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THE **ECONOMIC EFFECTS** OF NEW EPA RULES ON THE STATE OF **NEW MEXICO**

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Introduction

The issues of electricity production and cost have been contentious ones in recent years in New Mexico. The state's largest utility, Public Service Company of New Mexico (PNM) recently proposed a 12 percent rate hike, generating a great deal of controversy among rate-payers and environmentalists alike.[1]

This major rate hike comes in the wake of decisions by PNM to shut down two of its four coal-fired generators at the San Juan Generating Station near Farmington. A portion of the generating capacity is to be made up by a new natural gas facility and additional renewable capacity. This decision, made at the behest of environmentalists, is expected to cost the company and its rate-payers between $400 and $430 million.[2]

Overlaying all of this is New Mexico's "renewable portfolio standard" (RPS) which was updated legislatively in 2007 but originally passed in 2004.[3] According to this state requirement, New Mexico's regulated utilities must generate 20 percent of their electricity using renewable sources by 2020. According to a 2011 joint report by the Rio Grande Foundation and the American Tradition Institute, by 2020, New Mexico rate-payers will be paying an additional $619 million annually for their electricity.[4]

Clearly, there has been a lot of activity, mostly in the form of new regulations and mandates at the state level, related to electricity generation in New Mexico in recent years. New Mexicans already face relatively high electricity costs.[5]

As shown in Table 1, when compared to other Mountain states, New Mexico's residential electricity prices are already on the high side. Although some states with renewable standards also have inexpensive electricity, the table illustrates the strong correlation between such regulations and higher electricity costs.

Table 1. Mountain State Electricity Rates October 2014, Renewable Standards

Electricity Rates by State October 2014		RPS Requirements
Nevada	13.22	25% by 2025
New Mexico	12.70	20% by 2020
Texas	12.03	5,880 MW by 2015
Arizona	11.99	15% by 2025
Colorado	11.74	30% by 2020
Wyoming	11.17	None
Montana	10.80	15% by 2015
Oklahoma	10.74	None
Utah	10.25	None
Idaho	10.24	None

* Rates from Energy Information Administration October 2014 data: http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_6_a; RPS data from: Database for State Incentives for Renewables & Efficiency: http://www.dsireusa.org/documents/summarymaps/RPS_map.pdf.

[1] Tina Jensen, "PNM Customers Could see a big Rate Hike," KRQE Channel 13, December 11, 2014, http://krqe.com/2014/12/11/pnm-customers-could-see-a-big-rate-hike/
[2] Rob Nikolewski, "Deal Reached on Coal-Fired Plants in the Four Corners," New Mexico Watchdog, February 13, 2013, http://watchdog.org/16896/nm-deal-reached-on-coal-fired-plants-in-the-four-corners/.
[3] Institute for Local Self-Reliance, "New Mexico's Renewable Portfolio Standard," http://ilsr.org/rule/renewable-portfolio-standards/2569-2/.
[4] Rio Grande Foundation and American Tradition Institute, "Quick Findings on New Mexico's RPS," February 2011, http://www.riograndefoundation.org/downloads/rgf_nm_rps_quick_findings.pdf.
[5] Energy Information Administration, "Average Retail Price of Electricity to Ultimate Customers by End-Use-Sector," October, 2014, http://www.eia.gov/electricity/monthly/epm_table_grapher.cfm?t=epmt_5_6_a.

These high prices are likely to go even higher in the next few years and "renewables" will form a growing share of New Mexico's electricity generation portfolio even in the absence of costly new federal regulations.

Into that complicated and fast-changing state-driven environment, the federal government and the Obama Administration's EPA has unveiled an unprecedented scope of new federal regulations called the "Carbon Pollution Standards."

Federal Carbon Pollution Standards

The Obama Administration's proposed regulations include CO2 emission limits on new and existing electricity power plants and new lower limits on mercury emissions from electricity power plants.[6] The EPA aims the new rules directly at coal-fired electricity power plants. The EPA rules are particularly ambitious since coal is a dispatchable electricity source and provides the bulk of base load electricity to the nation's electric grids.

The new rules for existing plants would limit CO2 emissions to 1.1 pounds (lbs.) per kilowatt hour (kWh) hour of electricity production.[7] This is less than half of the current average of 2.14 lbs. per kWh.[8] The rule on existing coal plants would set the goal of reducing CO2 emissions per megawatt hour of energy produced by 30% below the 2005 levels by 2030. The mercury rule would limit emissions range from between 0.0002 lbs. per Gigawatt hour (1,000,000 kilowatt hours) to 0.04 lbs. per Gigawatt hour.[9]

The EPA rules will force utilities to close coal-fired generation plants or adopt expensive and unproven technologies, such as carbon capture and storage.

