THE **COSTS** OF NEW EPA RULES TO **LOUISIANA**

Overview

The Obama administration has unveiled an unprecedented scope of regulation through the Environmental Protection Agency (EPA). These new regulations include CO_2 emission limits on new and existing electricity power plants and new lower limits on mercury emissions from electricity power plants.

The EPA aims the new rules directly at coal-fired electricity power plants, which provide 37.4 percent of the electricity generation in the United States. The EPA rules are ambitious since coal is a dispatchable electricity source and provides the bulk of base load electricity to the nation's electric grids.

The rules for new plants would limit CO_2 emissions to 1.1 pounds (lbs.) per kilowatt hour (kWh) of electricity production. This is approximately half of the current average of 2.14 lbs. per kWh. The rule on existing coal plants would set the goal of reducing CO_2 emissions by 30% below the 2005 levels by 2030. The mercury rule would set emissions limits ranging from 0.0002 lbs. per Gigawatt hour (1,000,000 kilowatt hours) to 0.04 lbs. per Gigawatt hour.

The EPA rules will force utilities to close coal-fired generation plants or adopt expensive and unproven technologies, such as carbon capture and storage. While the EPA estimates that that these new regulations will cost over $50 billion, they contend 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 come in the form of improved health.

The EPA's cost and benefit estimates have been subject to criticism, as EPA cost calculations tend to be much lower than industry estimates while benefit calculations are inflated. Shortcomings in EPA analysis include:

1. Using decades-long amortization schedules for capital expenditures that obscure the full financial burden that will be imposed over a short time period;
2. Failing to estimate likely macroeconomic impacts of its proposed regulations; and,
3. Misidentifying source reduction; most of the benefits derive from reduction in other pollutants regulated under different rules while the primary pollutant is reduced only minimally

Economic Impact of EPA Rules on Louisiana

In this paper, we estimate the costs of these new EPA rules and the impact on Louisiana's economy. To that end, the Beacon Hill Institute at Suffolk University (BHI) applied its STAMP® (State Tax Analysis Modeling Program) to estimate the economic effects of the EPA rules. We report the dollar values in 2012 Net Present Value dollars using a 3 percent discount rate. Table 1 displays the cost estimates and economic impact data for 2030.

Key Findings

- Cost of CO_2 emission rule on new power plants is $136 million
- Cost of CO_2 emission rule on existing power plants is $258 million
- Cost of mercury emissions rule is $574 million
- Total cost of three regulations to Louisiana is $968 million
- These regulations will drive up electricity prices in Louisiana by 22%, or 1.49 cents per Kilowatt hour

- Increased energy costs would inflict harm on Louisiana's economy:
  - Louisiana would shed 16,260 jobs by 2030
  - Price increases and job losses would reduce real income 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 $1,962 million by 2030
  - Annual investment in the state would fall by $256 million, although there would be increased investment in other electricity technologies

Table 1: The Cost of New EPA Rules to Louisiana (2012 $)

Net Cost	2030
CO_2 Rule for New Power Plants	$136 million
CO_2 Rule for Existing Power Plants	$258 million
Utility Mercury Emissions	$574 million
Total net cost to Louisiana	$968 million
Percent Increase in Electricity Prices	1.49¢ kWh
Percent Increase	22%
Total Employment Loss	16,260 jobs
Reduced Investment	$256 million
Reduction in Real Disposable Income	$1,962 million

Conclusion

The EPA has used its rulemaking authority under the Clean Air Act to force coal-fired plants to either shut down or adopt expensive and untested technologies. These policies could have grave effects on the cost and reliability of the national electricity supply.

If the electricity production from coal is eliminated, the diversity of the electricity supply sources will decline, making Louisiana more dependent on natural gas and more vulnerable to its price fluctuations. If the new expensive and untested carbon capture and sequestration technology is adopted electricity prices will increase.

These higher electricity costs will harm the state's industrial base. The rules proposed by the EPA would therefore inflict damage on the economy of Louisiana. The state would experience significant declines in employment, wages, disposable income and investment upon implementation of the policy. Louisiana policymakers need to be aware of these consequences.

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.[10]

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.[11] 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.[12] We applied the cost of carbon, adjusted to be equivalent to 3.67 metric tons of CO_2, 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.

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 Louisiana. 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

[1] 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, http://www.nam.org/~/media/423A1826BF0747258F22BB9C68E31F8F.ashx (November 2012).

[2] http://www.eia.gov/electricity/state/unitedstates/index.cfm,

[3] 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.

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

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

[6] Ibid.

[9] 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.

[10] 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).

[11] 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.

[12] 2002 Economic Census, Summary Statistics by 2002 NAICS, United States, Internet, available at http://www.census.gov/econ/census02/data/us/US000.HTM.