

**Kansas Electric Generation: Summary of Existing Power Plants, as of September 30, 2007**  
Kansas Energy Council (KEC) Staff Summary, Prepared for the KEC Electricity Committee

The table below contains information on the major electric generation facilities currently operating in Kansas, exclusive of intermittent power generation sources.<sup>1</sup> Generating units are identified as base load, intermediate, peaking, standby, and load-following.<sup>2</sup> Basic information in the first five columns comes from U.S. Department of Energy, Energy Information Administration (EIA) Form 860 for 2006,<sup>3</sup> supplemented in some instances by updates from the utilities. Gross and net generation and carbon dioxide (CO<sub>2</sub>) emissions data were provided by the individual utilities (with a few exceptions), with the emissions rates based on gross generation and Continuous Emissions Monitoring System (CEMS) data, where available.<sup>4</sup>

Utility / Operator	Power Plant Name Unit / Primary Fuel Source / Type (B = Base load, I = Intermediate, P = Peaking, S = Standby, LF = Load following)	County	Summer Capacity (MW)	Initial Year of Operation	Gross Generation (MWh) 10/1/2006 - 9/30/2007	Net Generation (MWh) 10/1/2006 - 9/30/2007	CO <sub>2</sub> Emissions Rate (Gross) (tons/MWh) 10/1/2006 - 9/30/2007
Wolf Creek Nuclear Generating Corp. (owned by Westar, KCP&L, KEPCo)	<b>Wolf Creek</b> 1: Nuclear (B)	Coffey	1,160	1985	9,697,461	9,343,797	0
Westar (includes KGE assets; Emporia Energy Center came online in 2008 <sup>5</sup> )	<b>Jeffrey Energy Center</b> 1: Coal (B) 2: Coal (B) 3: Coal (B)	Pottawatomie	730	1978	5,670,669	5,189,383	1.024
			730	1980	5,776,659	5,325,549	1.029
			730	1983	5,220,786	4,800,520	0.957
	<b>Lawrence Energy Center</b> 3: Coal (B) 4: Coal (B) 5: Coal (B)	Douglas	48	1955	397,840	352,074	1.283
			110	1960	865,604	756,339	1.214
			373	1971	2,599,968	2,402,377	1.025
	<b>Hutchinson</b> GT1: Natural gas (P) GT2: Natural gas (P) GT3: Natural gas (P) GT4: Distillate fuel oil H1DG: Distillate fuel oil (S) ST1: Natural gas (P), retired 12/06 ST2: Natural gas (P), retired 12/06 ST3: Natural gas (P), retired 12/06 ST4: Natural gas (I)	Reno	51	1974	1,260	891	0.693
			55	1974	1,162	726	0.612
			56	1974	2,297	1,863	0.795
			75	1975	69	69	1.59
3			1983	19	19	0.88	
17			1950	NA	NA	NA	
16			1950	NA	NA	NA	
28	1951	NA	NA	NA			
170	1965	150,872	133,240	0.610			
<b>Abilene</b> GT1: Natural gas (P)	Dickinson	72	1973	6,835	6,739	0.693	

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	<b>Tecumseh</b> 1: Natural gas (P) 2: Natural gas (P) 7: Coal (B) 8: Coal (B)	Shawnee	19 20 74 130	1972 1972 1957 1962	129 123 596,101 1,009,622	-135 -141 530,575 914,065	0.98 0.98 1.164 1.076
	<b>Gordon Evans (formerly KGE)</b> ST1: Natural gas (P) ST2: Natural gas (S) 5: Distillate fuel oil (P) GT1: Natural gas (P) GT2: Natural gas (P) GT3: Natural gas (P)	Sedgwick	152 374 3 74 72 150	1961 1967 1969 2000 2000 2001	127,743 390,933 41 11,969 10,099 44,363	112,134 363,756 41 10,044 9,190 44,162	0.594 0.657 0.880 0.641 0.738 0.660
	<b>Murray Gill (formerly KGE)</b> 1: Natural gas (P) 2: Natural gas (P) 3: Natural gas (P) 4: Natural gas (P)	Sedgwick	40 71 104 102	1952 1954 1956 1959	4,935 16,204 76,809 74,250	3,349 13,329 68,474 66,022	0.622 0.585 0.731 0.631
	<b>Neosho (formerly KGE)</b> 3: Natural gas (P)	Labette	67	1954	9,681	7,187	0.555
	<b>LaCygne</b> 1: Coal (B) 2: Coal (B)	Linn	736 682	1973 1977	5,515,799 5,766,795	4,994,470 5,436,128	1.016 1.005
KCP&L	<b>Osawatomie</b> 1: Natural gas (P)	Miami	77	2003	10,180	9,536	0.781
	<b>West Gardner</b> 1: Natural gas (P) 2: Natural gas (P) 3: Natural gas (P) 4: Natural gas (P)	Johnson	77 77 77 77	2003 2003 2003 2003	26,933 25,586 26,171 24,541	26,184 24,800 25,414 23,895	0.733 0.742 0.736 0.726
	<b>Quindaro</b> GT1: Natural gas (P) GT2: Distillate fuel oil (P) GT3: Distillate fuel oil (P) ST1: Coal (B) ST2: Coal (B)	Wyandotte	13 56 46 72 111	1969 1974 1977 1965 1971	346 2,452 1,055 529,203 689,347	174 2,101 737 494,038 626,947	0.930 1.099 1.214 1.136 1.156
KCBPU							

