# Outlook for United States Energy Policy: Look to the EPA

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In his state of the union addresses, President Obama has presented ideas for various energy initiatives. The same attention to energy policy, however, seems absent in Congress which has been much more focused on other matters such as debt ceilings and the federal budget. One might be tempted to look upon Capitol Hill's inaction and conclude that the U.S. has no energy policy, but that would be a mistake. Inaction can be a policy statement itself, and we should recognize that this may very well be the current policy statement of the legislature. Given this vacuum, then, the Environmental Protection Agency has emerged as the organization that observers look to for definition of the country's energy policy. Over the past 24 months, the EPA has proposed new standards to limit $SO_2$ and $NO_X$ emissions from power plants, mercury and other air toxics, and $CO_2$ emissions from new power plants. Existing questions regarding the disposal of ash from coal fired power plants have remained unresolved, but may be reignited in the wake of a recent federal lawsuit. People interested in the future of energy policy in the U.S. would be wise to follow the EPA's rulemaking proceedings, as they continue to shape the landscape of our business.

There has been no further movement on energy policy relating to a price on the emissions of $CO_2$ in the U.S. since the Waxman-Markey and Kerry-Boxer bills of 2009. The European Union continues to expand its emissions trading system, subjecting airlines to the system at the beginning of 2012. The inclusion of airlines from outside of Europe in the program has met with resistance, however. An appeal by North American airlines was thrown out of the European Court of Justice in December, and China has expressly prohibited its airlines from complying with the program. The Obama administration has supported the position of the U.S. airlines in this matter, spearheaded by Secretary of State Hillary Clinton and Secretary of Transportation Ray LaHood.

The EPA has promulgated a number of rules over the past 24 months with the potential to shape the future of our energy markets. The Cross State Air Pollution Rule is envisioned as the successor regulation to the Clean Air Interstate Rule (CAIR), and affects the states shown in Figure 1. When the EPA released the initial allowance allocations for 2012 last summer, the regulation was met with a tremendous outcry, with markets such as Texas fearing that the rule would lead to electricity outages. While the allowance allocations were revised by the EPA in the fall, a comparison of the revised 2012 allowances in Table 1 with actual 2010 power plant emissions shows that most states still project to have insufficient credits to meet actual emission targets, thus providing certain states with more opportunities for mitigating their emissions. West Virginia, Tennessee and Alabama seem to benefit the most under the current allocation scheme, while Florida, Ohio, Pennsylvania, and Texas fare worst. The rule was stayed by the U.S. Court of Appeals in Washington on December 30, with implementation now expected to begin in 2014.

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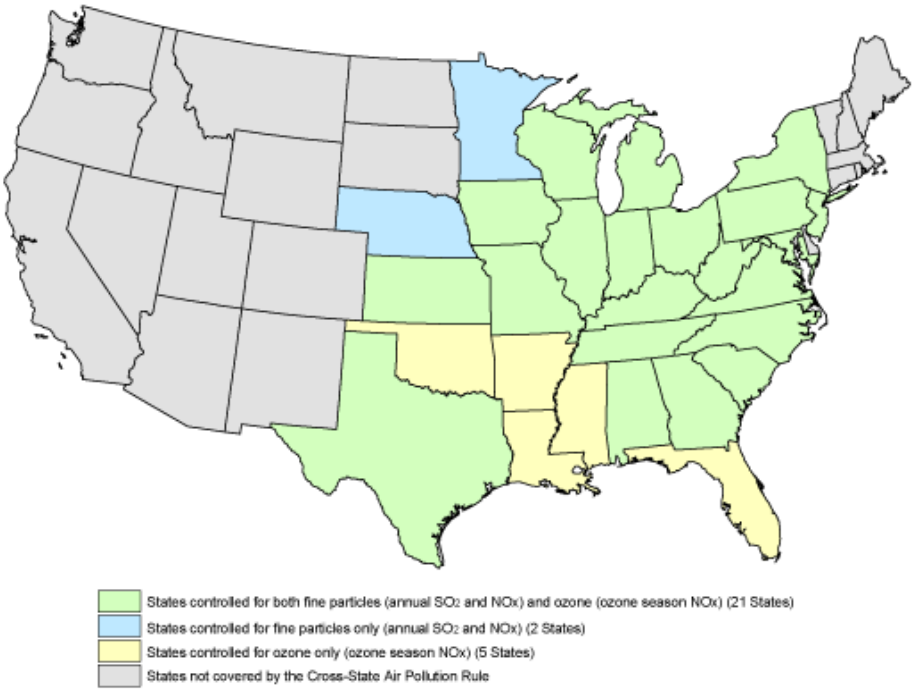


