



The Economic Impact of the Kansas Renewable Portfolio Standard

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Testimony

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I am Michael Head and I am a Research Economist at the Beacon Hill Institute at Suffolk University and a Senior Lecturer of Statistics at Suffolk University. I thank the Legislature for the opportunity to testify on this important matter.

In May 2009, Kansas Governor Mark Parkinson signed several statutes into law (first proposed by his predecessor, Gov. Kathleen Sebelius) that defined a new Renewable Portfolio Standard (RPS) and a timetable for its implementation. The legislation transformed a previously voluntary goal into a mandate. The following year, the Kansas Corporation Commission submitted the rules and regulations that would dictate the administration of the standard. The standard requires that at least 10 percent of electricity generation capacity in Kansas come from renewable sources between 2011 and 2015. Between 2016 and 2019, a 15 percent share of generation capacity must derive from renewable sources, and from 2020 onwards no less than 20 percent generation capacity must come from renewable sources.

Governments enact RPS policies because most sources of renewable electricity cannot face the market test. Without specific policy support, demand is almost non-existent. That is because renewable energy generation is less efficient and thus more costly than conventional sources of generation. Most consumers would not choose to pay a higher price given the alternatives of conventional energy. Thus, in order to prop up these new industries (which have not gained market share without taxpayer subsidies) governments enact renewable energy mandates to force utilities to buy electricity from

renewable sources, thus guaranteeing a market for the renewable sources. But energy prices eventually manifest themselves. These higher costs are passed to electricity consumers, including residential, commercial and industrial customers.

The costs and capacity factor estimates available for the different electricity generation technologies greatly diverge. To account for this variance, we provide three estimates of the effects of Kansas’s RPS mandate using low, medium and high cost estimates of both renewable and conventional generation technologies. Each estimate represents the change that will take place in the indicated variable against the counterfactual assumption, or baseline, that the RPS mandate would not be implemented. The table below displays the cost estimates and economic impact of the current RPS mandate in 2020, compared to a baseline.¹

The Cost of the RPS Mandate on Kansas (2012 \$)			
Costs Estimates	Low	Medium	High
Total Net Cost in 2020 (\$ m)	192	644	1,042
Total Net Cost 2012-2020 (\$ m)	739	2,436	3,932
Electricity Price Increase in 2020 (cents per kWh)	1.51	5.07	8.20
Percentage Increase (%)	13	45	72
Economic Indicators			
Total Employment (jobs)	(3,615)	(12,110)	(19,609)
Investment (\$ m)	(57)	(191)	(310)
Real Disposable Income (\$ m)	(443)	(1,483)	(2,402)

The current RPS will impose costs of \$644 million in 2020, within a range of \$192 million and \$1.042 billion. As a result, the RPS mandate would increase electricity prices by 5.07 cents per kilowatt hour (kWh) or by 45 percent, within a range of 1.51 cents per kWh, or by 13 percent, and 8.20 cents per kWh, or by 72 percent.

The State Tax Analysis Modeling Program (STAMP®) simulation indicates that, upon full implementation, the electricity price increases due to the RPS law will negatively affect the Kansas economy. The state’s ratepayers will face higher electricity prices that will increase their costs, which will in turn put downward pressure on household and business income. By 2020, the Kansas economy will shed 12,110 jobs, within a range of 3,615 and 19,609 jobs.

The job losses and price increases will reduce real incomes as firms, households and governments spend more of their budgets on electricity and less on other items, such as home goods and services. In 2020, real disposable income will fall by an expected amount of \$1.483 billion, between \$443 million and \$2.402 billion under the low and

¹ For a more detailed methodical description please see *The Economic Impact of the Kansas Renewable Portfolio Standard*.
<http://www.kansaspolicy.org/researchcenters/budgetandspending/budgetandspendingstudies/d95311.aspx?type=view>.

high cost scenarios respectively. Furthermore, net investment will fall by \$191 million, within a range of \$57 million and \$310 million.

