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Kansas from 2007 to 2017: A decade of renewable energy development

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ABSTRACT

In one decade, Kansas renewable energy growth created more than $10 billion dollars in capital investment. A battle over building a new coal fired generating plant would become the catalyst for advancing wind energy. Thrust into the national spotlight, Kansas utilized a coal plant compromise to advance a renewable portfolio standard (RPS) that required state-regulated utility companies to invest in renewable energy. This effort ultimately led to Kansas becoming a leader in wind power development.

1. Renewable energy unleashed in Kansas

In just a decade, Kansas electricity generation from wind power grew from 305,817 megawatt-hours to 917,485 MWh annually (Energy Information Administration, 2009). Despite ups and downs of federal and state policy, Kansas wind power growth surpassed nearly all other states, ranking fifth in the nation for installed capacity. Policy measures, technology advances, and transmission expansion allowed wind power to become an economic engine supported by more than 91% of Kansans (Judy, 2014) (Fig. 1).

2. Holcomb coal plant battle ignites a new direction

A decade ago, the population of Kansas comprised fewer than 1% of the total United States population. That year the U.S. economy was negatively impacted by high oil prices, plunging home sales, and a declining U.S. dollar, but in America's center, Kansas non-farm employment outpaced the nation for the first time since 2001.

Yet that wasn't the lead story of newspaper headlines. Instead, Kansas was thrust into the national spotlight when Kansas Department of Health & Environment (KDHE) Secretary Rod Bremby became the first state regulator in the nation to justify rejection of an air quality permit for a new Holcomb coal plant. His reasoning? That the carbon emissions the plant would emit posed a public health hazard. Despite the recommendation of staff members from the agency he led for the permit, Bremby declared "an imminent and substantial hazard to public health and the environment" and the coal plant's expansion was denied (Kansas Department Health and Environment, 2007).

Supporters of the $3.6 billion dollar, twin 700 MW coal units anticipated the project would bring thousands of construction jobs and hundreds of operations jobs at the plants in rural Western Kansas, in addition to the expansion of transmission lines so they could foster more renewable energy procurement. Based on estimates from one Fort Hays State University rural economist, the net economic benefit of the Holcomb plant was expected to be $8 billion over 35 years (Carpenter, 2007).

Opponents to the Holcomb coal plant expansion cited carbon pollution's impact on climate change and the United States Supreme Court ruling, *Massachusetts vs. Environmental Protection Agency,* less than a year before. The ruling found that greenhouse gases are air pollutants covered by the Clean Air Act and therefore subject to regulation (Environmental Protection Agency, 2009). Proponents agreed to incorporate steam generator technology in the new plant, a technology that requires less coal than conventional operations, but opponents were not satisfied that this measure did enough to ensure clean air. They raised concerns that the plant's emissions of nitrogen oxide would trigger smog and the sulfur dioxide could damage a person's central nervous system.

Bremby's actions halting the Holcomb coal plant expansion led to a years-long bitter battle in the state that often positioned wind advocates against coal advocates. Nevertheless, the Democratic governor at the time, Kathleen Sebelius, began efforts to encourage renewable energy investments. Working with Kansas utilities, a voluntary renewable portfolio standard (RPS) was established (Kansas Legislative Research Department, 2015). The standard encouraged 10% wind energy generation by 2010 and 20% wind energy generation by 2020, plus a decrease of at least 10% in overall energy use. The voluntary RPS moved Kansas from 364 MW of wind energy at the end of 2007 to 1015 MW a year later.

Additionally, Gov. Sebelius worked with Lt. Gov. Mark Parkinson to create the Kansas Energy & Environmental Policy Group. The group's mission was to grow the Kansas economy and preserve the environment

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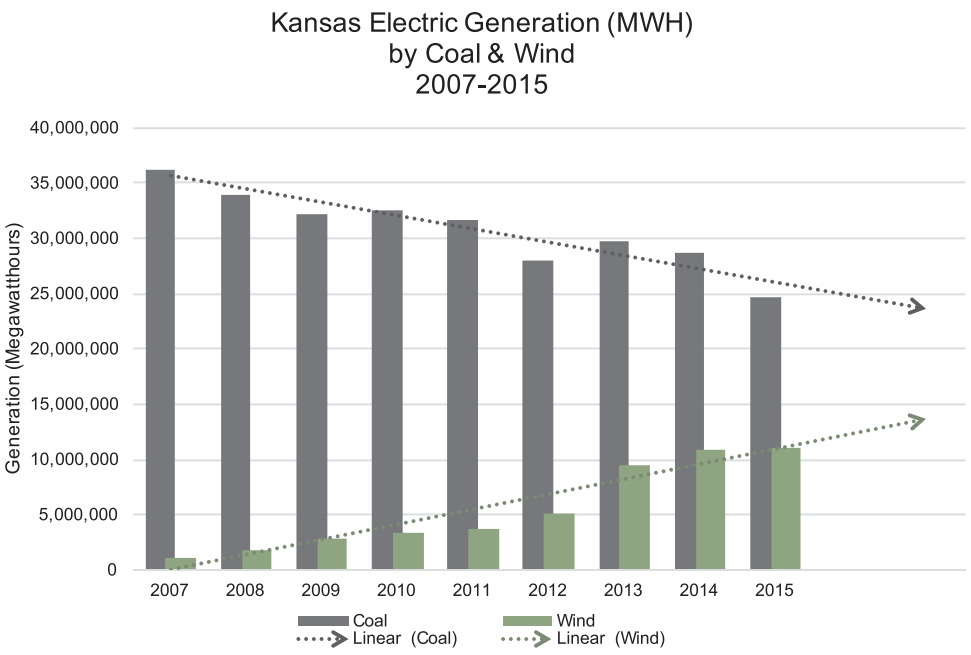

