KANSAS ENERGY PROFILE

Overview

Kansas has considerable energy resources and potential. Although the primary energy source is coal imported from Wyoming, Kansas has numerous resources to produce its own energy. Situated in America's heartland, Kansas has impressive wind resources with great potential to develop wind energy. Kansas also has one of the largest natural gas fields in the nation, along with several petroleum reserves across much of the state. As one of the sunniest states, Kansas has the resources to develop solar energy. Kansas agricultural crops can be used for ethanol production. Biomass potential comes primarily from municipal solid waste, landfill gas, and agricultural waste. Kansas has one hydroelectric power plant with the potential for additional hydroelectric power.

Kansas Utilities

Kansas electric power is provided by investor owned utilities, cooperatives, and municipal utilities. Three investor-owned companies (Empire District Electric Company, Kansas City Power & Light, Westar Energy) produce more than one-half of the electric power for the state. The remainder is supplied by three in-state member-owned Generation and Transmission cooperatives (Kansas Electric Power Coop, Midwest Energy, Sunflower Electric Power Corporation) and 65 municipal generating systems (represented by Kansas Municipal Energy Agency (77 electric member cities), Kansas Power Pool (31 members), and Kansas City Board of Public Utilities.

		Investor Owned Utilities (IOUs)[1]			Cooperatives			Municipal Utilities		
		Empire District Electric Company	Kansas City Power & Light	Westar Energy	Kansas Electric Power Coop	Midwest Energy	Sunflower Electric Power Corporation[3]	Kansas City Board of Public Utilities	Kansas Municipal Energy Agency [3]	Kansas Power Pool [3]
# Customers		9,928	250,000	700,000	110,000	48,750	400,000	63,000	145,888	36,612
System Peak Responsibility (MW)[2]	2012	73	1,930	6,072	514	388	1,314	563	220	422
	2017	69	1,770	5,811	519	427	1,248	538	445	281
	2024	71	1,833	6,309	513	464	1,250	553	495	319
System Renewable Capacity (MW)[2]	2012	14	178	737	133	57	142	73	NA	41
	2017	12	332	936	130	57	198	111	NA	27
	2024	272	340	1,046	130	57	198	111	NA	27

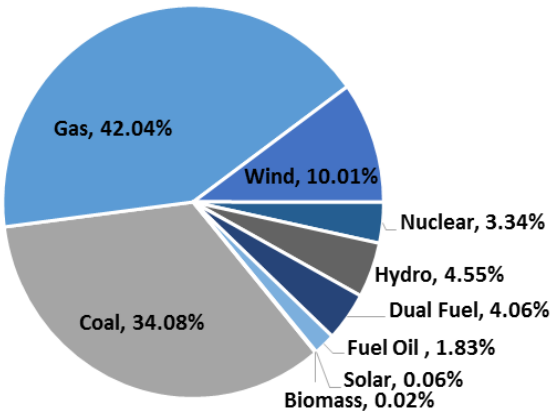
(1) Empire District Electric Company and KCP&L are multi-jurisdictional. Data reflects only Kansas loads (peak demand). System capacity represents the capacity allocated to serving their Kansas loads (peak demand).
(2) 2024 is the last year that reflects System Peak Responsibility Projections for all utilities. For consistency, System Renewable Capacity projections are also shown only through 2024.
(3) Customer number as reported by the Utility
Data collected from the Kansas Corporation Commission Report on Electric Supply and Demand 2015. http://www.kcc.state.ks.us/pi/2015_electric_supply_and_demand_report.pdf

All of the Kansas utilities are part of the Southwest Power Pool (SPP), one of nine Independent System Operators/Regional Transmission Organizations (ISOs/RTOs) and one of eight NERC Regional Entities. SPP is mandated by FERC to ensure reliable supplies of power, adequate transmission infrastructure, and competitive wholesale prices of electricity to its 14 member states. The SPP requires members to annually submit 10 year capacity and load projections to reflect the way they will meet ongoing system peak capacity responsibility (System Peak Responsibility), which includes a 12% capacity margin. The System Peak Capacity can be fulfilled through owned generation or purchased contracts. The chart above reflects the System Peak Capacity for Kansas utilities historically (2012) and projected (2017, 2024), as well as the current and projected Renewable Capacity.

