--	24	--	104	140	(32)
2029		173	--	--	--	104	114	(59)
2030		175	--	--	--	104	114	(61)
2031	177	--	--	--	104	114	(63)	

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 not statutorily subject to the State’s Renewable Energy Standard outlined in K.S.A. 66-1258. However, the utility has publicly stated that it will voluntarily comply 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 Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity ²						Total Renewable Capacity ³	Renewable Capacity Surplus (Deficit) ⁴
	Renewable Energy Standard	Renewable Capacity Needed for Compliance	Smoky Hills Wind Farm	Oak Grove Landfill	Bowersock Mills & Power	Alexander Wind Farm	SWPA	WAPA		
2012	10%	47	25	1.5	0	--	39	5	73	26
2013		47	25	2	7	--	39	5	82	34
2014		48	25	2	7	--	39	5	82	34
2015		48	25	4	7	25	39	5	111	63
2016	15%	70	25	4	7	25	39	5	111	41
2017		71	25	4	7	25	39	5	111	41
2018		72	25	4	7	25	39	5	111	40
2019		72	25	4	7	25	39	5	111	40
2020	20%	96	25	4	7	25	39	5	111	15
2021		97	25	4	7	25	39	5	111	15
2022		97	25	4	7	25	39	5	111	14
2023		97	25	4	7	25	39	5	111	14
2024		98	25	4	7	25	39	5	111	14
2025		98	25	4	7	25	39	5	111	13
2026		98	25	4	7	25	39	5	111	13
2027		99	25	4	7	25	39	5	111	13
2028		99	25	4	7	25	39	5	111	12
2029		99	25	4	7	25	39	5	111	12

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.

2030		99	25	4	7	25	39	5	110	11
2031		99	25	4	7	25	39	5	110	11

Appendix B-8—Kansas Power Pool (KPP)

Kansas Power Pool (KPP) is an association of municipal utilities not statutorily subject to the State’s Renewable Energy Standard outlined in K.S.A. 66-1258. 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 Required under Renewable Energy Standard (K.S.A. 66-1258)		Renewable Capacity					Total Renewable Capacity ²	Renewable Capacity Surplus (Deficit) ³	
	Renewable Standard	Energy	Renewable Capacity Needed for Compliance	Greensburg Wind Farm	Bowersock Mills & Power	SWPA	WAPA			Great River Dam Authority
2012	10%		38	12.5	2.7	9.4	4.5	9.9	41	3
2013			38	12.5	2.7	9.4	4.5	8.5	39	1
2014			38	12.5	--	5.5	2.7	5.4	27	(11)
2015			36	12.5	--	5.5	2.7	5.4	27	(9)
2016	15%		48	12.5	--	5.5	2.7	5.4	27	(21)
2017			42	12.5	--	5.5	2.7	5.4	27	(15)
2018			41	12.5	--	5.5	2.7	5.4	27	(14)
2019			41	12.5	--	5.5	2.7	5.4	27	(14)
2020	20%		56	12.5	--	5.5	2.7	5.4	27	(29)
2021			57	12.5	--	5.5	2.7	5.4	27	(30)
2022			58	12.5	--	5.5	2.7	5.4	27	(31)
2023			59	12.5	--	5.5	2.7	5.4	27	(32)
2024			61	12.5	--	5.5	2.7	5.4	27	(34)
2025			62	12.5	--	5.5	2.7	5.4	27	(35)
2026			63	12.5	--	5.5	2.7	5.4	27	(36)
2027			64	12.5	--	5.5	2.7	5.4	27	(37)

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 Needed for Compliance from the Total Renewable Capacity.

2028		66	12.5	--	5.5	2.7	5.4	27	(39)
2029		67	12.5	--	5.5	2.7	5.4	27	(40)
2030		68	12.5	--	5.5	2.7	5.4	27	(41)
2031		70	12.5	--	5.5	2.7	5.4	27	(43)