The EPA estimates that these new regulations will incur over $50 billion in annual costs. However, the EPA contends that many of these regulations will provide tens of billions of dollars in benefits that will more than offset these enormous costs. Most of these benefits are in terms of improved health.

The EPA's cost and benefit estimates have come under criticism from a number of observers. The EPA calculations of cost tend to be much lower than industry estimates and benefit calculations are inflated.[10] The EPA analysis suffers from the following:

> The use of decades-long amortization schedules for capital expenditures obfuscates the full financial burden that will be imposed over a short time period; The failure to estimate likely macroeconomic impacts of its proposed regulations; and, The mis-identification of source reduction; most of the benefits derive from co-benefits from other pollutants regulated under different rules while the primary pollutant is reduced only minimally.

The cost of EPA regulations will not be experienced uniformly across all states, as states with a higher concentration of coal fired power plants will experience higher costs from the regulations. New Mexico derives 68 percent of its electricity from coal, one of the highest levels in the U.S. The average price of electricity has jumped by 19

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[6] Nam D. Pham and Daniel J. Ikenson, A Critical Review of the Benefits and Costs of EPA Regulations on the U.S. Economy, NDP Consulting,

[7] U.S. Environmental Protection Agency, "Regulatory Impact Analysis for the Proposed Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units (September 2013), http://www.epa.gov/ttnecas1/regdata/RIAs/EGUGHGNewSourceStandardsRIA.pdf, accessed May 8, 2014.

[8] http://www.eia.gov/tools/faqs/faq.cfm?id=74&t=11,

[9] EPA. "Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards." (December 2011), 1-6.

[10] Ibid.

[11] U.S. Energy Information Agency, "State Electricity Profiles: New Mexico", Table 5. Electric power industry generation by primary energy source, 1990-2012; http://www.eia.gov/electricity/state/New Mexico/index.cfm.

percent from 2007 to 2012. Electricity generation from coal has dropped by 9 percent over the same period.[11]

The new EPA rules will further reduce, if not eliminate, the use of coal over the next 15 years and send electricity prices soaring even higher and even destabilize the electricity grid.[12]

Table 2: The Cost and Economic Impact of new EPA Rules on New Mexico (2012 $)

Net benefits (cost)	2030
CO2 Rule for New Power Plants (millions $)	-48
CO2 Rule for Existing Power Plants (millions $)	-90
Utility Mercury Emissions (millions $)	-47
Total net cost to New Mexico (millions $)	(185)
Electricity Prices (cents per kWh)	1.60
Percent change (%)	18%
Total Employment (Jobs)	-5,170
Investment ($ millions)	-58
Real Disposable Income ($ millions)	-578

This paper relies upon data and calculations provided by the Beacon Hill Institute at Suffolk University (BHI). Their date is used to estimate the costs of these new EPA rules and the impact on the state's economy. To that end, BHI applied its STAMP® (State Tax Analysis Modeling Program) to estimate the economic effects of the EPA rules.[13] We report the dollar values in 2012 Net Present Value dollars using a 3 percent discount rate. Table 2 displays the cost estimates and economic impact data for 2030.

We estimate that the CO2 emission rule on new power plants will cost New Mexico $48 million in 2030; the rule for existing plants will cost $90 million and the mercury emissions rule will cost $47 million. In total the three regulations will cost New Mexico $185 million dollars. The regulations will drive up electricity prices in New Mexico by 1.60 cents per Kilowatt hour, or 18% by 2030.

These increased energy prices would inflict significant harm on the New Mexico economy. The state economy would shed 5,170 jobs by 2030. The job losses and price increases would combine to reduce real incomes as firms, households and governments spend more of their budgets on energy and less on other items, such as home goods, entertainment and clothing. As a result, real disposable income would fall by $578 million per year by 2030. Furthermore, annual investment in the state would fall by $58 million. The investment loses are mildly offset by the need to increase investment in other electricity technologies.

Conclusion

The EPA has used its rulemaking authority under the Clean Air Act to force coal to either shutdown or adopt expensive and untested technologies. These policies will have grave effects on the cost and/or the reliability of

[12] Roger Bezdek and Frank Clemente, "Protect the American People: Moratorium on Coal Plan Closures Essential," http://instituteforenergyresearch.org/wp-content/uploads/2014/06/Protect-the-American-People.-Moratorium-on-Coal-Plant-Closures-Essential.pdf (June 2014).