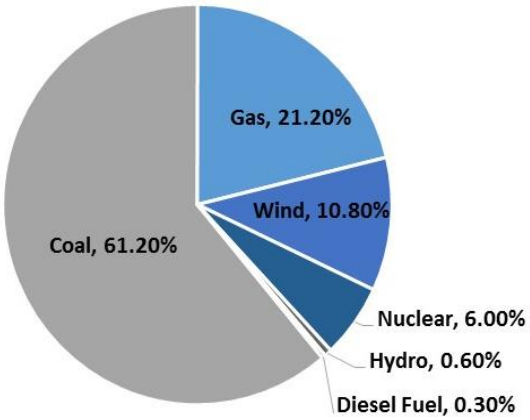
Southwest Power Pool (SPP)

The Southwest Power Pool (SPP) 14 member states include Arkansas, Iowa, Kansas, Louisiana, Minnesota, Missouri, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas and Wyoming. The service territory spans 370,000 square miles, including 4,229 substations and 589 generating plants. Coal makes up the largest percentage of both generation and consumption, followed by natural gas and wind.

SPP Generation Mix (Capacity) 2013



SPP Energy Consumption (Market) 2013

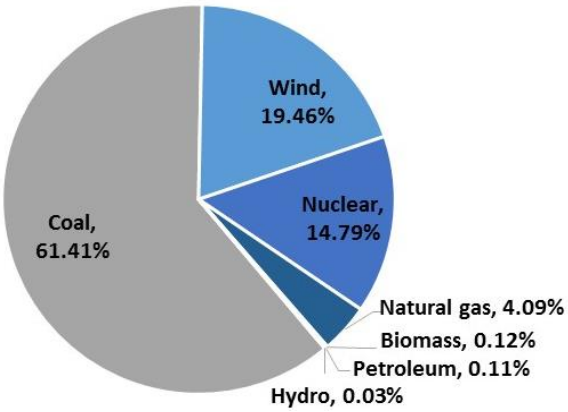


http://www.spp.org/publications/2013%20SPP%20Annual%20Report.pdf

Kansas Energy Mix

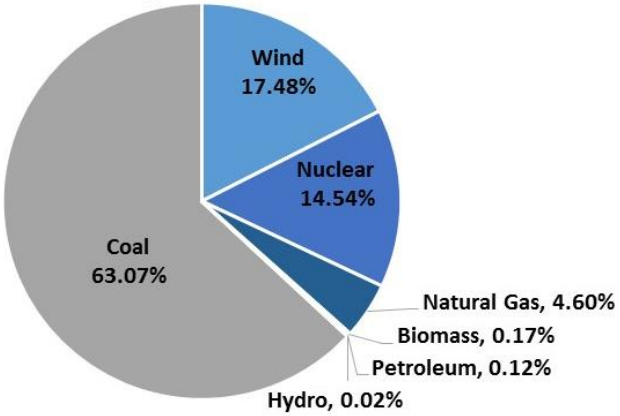
Electric utilities in Kansas provided 82% of the state's net electricity generation in 2013; 61% of net electricity generation came from coal-fired electric power plants; virtually all of the coal is imported from Wyoming with lesser amounts from Missouri and Oklahoma. In 2013, over 19% of net electricity generation in Kansas came from wind energy. Energy consumption is highest in the industrial sector (36.9%), followed by transportation (24.7%), residential (20.3%) and commercial (18.1%).

Kansas Electric Power Industry Generation by Primary Energy Source 2013



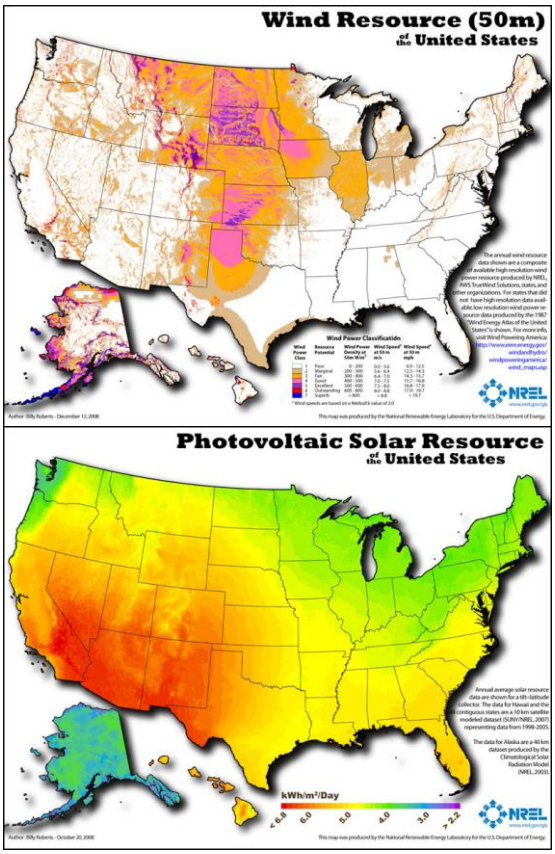
Electric power industry generation by primary energy source, 1990-2013. (table 5) http://www.eia.gov/electricity/state/kansas/

