



KANSAS CORPORATION COMMISSION
Report on Electric Supply and Demand

2014

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. This report is an interim report, not required by statute. The next statutorily required report will be submitted on or before February 1, 2015, to the house energy and utilities committee and the senate utilities committee.

The statute requires the report to include, but not be limited to: (1) Generation capacity needs and (2) system peak capacity needs and 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 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 this 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 obligations, including the 12% reserve margin requirement outlined in the Criteria.² System obligations 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 reserve margin) for utilities operating in Kansas.⁴ 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 shall be twelve percent.” Capacity margin is calculated as $\{(1/0.88)-1\}$ *estimated peak load}.

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.

⁴ Peak-load data presented was provided by the individual utilities based on internal system planning forecasts, with one exception. Westar Energy provided internal load forecasts through 2023. Subsequent years’ peak demands were calculated by Staff assuming a 1.0% growth rate per year. Likewise, because the McPherson Board of Public Utilities is a wholesale customer of Westar, numbers for McPherson are included the Westar tables.

Table 1—Overview of Current and Projected System Capacity and Load 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	2,016	6,596	532	406	1,306	698	246	587
	System Planning Responsibility (MW)	73	1,826	6,072	514	388	1,314	563	221	432
	System Capacity Surplus (Deficit)	0	190	524	18	18	(8)	135	25	155
2017 Projected	Total System Capacity (MW)	72	2,050	6,703	584	421	1,282	702	473	381
	System Planning Responsibility (MW)	70	1,770	6,294	553	396	1,327	555	423	314
	System Capacity Surplus (Deficit)	2	280	409	31	25	(45)	147	50	67
2022 Projected	Total System Capacity (MW)	72	2,050	6,888	494	441	1,144	727	384	381
	System Planning Responsibility (MW)	72	1,811	6,629	536	419	1,362	558	467	344
	System Capacity Surplus (Deficit)	0	239	259	(42)	22	(218)	169	(83)	37
2027 Projected	Total System Capacity (MW)	72	2,030	7,097	507	466	1,141	572	319	322
	System Planning Responsibility (MW)	73	1,866	6,965	558	447	1,404	563	516	380
	System Capacity Surplus (Deficit)	(1)	164	132	(57)	19	(260)	9	(197)	(58)
2032 Projected	Total System Capacity (MW)	72	2,030	7,097	520	491	1,140	572	319	322
	System Planning Responsibility (MW)	75	1,930	7,320	586	482	1,420	566	569	419
	System Capacity Surplus (Deficit)	(3)	100	(223)	(66)	9	(280)	6	(250)	(97)

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. 2011 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							
		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) ¹	Kansas Power Pool (KPP) ²
2012 Historical	System Renewable Capacity (MW)	14	179	738	123	57	143	73	41
	Renewable Capacity Responsibility—10% (MW)	7	167	477	45	34	71	49	38
	Renewable Capacity Surplus (Deficit)	7	12	261	78	23	72	24	3
2017 Projected	System Renewable Capacity (MW)	14	263	919	132	79	199	110	27
	Renewable Capacity Responsibility—15% (MW)	9	240	749	72	55	153	72	42
	Renewable Capacity Surplus (Deficit)	5	23	170	60	24	46	38	(15)
2022 Projected	System Renewable Capacity (MW)	14	333	1,194	132	79	199	110	27
	Renewable Capacity Responsibility—20% (MW)	12	327	1,046	96	78	161	98	58
	Renewable Capacity Surplus (Deficit)	2	6	148	36	1	38	12	(31)
2027 Projected	System Renewable Capacity (MW)	6	365	1,194	132	79	196	110	27
	Renewable Capacity Responsibility—20% (MW)	12	337	1,100	97	85	169	99	64
	Renewable Capacity Surplus (Deficit)	(6)	28	94	35	(6)	27	11	(37)
2031 Projected	System Renewable Capacity (MW)	0	365	1,194	132	79	114	110	27
	Renewable Capacity Responsibility—20% (MW)	12	345	1,144	101	91	176	99	70
	Renewable Capacity Surplus (Deficit)	(12) ³	20	50	31	(12)	(62)	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 Empire’s deficiency of 12 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 Load 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% Reserve Margin	System Planning Responsibility	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	74	10	84	63	9	72	(12)
	2010	69	9	78	63	5	71	(7)
	2011	68	9	77	66	3	73	(4)
	2012	64	9	73	70	3	73	0
	2013	58	8	66	70	3	73	(7)
Projected	2014	61	8	69	70	3	72	3
	2015	61	8	69	69	3	72	3
	2016	62	8	70	69	3	72	2
	2017	62	8	70	70	3	72	2
	2018	62	8	70	70	3	72	2
	2019	62	8	70	70	3	72	2
	2020	63	8	71	70	3	72	1
	2021	63	9	72	70	3	72	0
	2022	63	9	72	70	3	72	0
	2023	63	9	72	70	3	72	0
	2024	64	9	73	70	3	72	(1)
	2025	64	9	73	70	3	72	(1)
	2026	64	9	73	70	3	72	(1)
	2027	64	9	73	70	3	72	(1)
	2028	65	9	74	70	3	72	(2)
	2029	65	9	74	70	3	72	(2)
	2030	65	9	74	70	3	72	(2)
	2031	66	9	75	70	3	72	(3)
2032	66	9	75	70	3	72	(3)	