[13] Detailed information about the STAMP® model can be found at http://www.beaconhill.org/STAMP_Web_Brochure/STAMP_HowSTAMPworks.html and http://beaconhillinstitute.blogspot.com/2014/05/in-defense-of-stamp-as-tax-modeling-tool.html.

the national electricity supply. New Mexico will experience larger electricity cost and reliability impacts than the nation as a whole due to its higher portion of electricity production from coal fired power plants.

The rules are aimed at reducing CO2 emissions from producers of coal power plants by either shutting them down or making their cost uncompetitive in the market place. If the electricity production from coal is eliminated, the diversity of the electricity supply sources will fall and become more dependent of natural gas and its price fluctuations. If the new expensive and untested carbon capture and sequestration technology is adopted electricity prices will increase.

The higher electricity costs threaten the state's industrial base. The rules proposed by the EPA would therefore inflict large negative impacts on the economy of New Mexico. The state would experience significant declines in employment, wages, disposable income and investment upon implementation of the policy. New Mexico policymakers need to be aware of these serious consequences that come with these rules.

All of these negative impacts will be generated on behalf of a policy that, according to EPA administrator Gina McCarthy's own testimony in September of 2013 before a House committee, "would not affect the climate, because the preponderance of current and future greenhouse-gas emissions originate in Asia." [14]

Methodology

BHI utilized its STAMP (State Tax Analysis Modeling Program) model to identify the economic effects and understand how they operate through a state's economy. STAMP is a five-year dynamic CGE (computable general equilibrium) model that has been programmed to simulate changes in taxes, costs (general and sector-specific) and other economic inputs. As such, it provides a mathematical description of the economic relationships among producers, households, governments and the rest of the world.

It is general in the sense that it takes all the important markets, such as the capital and labor markets, and flows into account. It is an equilibrium model because it assumes that demand equals supply in every market (goods and services, labor and capital). This equilibrium is achieved by allowing prices to adjust within the model. It is computable because it can be used to generate numeric solutions to concrete policy and tax changes.[15]

BHI calculated the impact of the fossil fuel price increases on the price level for each of the (27) sectors of the economy within the STAMP model. Using the Energy Information Agency's (EIA) national data on GHG emissions by the residential, commercial, and industrial as well as transportation sectors; we allocated the national emissions to the STAMP sectors.[16] We then used data from the U.S. Census Bureau's Economic Census as a proxy for the size of each industry in each state relative to the national data.[17] We applied the cost of carbon, adjusted to be equivalent to 3.67 metric tons of CO2, to GHG emissions in each sector, which gives us our total cost to the economy. We converted these price increases in dollars into percentage changes based on the annual value of production in each sector.

[14] William Yeatman, "Access is Power," National Review Online, September 22, 2014, http://www.nationalreview.com/energy-week/388541/access-power-william-yeatman.

[15] For a clear introduction to CGE tax models, see John B. Shoven and John Whalley, "Applied General-Equilibrium Models of Taxation and International Trade: An Introduction and Survey," Journal of Economic Literature 22 (September, 1984): 1008. Shoven and Whalley have also written a useful book on the practice of CGE modeling entitled Applying General Equilibrium (Cambridge: Cambridge University Press, 1992).

[16] U.S. Department of Energy, Energy Information Agency, American Energy Outlook 2009, Table 18: Carbon Dioxide Emissions by Sector and Source, Internet, available at www.eia.doe.gov/oiaf/servicerpt/stimulus/excel/aeostimtab_18.xls.

[17] 2002 Economic Census, Summary Statistics by 2002 NAICS, United States, Internet, available at http://www.census.gov/econ/census02/data/us/US000.HTM.

We simulated these changes in the STAMP model as a percentage price increase on fuel to measure the dynamic effects on the state economy. The model provides estimates of the proposals' impact on employment, wages and income in New Mexico. Each estimate represents the change that would take place in the indicated variable against a "baseline" assumption about the value that variable for a specified year in the absence of the cap-and-trade policy. Each estimate represents the change that would take place in the indicated variable against a "baseline" assumption about the value that variable for a specified year in the absence of the cap-and-trade policy.

The Beacon Hill Institute at Suffolk University in Boston focuses on federal, state and local economic policies as they affect citizens and businesses. The institute conducts research and educational programs to provide timely, concise and readable analyses that help voters, policymakers and opinion leaders understand today's leading public policy issues.

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