Kansas Electric Power Sector Consumption Estimates, 2013



Electric Power Sector Consumption Estimates , 2013. http://www.eia.gov/state/seds/data.cfm?incfile=/state/seds/sep_sum/html/sum_btu_eu.html&sid=US

Renewable Energy



The states in the SPP are the "Saudi Arabia" of wind: Kansas, Oklahoma, Nebraska, Texas Panhandle, New Mexico bear 60,000-90,000 MW potential, which is more wind energy than SPP uses during peak demand

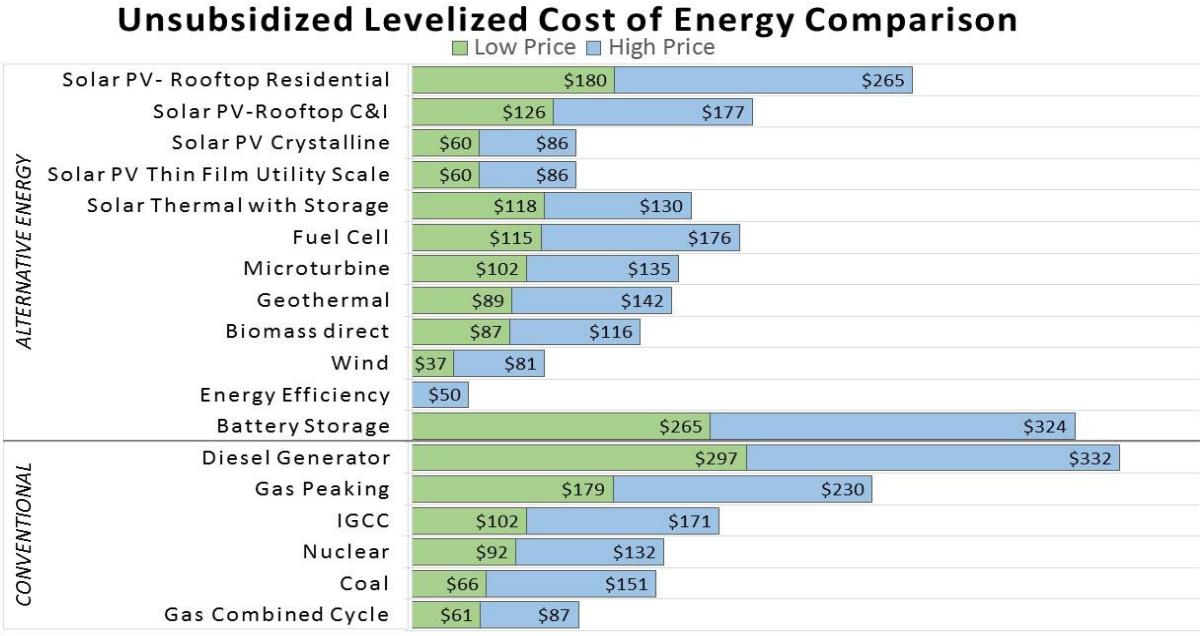
- 8,583 MW capacity of in-service wind
- 25,614 MW wind in-service and being developed

Kansas has the 2nd best wind resource in the nation, capable of producing 952 GW of wind energy. The solar resource is largely untapped, with the greatest potential in rural utility-scale photovoltaics. With the potential to produce 6,960 GW of solar energy, Kansas has the 4th best solar resource in the U.S.

RPS: Kansas met the Renewable Portfolio Standard of 20% renewable energy by 2020, five years early. In 2015, the renewable energy standard was changed to a goal.

Net Metering: IOUs allow net metering for residential systems 15kW or less, 100 kW or less (commercial/ industrial) and 150 kW (postsecondary or K-12), with a 1% cap of utilities previous year's peak demand. IOUs must provide net-metered customers with bi-directional meters. Some coops and municipal utilities offer net metering with the net excess generation credited to the customer generator at the end of each billing period at the rate of 100% of the utilities monthly system average cost of energy per kWh.