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% Reserve Margin	System Planning Responsibility ³	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	1,632	214	1,783	1,781	51	1,832	49
	2010	1,686	222	1,847	1,816	1	1,817	(30)
	2011	1,754	227	1,890	2,053	-8	2,045	155
	2012	1,698	219	1,826	2,038	-22	2,016	190
	2013	1,553	198	1,650	2,027	-22	2,005	355
Projected	2014	1,603	208	1,735	2,027	25	2,052	317
	2015	1,612	210	1,748	2,021	25	2,046	298
	2016	1,623	211	1,761	2,021	9	2,030	269
	2017	1,629	212	1,770	2,021	29	2,050	280
	2018	1,634	213	1,776	2,021	29	2,050	274
	2019	1,640	214	1,783	2,021	29	2,050	267
	2020	1,647	215	1,791	2,021	29	2,050	259
	2021	1,656	216	1,801	2,021	29	2,050	249
	2022	1,665	217	1,811	2,021	29	2,050	239
	2023	1,674	219	1,822	2,021	36	2,057	235
	2024	1,684	220	1,833	2,021	9	2,030	197
	2025	1,693	221	1,843	2,021	9	2,030	187
	2026	1,703	223	1,855	2,021	9	2,030	175
	2027	1,713	224	1,866	2,021	9	2,030	164
	2028	1,724	225	1,879	2,021	9	2,030	151
	2029	1,735	227	1,891	2,021	9	2,030	139
	2030	1,747	229	1,905	2,021	9	2,030	125
	2031	1,758	230	1,918	2,021	9	2,030	112
2032	1,769	232	1,930	2,021	9	2,030	100	

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 Planning Responsibility is the sum of the Total System Peak Load plus the 12% Reserve 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% Reserve Margin	System Planning Responsibility ¹	Accredited Generation ²	Net Contracts	Total System Capacity	
Historical	2009	4,569	623	5,192	6,626	-504	6,122	930
	2010	5,469	724	6,034	6,608	8	6,616	582
	2011	5,549	749	6,244	6,555	-20	6,535	291
	2012	5,410	729	6,072	6,521	74	6,596	524
	2013	5,187	707	5,894	6,356	34	6,391	497
Projected	2014	5,548	734	6,114	6,356	104	6,460	346
	2015	5,603	740	6,166	6,344	106	6,450	284
	2016	5,661	747	6,227	6,344	180	6,524	297
	2017	5,720	755	6,294	6,364	339	6,703	409
	2018	5,781	764	6,363	6,379	338	6,717	354
	2019	5,838	771	6,428	6,379	511	6,890	462
	2020	5,898	780	6,496	6,379	518	6,897	401
	2021	5,959	788	6,566	6,379	517	6,896	330
	2022	6,015	796	6,629	6,379	509	6,888	259
	2023	6,071	803	6,693	6,379	718	7,097	404
	2024	6,132 ³	811	6,760	6,379	718	7,097	337
	2025	6,193	819	6,828	6,379	718	7,097	269
	2026	6,255	827	6,896	6,379	718	7,097	201
	2027	6,317	836	6,965	6,379	718	7,097	132
	2028	6,381	844	7,034	6,379	718	7,097	63
	2029	6,444	852	7,105	6,379	718	7,097	(8)
	2030	6,509	861	7,176	6,379	718	7,097	(79)
	2031	6,574	870	7,248	6,379	718	7,097	(151)
2032	6,640	878	7,320	6,379	718	7,097	(223)	

¹ The System Planning Responsibility is the sum of the Total System Peak Load plus the 12% Reserve 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.

³ Total System Peak Load data for 2024 and beyond was generated by Staff assuming 1.0% growth rate per year.