It is important to stress that the results above are the effects of the RPS policy on the state of Kansas in the year 2020, compared to a baseline of no policy. Specifically, our estimate of a 45 percent increase in our medium case means that prices in 2020 will be 45 percent higher than if the RPS policy was not in effect from now until 2020. These results are not directly comparable to current annual estimates of the price of the RPS. Estimates of between 1 percent and 1.7 percent have been stated for the 2011 annual rate increase.² This rate increase only looks at the one year effect of moving to a 10 percent RPS, the easiest goal of the RPS mandate. As utilities have to progress beyond 10 percent, the 'low hanging fruit' will no longer exist. The most favorable (i.e. most consistent wind, at the lowest property value) wind farm locations will be taken, leading to the cost of each addition MWh of renewable energy being more costly than the last.

Moreover, as wind power begins to saturate the Kansas market, the marginal gains will decrease. That is, as wind power penetration in Kansas surpasses five percent of the load, the actual net MWhs per installed MW of capacity contributed will decrease. Since there is a correlation between wind speeds across the state, the requirement for backup power sources, available to come online at a moment's notice, increases as the share of capacity increases. That is, conventional energy sources will need to be available at a moment's notice to replace the full amount of electricity from wind power, preventing brownouts. Since power plants cannot come online that quickly, they need to be kept as 'spinning reserves,' that is idling, causing the cost per additional MWh of wind power to increase as its market share increases. Given these facts a "practical upper limit for wind penetration is 10%," according to sources.³

For these reasons, in addition to the more detailed analysis in our paper, we believe that our medium estimate of a 45 percent increase for rate payers in Kansas, within a range of 13 to 72 percent, is accurate.

Other studies have gone as far as to claim that RPS mandates could create net economic benefits.⁴ We categorically reject this notion, as these studies often rely on so-called multiplier models, which ignore the opportunity costs of projects. For example, the RPS would certainly create investments and jobs in the wind turbine manufacturing, installation and maintenance sectors. But that investment does not exist in a vacuum, it would have been invested elsewhere, creating jobs as well. The fact that this renewable investment would have not taken place without government decree means that the cost is greater than the benefits for the project.

² Testimony of Bob Glass, Chief of Economics and Rates Kansas, Corporation Commission, March 12, 2011.

http://www.kslegislature.org/li/b2011_12/committees/misc/cte_h_engy_utls_1_20120312_03_other.pdf.

³ William Korchinski, *The Limits of Wind Power*. <http://reason.org/files/thelimitsofwindpower.pdf>.

⁴ Biobased Energy Analysis Group. *Projected Impacts of Proposed Federal Renewable Portfolio Standards on the Kansas Economy*,

<http://bipartisanpolicy.org/sites/default/files/Kansas%20Study%20Document%20October.pdf>.

In the case of the Kansas RPS approximately 12,000 less jobs would exist in the state in 2020, compared to a baseline case of no RPS policy. These losses can be grouped into three general categories:

- When a company that would have operated under the baseline scenario closes due to higher utility costs,
- When a company which would have opened in Kansas chooses to do business in an another state that has lower energy costs, and
- When a company faces slower growth, thereby hiring fewer employees, due to higher electricity costs.

Kansas has enacted a series of laws implementing RPS mandates based on the idea that state government can get into the game of energy production by promoting green energy polices. In reality, these mandates are mere handouts to favored wind energy producers. Equally problematic is the lack of transparency between cost and benefit. The RPS hides its costs in the higher prices to be paid in the future by ratepayers where higher taxes or a direct budget appropriation would be more transparent.

The paradigm driving renewable energy found in most RPS mandates is flawed. The polices promote only certain forms of renewable energy. While Kansas does hold a comparative advantage in wind power, due to its geography, there is still a very high cost associated with it relative to conventional energy, thereby raising electricity prices for future consumers and businesses in Kansas. The cost difference between electricity generated from wind and natural gas is likely to widen further due to the recent decrease in natural gas prices.

Firms with high electricity usage will likely move their production, and emissions, out of Kansas to locations with lower electricity prices. Therefore, the Kansas policy will not reduce global emissions, but rather send jobs and capital investment outside the state.