Alternative energy generation technologies are increasingly more affordable, as reflected in the Unsubsidized Levelized Cost of Energy Comparison chart below.



Data adapted from Lazard's Levelized Cost of Energy Analysis URL http://www.lazard.com/media/1777/levelized_cost_of_energy_-_version_80.pdf

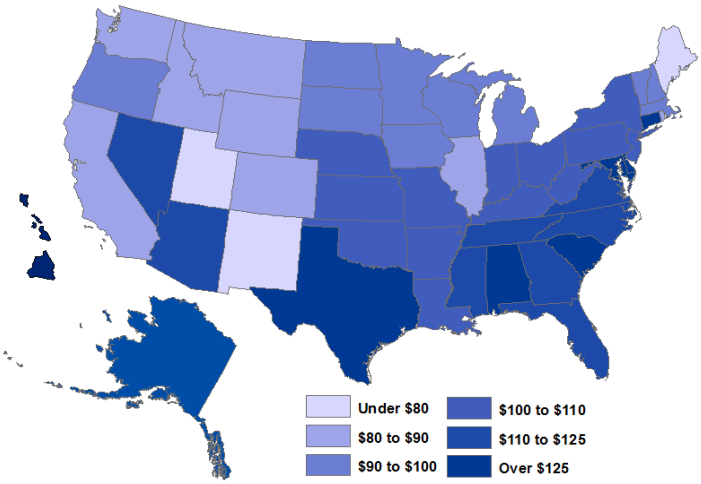
2013 Average Electricity Use

Kansans average monthly consumption is slightly more than the national average. In 2013, the average residential monthly bill of $107.85 was slightly below the national average. Kansas industrial customers pay slightly more per kWh than the national average.

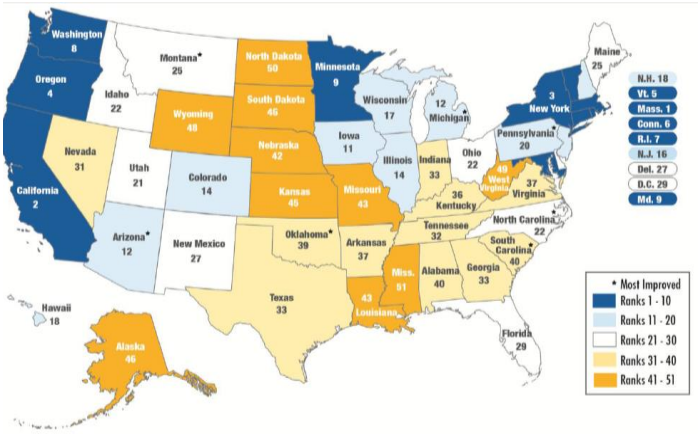
2013 Average Monthly Bill Data

	Residential		Industrial	
	Kansas	U.S.	Kansas	U.S.
Customers	1,222,985	127,880,358	26,394	743,863
Average Monthly Consumption (kWh)	926	909	34,760	109,603
Average Price (cents/kWh)	$11.64	$12.22	$7.36	$6.84
Average Monthly Bill	$107.85	$111.08	$2,569.72	$7,498.52
Data from forms EIA-861 - schedules 4AD, EIA-861S, EIA-8961U				

EIA Average Monthly Residential Bill, 2012



2012 ACEEE State Efficiency Scorecard



Energy Efficiency

According to the American Council for an Energy Efficient Economy (ACEEE), utilities across the country invested more than $6 billion dollars in energy efficiency programs in 2013 and a new report by the Consortium for Energy Efficiency puts that figure at more than $7.6 billion in 2014. The average utility budget in each state is $4.3 million dollars.

Kansas utilities invested only .02% of utility revenues, totaling approximately $700 thousand dollars in 2013. Across the nation, utilities spend on average 1.09%. Only 5 other states and US territories spent less than Kansas on utility energy efficiency programs in 2013.

States who score well on the ACEEE Efficiency Scoreboard, generally have a lower average monthly residential bill. Kansas has consistently scored in the bottom 5-10 states for their energy efficiency portfolio.

This report was compiled by the Climate + Energy Project. To learn more about CEP's work on energy issues in Kansas, visit www.climateandenergy.org org. For more information, email info@climateandenergy.org.