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% Reserve Margin	System Planning 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	517	122	459	581	64
	2012	452	62	514	123	409	532	18
	2013	435	59	494	123	382	505	11
Projected	2014	457	62	519	123	422	545	26
	2015	470	64	534	123	439	562	28
	2016	478	65	543	123	449	572	29
	2017	486	66	553	123	461	584	31
	2018	490	67	557	123	471	594	37
	2019	494	67	561	123	481	604	43
	2020	499	68	567	123	488	611	44
	2021	469	64	533	123	368	491	(42)
	2022	472	64	536	123	371	494	(42)
	2023	475	65	540	123	373	496	(44)
	2024	478	65	543	123	376	499	(44)
	2025	481	66	547	123	378	501	(46)
	2026	486	66	552	123	381	504	(48)
	2027	491	67	558	123	384	507	(51)
	2028	496	68	564	123	386	509	(55)
	2029	501	68	569	123	389	512	(57)
	2030	506	69	575	123	392	515	(60)
	2031	511	70	581	123	395	518	(63)
2032	516	70	586	123	397	520	(66)	

¹ Member cooperatives of KEPCo are: Prairie Land, Rolling Hills, Bluestem, Brown-Atchison, Leavenworth-Jefferson, DS&O Electric, Flint Hills, Lyon-Coffey, Victory, Ninescah, 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% Reserve Margin	System Planning 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	(2)
	2011	357	47	392	97	275	372	(20)
	2012	362	47	388	97	310	406	18
	2013	359	46	381	91	310	401	20
Projected	2014	364	46	384	91	310	401	17
	2015	369	47	388	91	310	401	13
	2016	374	47	392	116 ²	310	426	34
	2017	379	48	396	166 ³	255	421	25
	2018	384	48	400	166	255	421	21
	2019	389	49	404	166	255	421	17
	2020	395	49	409	166	250	416	7
	2021	400	50	414	166	250	416	2
	2022	406	50	419	166	275	441	22
	2023	412	51	424	166	275	441	17
	2024	418	51	429	166	275	441	12
	2025	425	52	435	166	275	441	6
	2026	431	53	441	166	275	441	0
	2027	438	54	447	166	300	466	19
	2028	446	54	453	166	300	466	13
	2029	453	55	460	166	300	466	6
	2030	461	56	467	166	325	491	24
	2031	469	57	474	166	325	491	17
2032	477	58	482	166	325	491	9	

¹ The System Planning Responsibility is the sum of the Total System Peak Load plus the 12% Reserve 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.

² Accredited Generation for 2016 includes a 25 MW expansion to the Company’s Goodman Energy Center.

³ Accredited Generation for 2017 and beyond includes the 25 MW expansion to the Goodman Energy Center and a new 50 MW gas-fired plant

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% Reserve Margin	System Planning Responsibility	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	1,029	140	1,169	1,049	123	1,172	3
	2010	1,118	152	1,270	1,196	119	1,315	45
	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)
Projected	2014	1,190	162	1,352	1,288 ¹	139	1,427	75
	2015	1,213	165	1,378	1,145	139	1,427	49
	2016	1,147	156	1,303	1,144	139	1,284	(19)
	2017	1,168	159	1,327	1,144	139	1,282	(45)
	2018	1,199	163	1,362	1,144	139	1,282	(80)
	2019	1,205	164	1,369	1,144	-	1,144	(225)
	2020	1,213	165	1,378	1,144	-	1,144	(234)
	2021	1,192	163	1,355	1,144	-	1,144	(211)
	2022	1,198	163	1,362	1,144	-	1,144	(218)
	2023	1,205	164	1,369	1,144	-	1,144	(225)
	2024	1,213	165	1,378	1,144	-	1,144	(234)
	2025	1,220	166	1,386	1,141	-	1,141	(245)
	2026	1,226	167	1,394	1,141	-	1,141	(253)
	2027	1,233	168	1,401	1,141	-	1,141	(260)
	2028	1,236	169	1,404	1,140	-	1,140	(264)
	2029	1,239	169	1,408	1,140	-	1,140	(268)
	2030	1,242	169	1,411	1,140	-	1,140	(271)
2031	1,246	170	1,416	1,140	-	1,140	(276)	
2032	1,250	170	1,420	1,140	-	1,140	(280)	

¹ Accredited Generation from 2014 – 2031 includes 107 MW of capacity from the proposed new peaking unit (Rubart Station) and 24 MW from the Abengoa plant.