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

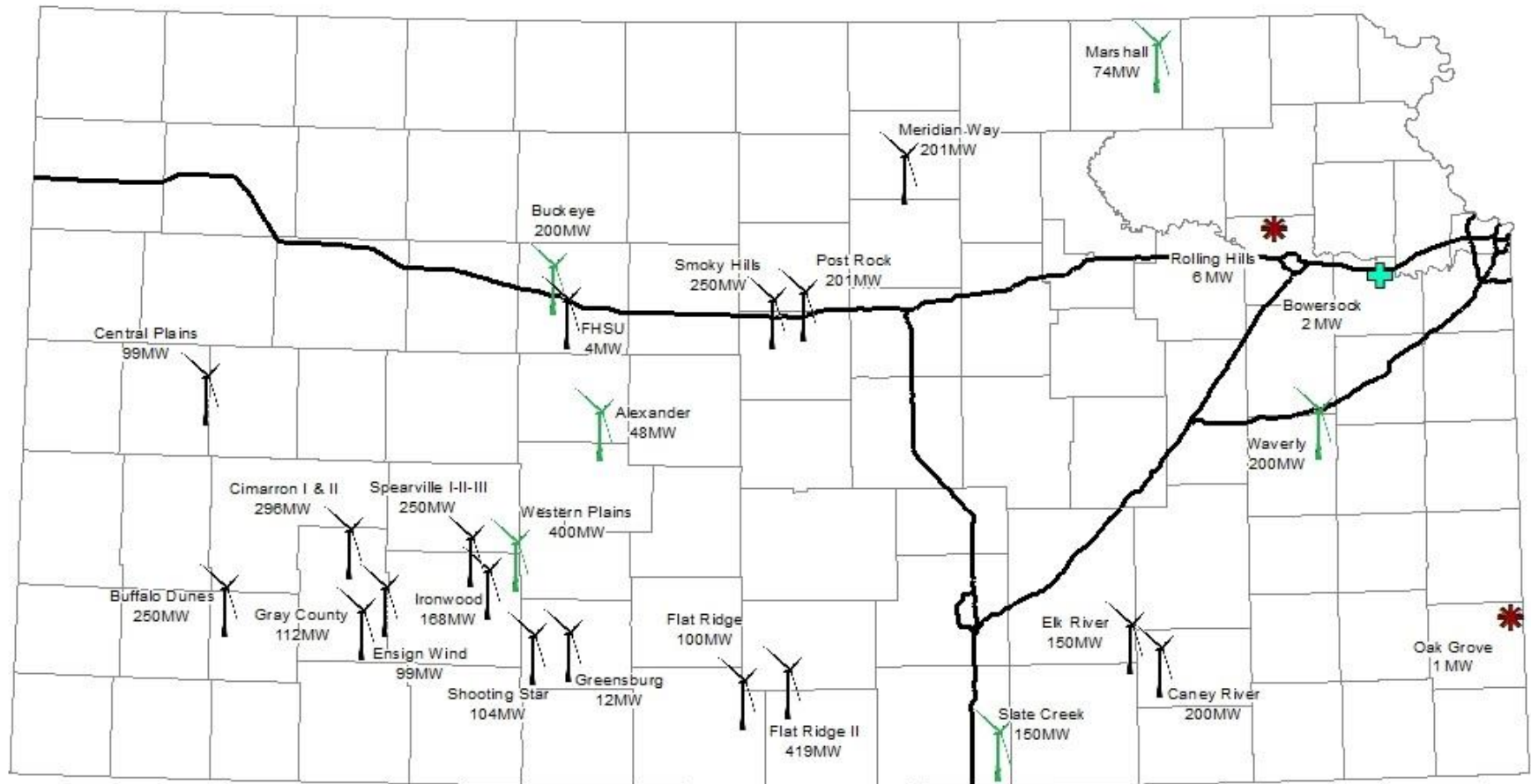
¹ Unallocated wind energy can be sold through the Southwest Power Pool's Energy Imbalance Market place.





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

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
New project near Waverly, KS	Coffey	EDP Renewables	January 2016	KCP&L	199.5 MW
Buckeye Wind Energy (200 MW)	Ellis	Invenergy, LLC	-----	-----	200 MW
Marshall Energy (74 MW)	Marshall	RPM Access	December 2014	Missouri Joint Municipal Electric Utility Commission	74 MW
Alexander Wind Farm (50 MW)	Rush	New Jersey Resources Corp.	October 2015	Kansas City Board of Public Utilities & Yahoo! Inc.	48.3 MW
Ringneck Prairie Wind Farm (70 MW)	Graham	Apex Clean Energy	2016	-----	70 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	-----	Clean Energy Collective	-----	Midwest Energy	1 MW