Figure 1: EPA Map of Transport Rule States

| Table 1: Revised 2012 CSAPR Emissions Allowance less 2010 Power Plant Emissions | | |
|---|---|---|
| | SO2 | NOx |
| West Virginia | 26,877 | 3,198 |
| Tennessee | 26,466 | -55 |
| Alabama | 7,518 | 3,618 |
| North Carolina | 5,540 | -7,078 |
| Illinois | 3,047 | -32,267 |
| Iowa | 278 | -7,480 |
| Maryland | -433 | -3,146 |
| Minnesota | -435 | -2,196 |
| Nebraska | -1,736 | -15,621 |
| Kansas | -4,558 | -9,072 |
| New Jersey | -7,756 | -1,297 |
| South Carolina | -7,808 | 4,257 |
| Michigan | -18,707 | -21,402 |
| New York | -19,342 | -2,859 |
| Virginia | -25,403 | -6,724 |
| Missouri | -32,881 | -7,426 |
| Wisconsin | -33,136 | -3,579 |
| Kentucky | -52,681 | -4,350 |
| Mississippi | -54,696 | -4,040 |
| Georgia | -63,566 | 185 |
| Arkansas | -65,776 | -3,636 |
| Oklahoma | -85,135 | -71,433 |
| Louisiana | -102,262 | -6,040 |

| Table 1: Revised 2012 CSAPR Emissions Allowance less 2010 Power Plant Emissions | | |
|---|---|---|
| | SO2 | NOx |
| Indiana | -135,697 | -3,692 |
| Pennsylvania | -140,368 | -15,765 |
| Florida | -144,589 | -9,254 |
| Texas | -162,586 | -6,045 |
| Ohio | -268,097 | -8,319 |

The EPA has also issued the Mercury and Air Toxic Standards applying to all coal and oil-fired power plants with capacity of 25 MW or greater. They require that any new construction must be as effective as any current comparable unit, and that existing construction must be as effective as the top 12% of existing comparable units. The impact on overall generation mix from this rule is not significant, as shown in Figure 2 from the EPA's impact analysis report. However, a recent Brattle Group report cites 30 GW of coal generation to retire in the face of the regulation, with another 93-248 GW requiring environmental control upgrades.