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% Reserve Margin	System Planning Responsibility	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	471	64	535	613	-14	599	64
	2010	501	68	569	613	-12	601	32
	2011	502	68	570	613	-12	601	31
	2012	495	68	563	611	87	698	135
	2013	453	62	515	720	15	735	220
Projected	2014	487	66	553	720	15	735	182
	2015	487	66	553	685	17	702	149
	2016	488	67	555	685	17	702	147
	2017	488	67	555	685	17	702	147
	2018	489	67	556	685	17	702	146
	2019	490	67	557	685	17	702	145
	2020	490	67	557	673	16	689	132
	2021	491	67	558	673	16	689	131
	2022	491	67	558	673	54	727	169
	2023	492	67	559	544	54	598	39
	2024	493	67	560	544	54	598	38
	2025	493	67	560	544	54	598	38
	2026	494	67	561	594	54	648	87
	2027	495	68	563	518	54	572	9
	2028	496	68	564	518	54	572	8
	2029	496	68	564	518	54	572	8
	2030	497	68	565	518	54	572	7
	2031	498	68	566	518	54	572	6
2032	498	68	566	518	54	572	6	

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% Reserve Margin	System Planning Responsibility	Accredited Generation ¹	Net Contracts	Total System Capacity	
Historical	2009	200	27	227	199	89	289	62
	2010	211	29	240	199	13	213	(27)
	2011	210	29	239	199	41	241	2
	2012	194	27	221	199	47	246	25
	2013	218	30	248	199	58	257	9
Projected	2014	351	48	399	294	163	458	59
	2015	358	49	407	295	164	460	53
	2016	365	50	415	295	129	425	10
	2017	372	51	423	295	177	473	50
	2018	380	52	432	295	177	473	41
	2019	387	53	440	295	103	399	(41)
	2020	395	54	449	295	108	403	(46)
	2021	403	55	458	295	89	384	(74)
	2022	411	56	467	295	89	384	(83)
	2023	419	57	476	295	89	384	(92)
	2024	428	58	486	295	89	384	(102)
	2025	436	60	496	295	89	384	(112)
	2026	445	61	506	295	24	319	(187)
	2027	454	62	516	295	24	319	(197)
	2028	463	63	526	295	24	319	(207)
	2029	472	64	536	295	24	319	(217)
	2030	482	66	548	295	24	319	(229)
2031	491	67	558	295	24	319	(239)	
2032 ²	501	68	569	295	24	319	(250)	

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.

² Staff assumed a growth rate of 2% to generate 2032 data for KMEA.

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% Reserve Margin	System Planning Responsibility	Accredited Generation	Net Contracts	Total System Capacity	
Historical	2009	--	--	--	--	--	--	--
	2010	--	--	--	--	--	--	--
	2011	382	52	434	363	182	545	111
	2012	380	52	432	405 ¹	182	587	155
	2013	385	52	437	405	181	586	149
Projected	2014	307	42	349	343	118	460	111
	2015	266	36	303	267	114	381	78
	2016	271	37	308	267	114	381	73
	2017	276	38	314	267	114	381	67
	2018	281	38	320	267	114	381	61
	2019	287	39	326	267	114	381	55
	2020	292	40	332	267	114	381	49
	2021	297	41	338	267	114	381	43
	2022	303	41	344	267	114	381	37
	2023	309	42	351	267	56	322	(29)
	2024	315	43	358	267	56	322	(36)
	2025	321	44	365	267	56	322	(43)
	2026	328	45	372	267	56	322	(50)
	2027	334	46	380	267	56	322	(58)
	2028	341	47	388	267	56	322	(66)
	2029	348	47	395	267	56	322	(73)
	2030	355	48	403	267	56	322	(81)
	2031	362	49	411	267	56	322	(89)
2032	369	50	419	267	56	322	(97)	

¹ Accredited Generation for 2012 includes capacity provided by the Company's stake in the Dogwood combine-cycle facility.

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	273	14	7
2013		6	105	150	16	273	14	8
2014		6	105	150	16	273	14	8
2015		6	105	150	16	273	14	8
2016	15%	9	105	150	16	273	14	5
2017		9	105	150	16	273	14	5
2018		9	105	150	16	273	14	5
2019		9	105	150	16	273	14	5
2020	20%	12	105	150	16	273	14	2
2021		12	105	150	16	273	14	2
2022		12	105	150	16	273	14	2
2023		12	105	150	16	273	14	2
2024		12	105	150	16	273	14	2
2025		12	105	150	16	273	14	2
2026		12	105	--	16	122	6	(6)
2027		12	105	--	16	122	6	(6)
2028		12	105	--	16	122	6	(6)
2029		12	--	--	16	16	0	(12)
2030		12	--	--	16	16	0	(12)
2031	12	--	--	16	16	0	(12)	