Commercial-Size Renewable Generation in Kansas



 Existing
  Under Construction
  Landfill Gas
  Hydroelectric



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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	2013 Net Generation (MWh)
Wolf Creek Nuclear Operating Corporation	Wolf Creek Nuclear (B)	Coffey	KCP&L (47%) Westar (47%) KEPCo (6%)	1,205	1985	7,168,301
Westar Energy, Inc. (Westar)	Jeffrey Energy Center Coal (B)	Pottawatomie	Westar (92%) Mid-Kansas (8%)	2,179	1978 - 1983	13,372,109
	Lawrence Energy Center Coal (B)	Douglas	Westar (100%)	531	1955 - 1971	3,609,416
	Hutchinson Natural gas (P)	Reno	Westar (100%)	396	1965 - 1983	20,178
	Tecumseh Coal (B) and Natural gas (P)	Shawnee	Westar (100%)	205	1957 - 1972	1,109,752
	Gordon Evans Natural gas (P) Diesel (P)	Sedgwick	Westar (100%)	821	1961 - 2001	612,365
	Murray Gill Natural gas (P)	Sedgwick	Westar (100%)	293	1952 - 1959	120,335
	Emporia Energy Center Natural gas (LF) and Natural gas (P)	Lyon	Westar (100%)	660	2008-2009	292,027
	Spring Creek Energy Center Natural gas (P)	Logan, Oklahoma	Westar (100%)	279	2001	7,435
	Central Plains Wind Farm Wind	Wichita	Westar (100%)	99	2009	299,050
	Flat Ridge 1 Wind Farm Wind	Barber	Westar (100%)	100	2009	264,645
Kansas City Power and Light (KCP&L)	LaCygne Coal (B)	Linn	KCP&L (50%) Westar (50%)	1,421.2	1973 - 1977	7,520,252
	Osawatomie Natural gas (P)	Miami	KCP&L (100%)	90	2003	257
	West Gardner Natural gas (P)	Johnson	KCP&L (100%)	360	2003	23,643

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2013 Net Generation (MWh)
	Iatan I Coal (B)	Platte, Missouri	KCP&L (70%) KCP&L-GMO (18%) Empire (12%)	704.7	1980	4,555,163
	Iatan II Coal (B)	Platte, Missouri	KCP&L (54.71%) KCP&L-GMO (18%) Empire (12%) MJMEUC (11.76%) KEPCo (3.53%)	881	2010	6,042,112
	Montrose Coal (B)	Henry, Missouri	KCP&L (100%)	510	1958 - 1964	2,792,636
	Hawthorn Coal (B)	Jackson, Missouri	KCP&L (100%)	564	1969	3,872,746
	Hawthorn Combine Cycle Natural gas (P)	Jackson, Missouri	KCP&L (100%)	306	1997 - 2000	160,582
	Hawthorn Combustion Turbine Natural gas (P)	Jackson, Missouri	KCP&L (100%)	180	2000	1,490
	Northeast Station Natural gas (P) and Distillate fuel oil (P)	Jackson, Missouri	KCP&L (100%)	520	1972 - 1985	0
	Spearville Wind Farm Wind	Ford	KCP&L (100%)	249	2006 - 2012	783,725
Kansas City Board of Public Utilities (KC-BPU)	Quindaro Coal (B)	Wyandotte	KC-BPU (100%)	183	1965 - 1971	820,518
	Quindaro Combustion Turbine Natural gas (P) and Distillate fuel oil (P)	Wyandotte	KC-BPU (100%)	115	1969 - 1977	0
	Nearman Creek Coal (B)	Wyandotte	KC-BPU (100%)	229	1981	1,270,934
	Nearman Creek Combustion Turbine Natural gas (P)	Wyandotte	KC-BPU (100%)	76 <i>(with 45MW additional announced)</i>	2006	21,190
	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	2013 Net Generation (MWh)
Kansas Electric Power Cooperatives (KEPCo)	Sharpe Distillate fuel oil (I)	Coffey	KEPCo (100%)	20	2002	---
Sunflower Electric Power Corporation (Sunflower)	Holcomb Station Coal (B)	Finney	Sunflower (100%)	358.8	1983	2,166,077
	Garden City Station Natural gas (I) and Natural gas (P)	Finney	Sunflower (100%)	239.2	1962 - 1979	53,980
Mid-Kansas Electric Company (Mid-Kansas)	Cimarron River Station Natural gas (I) and Natural gas (P)	Seward	Mid-Kansas (100%)	75	1963 - 1967	---
	Clifton Station Natural gas (P) and Distillate fuel oil (P)	Washington	Mid-Kansas (100%)	75.5	1974	---
	Fort Dodge Station Natural gas (LF) <i>(formerly Judson Large)</i>	Ford	Mid-Kansas (100%)	147.8	1968	316,884
	Great Bend Station Natural gas (I) <i>(formerly Arthur Mullergren)</i>	Barton	Mid-Kansas (100%)	96	1963	---
	Rubart Station Natural gas (I)	Grant	Mid-Kansas (100%)	110	2014	---
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	75070
	Asbury Coal (B)	Jasper, Missouri	Empire (100%)	189	1970 - 1986	1,294,134
	Empire Energy Center Natural gas (P)	Jasper, Missouri	Empire (100%)	300	1978 - 2003	48,899
	Ozark Beach Hydro (B)	Taney, Missouri	Empire (100%)	16	1931	57,449
	State Line Combine Cycle Natural gas (P)	Jasper, Missouri	Empire (60%) Westar (40%)	499	2001	2,056,506
	State Line Combustion Turbine Natural gas (P)	Jasper, Missouri	Empire (100%)	96	1995	1,719

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2013 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	3,995,847
Midwest Energy, Inc. (Midwest)	Colby Dual Fuel (P)	Thomas	Midwest (100%)	13	1970	---
	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	---