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	<b>Nearman Creek</b> ST1: Coal (B) GT1: Natural gas (P)	Wyandotte	229 76	1981 2006	1,790,658 24,734	1,628,875 23,925	1.232 0.875	
Sunflower (Cimarron River, Clifton, Fort Dodge, and Great Bend stations owned by Mid-Kansas Electric Company)	<b>Holcomb Station</b> H1: Coal (B)	Finney	360.0	1983	3,031,141.5	2,823,615	0.9945	
	<b>Garden City Station</b> GC3: Natural gas (I) S2: Natural gas (I) S3: Natural gas (P) S4: Natural gas (P) S5: Natural gas (P)	Finney	8.7 98.0 14.5 51.0 53.0	1962 1973 1968 1976 1979	21 40,309 62 9,620 6,486	-372 34,187 -58 9,399 6,138	1.367 0.577 1.519 0.820 0.754	
	<b>Cimarron River Station</b> CR1: Natural gas (I) CR2: Natural gas (P)	Seward	61.0 15.5	1963 1967	153,160 54	142,999 54	0.704 0.735	
	<b>Clifton Station</b> CL1: Natural gas (P) CL2: Distillate fuel oil (P)	Washington	73.1 2.5	1974 1974	20,058 6	19,476 6	0.922 0.861	
	<b>Fort Dodge Station</b> FDS4: Natural gas (LF) (formerly Judson Large)	Ford	144.6	1968	461,134	427,579	0.640	
	<b>Great Bend Station</b> GB3: Natural gas (I) (formerly Arthur Mullergren)	Barton	98.5	1963	139,625	128,117	0.641	
	Empire	<b>Riverton</b> 10: Natural gas (P) 11: Natural gas (P) 12: Natural gas (I) 7: Coal (B) 8: Coal (B) 9: Natural gas (P)	Cherokee	16 16 150 38 54 12	1988 1988 2007 1950 1954 1964	2,138 187 91,193 205,626 359,098 880	2,138 187 90,150 190,137 337,254 880	0.978 0.985 0.708 1.369 1.292 0.985
City of McPherson		<b>McPherson 2</b> GT1: Natural gas (P) GT2: Distillate fuel oil (P) GT3: Natural gas (P)	McPherson	51.8	1973	3,251	3,234	0.813
				52.5	1976	408	405	0.993
				52.2	1979	1,758	1,748	0.800
		<b>McPherson 3</b> NA1: Natural gas (P)	McPherson	79.3	1998	25,639	25,404	0.792

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Midwest Energy (Note: Goodman Energy Center came online in 2008) <sup>5</sup>	<b>Colby</b> GT: Dual Fuel (P)	Thomas	13.0	1970	0	296	N/A
	<b>Great Bend</b> 1: Dual Fuel (P) 2: Dual Fuel (P) 3: Dual Fuel (P) 4: Dual Fuel (P) 5: Dual Fuel (P) 6: Dual Fuel (P)	Barton	1.0 1.0 1.0 1.0 3.0 3.0	1948 1948 1948 1948 1956 1956	38	-41	N/A
	<b>Bird City</b> 1: Distillate fuel oil (P)	Cheyenne	2.0	1965	0	-69	N/A
	<b>Kansas River Project</b> 1,3-7: Hydro (B)	Douglas		1922-1925		10,329	0

**Notes**

<sup>1</sup> An intermittent electric generator or resource is "an electric generating plant with output controlled by the natural variability of the energy resource rather than dispatched based on system requirements. Intermittent output usually results from the direct, non-stored conversion of naturally occurring energy fluxes such as solar energy, wind energy, or the energy of free-flowing rivers (that is, run-of-river hydroelectricity)." From EIA's Energy Glossary ([http://www.eia.doe.gov/glossary/glossary\\_i.htm](http://www.eia.doe.gov/glossary/glossary_i.htm); accessed May 2008).

<sup>2</sup> *Base load units* produce electricity at an essentially constant rate and run continuously; they are operated to maximize system mechanical and thermal efficiency and minimize system operating costs. *Peaking units* are normally reserved for operation during the hours of highest daily, weekly, or seasonal loads. *Intermediate units*, as their name suggests serve the load in between base load and peak load. *Standby units* support a utility system and generally run under no-load. *Load following units* are used to maintain scheduled system frequency and are ramped up or down in response to changes in system frequency, tieline loading, or the relation of these to each other.

<sup>3</sup> EIA, 2008, Electric Generation Capacity, Existing Electric Generating Units in the U.S., 2006: <http://www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html> (link to table; accessed January 2008).

<sup>4</sup> Generation data for Bowersock is from EIA Form 906-920 (for 2006 and 2007). CO<sub>2</sub> emissions rates for McPherson BPU were calculated based on gross generation and fuel type by multiplying total consumption by the appropriate emissions coefficient for a fuel type, divided by the amount of production in MWh over the desired time period. Emissions coefficients come from the EIA's CO<sub>2</sub> Uncontrolled Emissions Factors webpage (<http://www.eia.doe.gov/cneaf/electricity/epa/epata3.html>). Generation data for Sunflower (and MKEC) units are based on actual plant watt-hour meter readings. KCBPU's emissions rates for Quindaro GT1, GT2, and GT3 were calculated from fuel data and EPA Emissions Factors.

<sup>5</sup> Westar Energy's Emporia Energy Center has 300 MW (natural gas units) of peaking capacity; another 300 MW is scheduled to come online in 2009. Midwest Energy's Goodman Energy Center has 9 natural gas peaking units, each with a summer capacity of 8.4 MW.