¹ The Total Renewable Capacity includes the 10% adder allowed by the RES Act, approximately 1.5 MW for Empire in 2011-2025, 0.5 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	Renewable Energy Credits	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%	167	249	131	--	218	0	179	12
2013		170	249	131	--	218	0	179	9
2014		165	249	131	62	218	0	239	74
2015		161	249	131	62	218	0	239	78
2016	15%	236	249	131	62	247	0	263	27
2017		240	249	131	62	247	0	263	23
2018		242	249	131	62	247	0	263	21
2019		243	249	131	62	247	0	263	20
2020		325	249	131	62	333	0	333	8
2021	20%	326	249	131	62	333	0	333	7
2022		327	249	131	62	333	0	333	6
2023		329	249	131	62	333	0	333	4
2024		331	249	131	--	448	0	365	34
2025		333	249	131	--	448	0	365	32
2026		335	249	131	--	448	0	365	30
2027		337	249	131	--	448	0	365	28
2028		339	249	131	--	448	0	365	26
2029		341	249	131	--	448	0	365	24
2030		343	249	131	--	448	0	365	22
2031		345	249	131	--	448	0	365	20

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 (Flat Ridge I)	Rolling Meadows Landfill	Post Rock Wind Farm	Ironwood Wind Farm		
2012	10%	477	99	96	100	6	201	169	738	261
2013		460	99	96	100	6	201	169	738	278
2014		486	99	96	100	6	201	169	738	252
2015		480	99	96	100	6	201	169	738	258
2016	15%	741	99	96	100	6	201	169	738	(3)
2017		749	99	96	100	6	201	169	919	170
2018		756	99	96	100	6	201	169	919	163
2019		763	99	96	100	6	201	169	919	156
2020	20%	1,027	99	96	100	6	201	169	1,194	167
2021		1,037	99	96	100	6	201	169	1,194	157
2022		1,046	99	96	100	6	201	169	1,194	148
2023		1,055	99	96	100	6	201	169	1,194	139
2024		1,067	99	96	100	6	201	169	1,194	127
2025		1,078	99	96	100	6	201	169	1,194	116
2026		1,089	99	96	100	6	201	169	1,194	105
2027		1,100	99	96	100	6	201	169	1,194	94
2028		1,111	99	96	100	6	201	169	1,194	83
2029		1,122	99	96	100	6	201	169	1,194	72
2030		1,133	99	96	100	6	201	169	1,194	61
2031	1,144	99	96	100	6	201	169	1,194	50	

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%	45	100	14	9	0	123	78
2013		45	100	14	18	0	132	87
2014		45	100	14	18	0	132	87
2015		45	100	14	18	0	132	87
2016	15%	70	100	14	18	0	132	62
2017		72	100	14	18	0	132	60
2018		73	100	14	18	0	132	59
2019		74	100	14	18	0	132	58
2020	20%	99	100	14	18	0	132	33
2021		97	100	14	18	0	132	35
2022		96	100	14	18	0	132	36
2023		94	100	14	18	0	132	38
2024		95	100	14	18	0	132	37
2025		96	100	--	18	0	132	36
2026		96	100	--	18	0	132	36
2027		97	100	--	18	0	132	35
2028		98	100	--	18	0	132	34
2029		99	100	--	18	0	132	33
2030		100	100	--	18	0	132	32
2031	101	100	--	18	0	132	31	

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%	34	25	24	3	0	57	23
2013		35	25	24	3	0	57	22
2014		35	25	24	3	0	57	22
2015		36	25	24	3	0	57	43
2016	15%	54	25	24	3	0	79 ³	25
2017		55	25	24	3	0	79	24
2018		56	25	24	3	0	79	23
2019		56	25	24	3	0	79	23
2020		76	25	24	3	0	79	3
2021		77	25	24	3	0	79	2
2022	20%	79	25	24	3	0	79	1
2023		80	25	24	3	0	79	(1)
2024		81	25	24	3	0	79	(2)
2025		82	25	24	3	0	79	(3)
2026		83	25	24	3	0	79	(4)
2027		85	25	24	3	0	79	(6)
2028		86	25	24	3	0	79	(7)
2029		88	25	24	3	0	79	(9)
2030		89	25	24	3	0	79	(10)
2031		91	25	24	3	0	79	(12)

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.

³ The Company is forecasting the addition of a 20 MW Power Purchase Agreement in 2016.

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	--	143	72
2013		75	51	74	5	104	257	182
2014		76	51	74	3	104	255	179
2015		76	51	74	3	104	255	179
2016	15%	152	51	74	3	104	255	103
2017		153	--	74	3	104	199	46
2018		155	--	74	3	104	199	44
2019		156	--	74	3	104	199	43
2020	20%	158	--	74	3	104	199	41
2021		159	--	74	3	104	199	40
2022		161	--	74	3	104	199	38
2023		163	--	74	3	104	199	36
2024		164	--	74	3	104	199	35
2025		166	--	74	--	104	196	30
2026		168	--	74	--	104	196	28
2027		169	--	74	--	104	196	27
2028		171	--	--	--	104	114	(57)
2029		173	--	--	--	104	114	(59)
2030		174	--	--	--	104	114	(60)
2031	176	--	--	--	104	114	(62)	