Fig. 1. Kansas Electric Generation by Coal & Wind, 2007–2015. Chart compiled from U.S. Energy Information Administration State Historical Tables for 2015. Released: October 2016 (Revised: November 2016).

while utilizing homegrown natural resources. In the midst of legal challenges to the coal plant permit denial, Gov. Sebelius continued to advance renewable energy as an economic driver for Kansas. In fact, her support of her appointed secretary's decision to deny the air permit kicked off a two-year legislative battle for the governor with the state's Republican-controlled legislature. During her term, she would veto four Holcomb bills over two legislative sessions that would have allowed the permit to move forward.

In 2007, less than half of the nation's electricity was generated from coal, with almost equal amounts of natural gas and nuclear power. At the same time, Kansas relied on a less diverse mix of electricity generation, with nearly 80% of the state's power coming from imported coal. Conversely, Kansas generated 2.5% electricity from wind, which was more than double the nation's wind generation. That 2.5% in generation was recognized by a diverse coalition of Kansas stakeholders, including clergy members, county commissioners, farmers, ranchers, unions, and environmentalists, as a promising way to enhance economic development through wind power investments (Figs. 2 and 3).

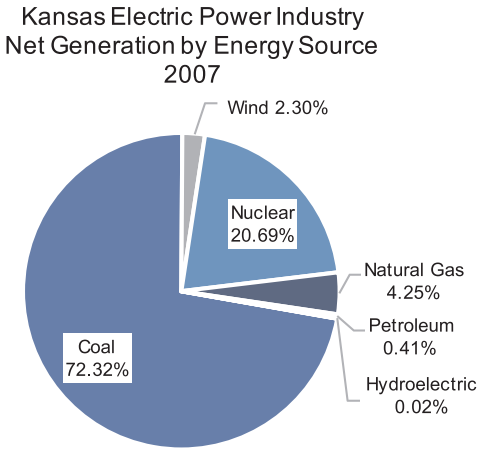

Fig. 2. 2007 Kansas Electric Power Industry Net Generation by Energy Source. Chart compiled from U.S. Energy Information Administration State Historical Tables for 2015. Released: October 2016 (Revised: November 2016).

3. A coal plant compromise creates renewable energy investments

In 2009, Gov. Sebelius joined President Obama's cabinet as secretary of Health and Human Services. Her successor, Mark Parkinson (a Democrat), took a different approach than Sebelius and immediately brokered a bipartisan compromise that allowed Sunflower Electric to resume the permitting process for one 895 MW coal plant (instead of the original two 700 MW units) in Holcomb. The compromise legislation created the Renewable Energy Standards Act, which made the voluntary RPS mandatory and required regulated utilities to generate 10% of their power from renewable resources by 2011, 15% by 2016, and 20% by 2020. It also set a fuel efficiency standard for state-owned motor vehicles and energy efficiency goals for state-owned and -leased space and equipment, plus required utilities to allow net metering and set interconnection standards for distributed generation (Kansas Legislature, 2009).

This policy produced results for the state, as it attracted Siemens Wind Energy to build its only North American nacelle facility in Hutchinson. The $50 million plant created 400 jobs in the region.

Testifying before members of the Kansas legislature, Kevin Hazel, former vice president of supply chain operations for Siemens, told the

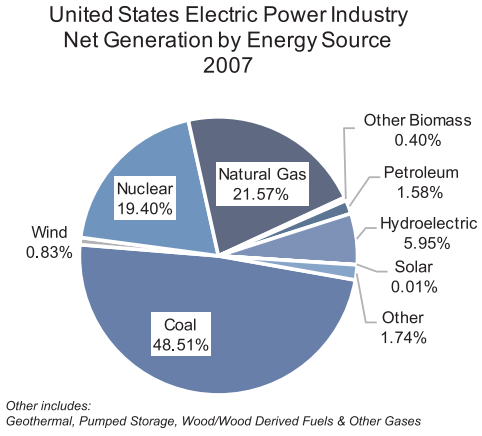

Fig. 3. 2007 United States Electric Power Industry Net Generation by Energy Source. Chart compiled from U.S. Energy Information Administration State Historical Tables for 2015. Released: October 2016 (Revised: November 2016).