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%	49	25	1.5	0	--	39	5	73	24
2013		50	25	2	7	--	39	5	81	31
2014		48	25	2	7	--	39	5	81	33
2015		48	25	4	7	--	39	5	83	35
2016	15%	72	25	4	7	25	39	5	110	38
2017		73	25	4	7	25	39	5	110	37
2018		73	25	4	7	25	39	5	110	37
2019		73	25	4	7	25	39	5	110	37
2020	20%	98	25	4	7	25	39	5	110	12
2021		98	25	4	7	25	39	5	110	12
2022		98	25	4	7	25	39	5	110	12
2023		98	25	4	7	25	39	5	110	12
2024		98	25	4	7	25	39	5	110	12
2025		99	25	4	7	25	39	5	110	11
2026		99	25	4	7	25	39	5	110	11
2027		99	25	4	7	25	39	5	110	11
2028		99	25	4	7	25	39	5	110	11
2029		99	25	4	7	25	39	5	110	11
2030		99	25	4	7	25	39	5	110	11
2031		99	25	4	7	25	39	5	110	11

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.

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 Energy Standard	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)
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)	

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.

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)	50 MW
				Kansas City Power and Light – Greater Missouri Operations	60 MW
				<i>Unallocated</i>	2.2 MW
Elk River Wind Facility (150 MW)	Butler	PPM Energy (Ibedrola)	December 2005	Empire District Electric	150 MW
Spearville Wind Energy Facility Phase I (100.5 MW)	Ford	enXco	August 2006	Kansas City Power and Light	100.5 MW
Spearville Wind Energy Facility Phase II (48 MW)	Ford	enXco	December 2010	Kansas City Power and Light	48 MW
Spearville Wind Energy Facility Phase III (101 MW)	Ford	enXco	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	100 MW
Flat Ridge 2 Wind Farm (419.2 MW)	Harper, Kingman, Barber, and Sumner	BP Alternative Energy	December 2012	Associated Electric Cooperative	314.4 MW
				Arkansas Electric Coop Corp	51 MW
				<i>Unallocated (SPP EIM)</i>	105 MW
Central Plains Wind Farm (99 MW)	Wichita	RES America	November 2009	Westar	99 MW

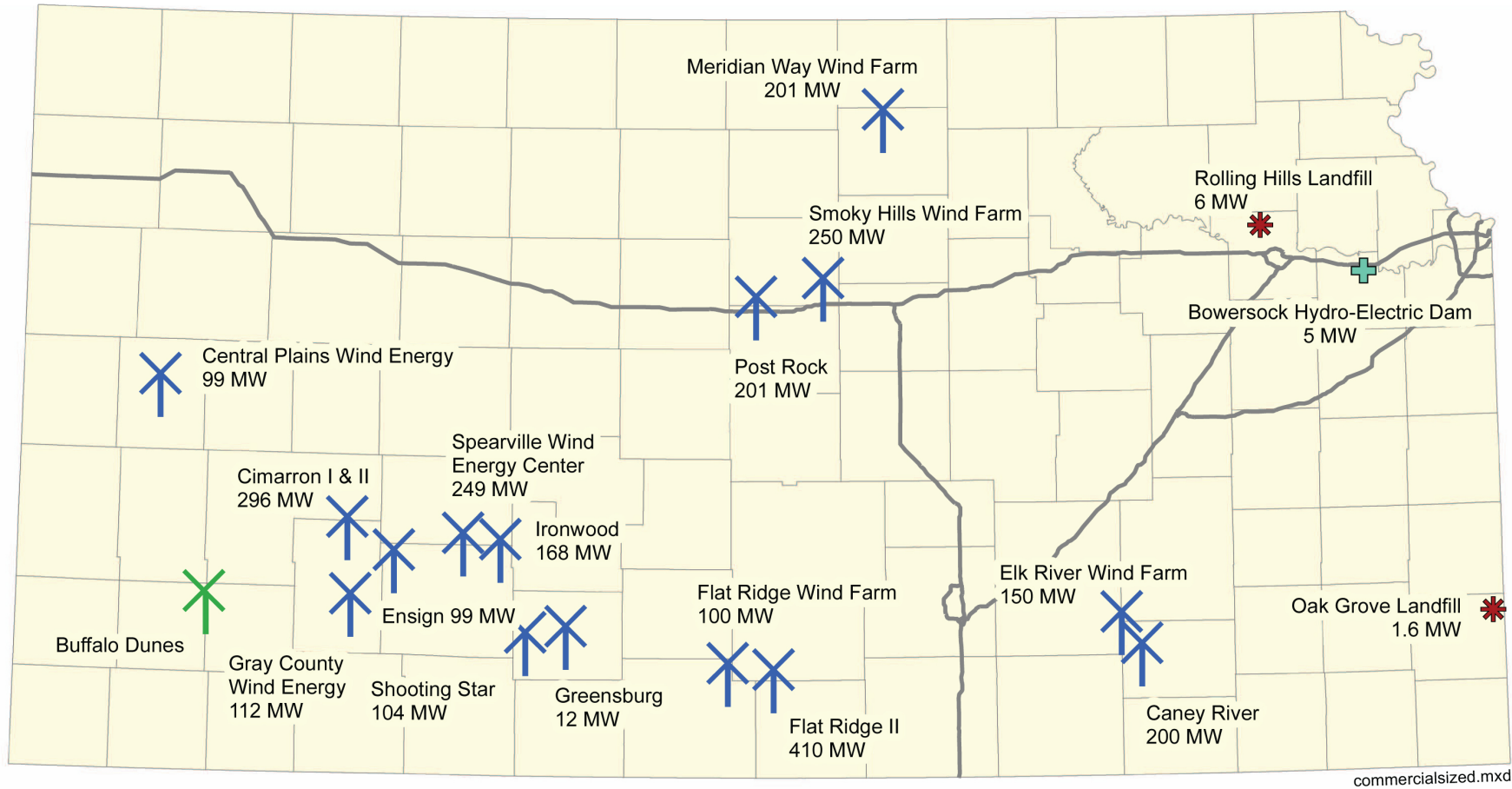
¹ Unallocated wind energy can be sold through the Southwest Power Pool’s Energy Imbalance Market place.





Buffalo Dunes (250 MW)	Haskell/Grant	Trade Wind Energy	December 2013	Southern 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	December 2012	Sunflower	105 MW
Caney River (200 MW)	Elk	Trade Wind Energy	January 2012	Tennessee Valley Authority	200 MW
Greensburg (12.5 MW)	Kiowa	John Deere / Excelon	September 2009	Kansas Power Pool	12.5 MW
Bowersock Hydro-electric Dam (2 MW)	Douglas	Kansas River Hydro Project	1922	Kansas Power Pool	2.7 MW
Rolling Hills Landfill (8 MW)	Shawnee	Waste Management	January 2009	Westar Energy	8 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	Early 2016	KCP&L	200 MW
Buckeye Wind Energy (200 MW)	Ellis	Invenergy, LLC		Seeking a PPA	200 MW
Marshall Energy (74 MW)	Marshall	RPM Access		Municipals in Missouri	74 MW
Alexander Wind Farm (50 MW)	Rush	Own Energy / Bannister Brothers		Local communities	50 MW
Ringneck Prairie Wind Farm (70 MW)	Graham	Nordex USA	December 2014	Seeking a PPA	70 MW

Commercial-Size Renewable Generation within Kansas



-  Existing
-  Proposed
-  Landfill Gas
-  Hydro

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	2012 Net Generation (MWh)
Wolf Creek Nuclear Operating Corporation	Wolf Creek Nuclear (B)	Coffey	KCP&L (47%) Westar (47%) KEPCo (6%)	1,160	1985	6,046,434
Westar Energy, Inc. (Westar)	Jeffrey Energy Center Coal (B)	Pottawatomie	Westar (92%) Mid-Kansas (8%)	2,164	1978 - 1983	10,415,484
	Lawrence Energy Center Coal (B)	Douglas	Westar (100%)	529	1955 - 1971	3,028,431
	Hutchinson Natural gas (P)	Reno	Westar (100%)	395	1965 - 1983	57,180
	Abilene Natural gas (P)	Dickinson	Westar (100%)	64	1973	845
	Tecumseh Coal (B) and Natural gas (P)	Shawnee	Westar (100%)	239	1957 - 1972	1,190,444
	Gordon Evans Natural gas (P) Diesel (P)	Sedgwick	Westar (100%)	835	1961 - 2001	600,157
	Murray Gill Natural gas (P)	Sedgwick	Westar (100%)	293	1952 - 1959	166,597
	Neosho Natural gas (P)	Labette	Westar (100%)	67	1954	(529)
	Emporia Energy Center Natural gas (LF) and Natural gas (P)	Lyon	Westar (100%)	663	2008-2009	545,907
	Spring Creek Energy Center Natural gas (P)	Logan, Oklahoma	Westar (100%)	278	2001	135,806
	Central Plains Wind Farm Wind	Wichita	Westar (100%)	99	2009	294,992
Flat Ridge Wind Farm Wind	Barber	Westar (100%)	100	2009	159,044	

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2012 Net Generation (MWh)
Kansas City Power and Light (KCP&L)	LaCygne Coal (B)	Linn	KCP&L (50%) Westar (50%)	1,418	1973 - 1977	5,956,788
	Osawatomie Natural gas (P)	Miami	KCP&L (100%)	90	2003	4,593
	West Gardner Natural gas (P)	Johnson	KCP&L (100%)	360	2003	25,960
	Iatan I Coal (B)	Platte, Missouri	KCP&L (70%) KCP&L-GMO (18%) Empire (12%)	651	1980	1,634,629
	Iatan II Coal (B)	Platte, Missouri	KCP&L (54.71%) KCP&L-GMO (18%) Empire (12%) MJMEUC (11.76%) KEPCo (3.53%)	850	2010	1,846,740
	Montrose Coal (B)	Henry, Missouri	KCP&L (100%)	510	1958 - 1964	766,299
	Hawthorn Coal (B)	Jackson, Missouri	KCP&L (100%)	563	1969	1,689,381
	Hawthorn Combine Cycle Natural gas (P)	Jackson, Missouri	KCP&L (100%)	292	1997 - 2000	
	Hawthorn Combustion Turbine Natural gas (P)	Jackson, Missouri	KCP&L (100%)	180	2000	
	Northeast Station Natural gas (P) and Distillate fuel oil (P)	Jackson, Missouri	KCP&L (100%)	522	1972 - 1985	(747)
Spearville Wind Farm Wind	Ford	KCP&L (100%)	249	2006 - 2012	176,097	
Kansas City Board of Public Utilities (KC-BPU)	Quindaro Coal (B)	Wyandotte	KC-BPU (100%)	183	1965 - 1971	
	Quindaro Combustion Turbine Natural gas (P) and Distillate fuel oil (P)	Wyandotte	KC-BPU (100%)	115	1969 - 1977	
	Nearman Creek Coal (B)	Wyandotte	KC-BPU (100%)	229	1981	

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2012 Net Generation (MWh)
	Nearman Creek Combustion Turbine Natural gas (P)	Wyandotte	KC-BPU (100%)	76 <i>(with 45MW additional announced)</i>	2006 <i>(addition planned 2012)</i>	
	Kaw Natural gas (P)	Wyandotte	KC-BPU (100%)		1955 - 1962	(out of service)
Kansas Electric Power Cooperatives (KEPCo)	Sharpe Distillate fuel oil (I)	Coffey	KEPCo (100%)	20	2002	181
Sunflower Electric Power Corporation (Sunflower)	Holcomb Station Coal (B)	Finney	Sunflower (100%)	360	1983	1,848,511
	Garden City Station Natural gas (I) and Natural gas (P)	Finney	Sunflower (100%)	239.2	1962 - 1979	117,405
Mid-Kansas Electric Company (Mid-Kansas)	Cimarron River Station Natural gas (I) and Natural gas (P)	Seward	Mid-Kansas (100%)	75	1963 - 1967	2,561
	Clifton Station Natural gas (P) and Distillate fuel oil (P)	Washington	Mid-Kansas (100%)	75.5	1974	208
	Fort Dodge Station Natural gas (LF) <i>(formerly Judson Large)</i>	Ford	Mid-Kansas (100%)	144.6	1968	423,282
	Great Bend Station Natural gas (I) <i>(formerly Arthur Mullergren)</i>	Barton	Mid-Kansas (100%)	96	1963	141,026
	Rubart Station Natural gas (I)	Grant	Mid-Kansas (100%)	110	2014	NA
Empire District Electric Company (Empire)	Riverton Coal (B)	Cherokee	Empire (100%)	92	1950	12,597
	Riverton Combustion Turbine Natural gas (P)	Cherokee	Empire (100%)	236	1964 – 2007	
	Asbury Coal (B)	Jasper, Missouri	Empire (100%)	210	1970 - 1986	52,757
	Empire Energy Center Natural gas (P)	Jasper, Missouri	Empire (100%)	272	1978 - 2003	2,566

Operating Utility	Power Plant Name Unit / Primary Fuel Source (B-Base, I-Intermediate, P-Peaking)	County	Ownership	Nameplate Capacity (MW)	Initial Year of Operation	2012 Net Generation (MWh)
	Ozark Beach Hydro (B)	Taney, Missouri	Empire (100%)	16	1931	2,865
	State Line Combine Cycle Natural gas (P)	Jasper, Missouri	Empire (60%) Westar (40%)	499	2001	42,013
	State Line Combustion Turbine Natural gas (P)	Jasper, Missouri	Empire (100%)	89	1995	385
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%)	665	2010	11,717
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%)	74.7	2008	3,446