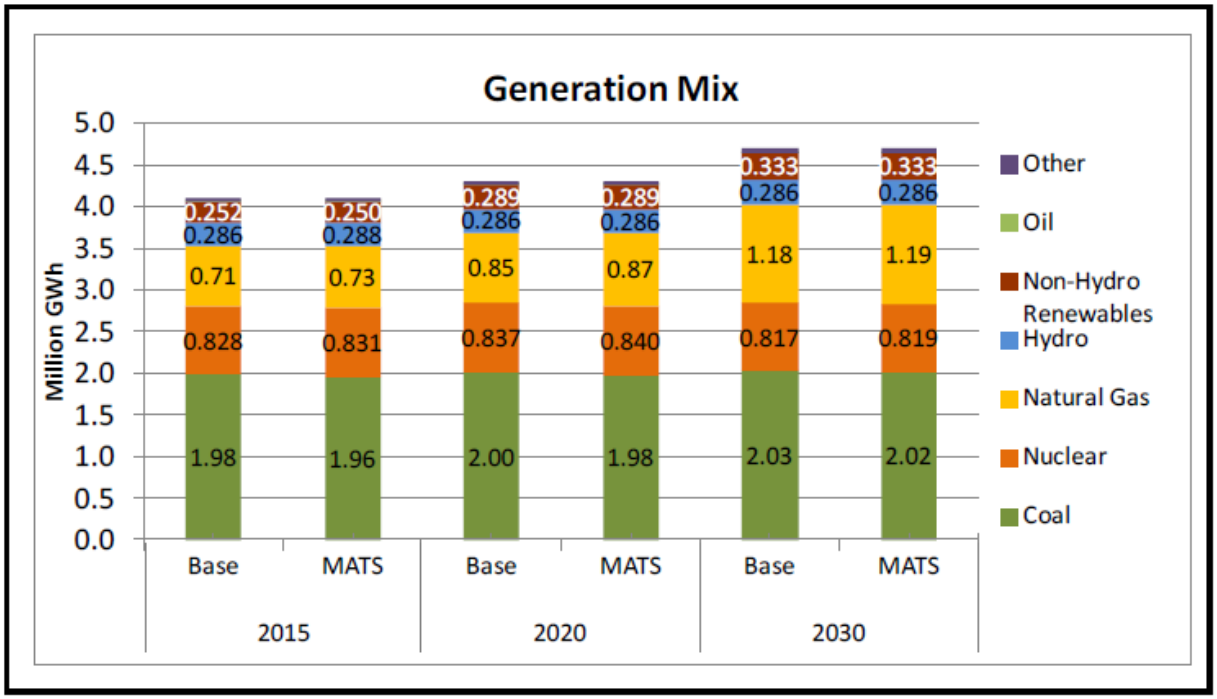


**Figure 3-7. Generation Mix with the Base Case and with MATS, 2015-2030**

Source: Integrated Planning Model run by EPA, 2011.

Figure 2: EPA Impact Analysis of the Mercury and Air Toxics Standards

A third rule concerns the disposal of coal ash, spurred by the containment failure at TVA's Kingston plant in 2008. The EPA had proposed two approaches to regulation, but had not finalized the ruling. The first

proposal would be to treat coal ash as hazardous waste, and the EPA would provide standards for its disposal. The second proposal would treat ash as non-hazardous waste, and while the EPA would supply guidelines for its disposal, the individual states would be left to establish guidelines. A recent federal lawsuit by EarthJustice on behalf of eleven environmental groups may encourage the EPA to finalize its rulemaking, but given the delay, the final rule may look more like the second proposal.

A fourth rule, issued on March 25, would limit the CO2 emissions from new power plants to 1,000 pounds per MWh. Because this standard is not achievable with current coal-fired technology, the rule is seen as a death knell for new coal construction. The EPA has mitigated this concern somewhat by allowing power plants to achieve this target 'on average' over the first 30 years of a power plant's operating life. However, unless carbon capture and storage projects become commercially viable on a large scale, it is unlikely that potential investors in new generation would accept the risk of the availability, effectiveness, or cost of this technology over the next 30 years.

The EPA is also expected to issue a final rule to establish requirements for cooling water intake structures at existing power plants this July. The rule would establish upper limits on the number of fish killed by impingement, require the study of site specific controls to limit aquatic organisms sucked into cooling systems, and require new generation at existing facilities to add technology equivalent to closed cycle cooling. However, if the current drought conditions persist or worsen, this rule may very well end up being moot.

On the energy supply side, hydraulic fracturing has revolutionized the natural gas industry. Despite this boom, concerns about the environmental impact of this practice remain, and guidelines on well integrity and the disclosure of chemicals used in fracking are expected. However, significant risks remain that could impact the price of natural gas, despite its significance in the U.S. energy industry. For example, a significant seismic event in close proximity to a fracking site, regardless of whether fracking is identified as the cause of the event, might be sufficient to alter this practice, and put additional supply side pressures on natural gas. The current low natural gas prices are a fundamental artifact of the lack of export capacity in North America. While gas prices remain low on this continent, they are much higher in Europe and Asia. The recent federal approval of the Sabine Pass export facility should lead to North American natural gas flowing overseas, and begin to equalize natural gas prices between North America and the rest of the world. Future terminals are shown in Figure 3. This change in the U.S. supply of natural gas has been profound. According to the 2006 Annual Energy Outlook, overseas LNG imports were expected to be over 2 trillion cubic feet by 2010, almost 10% of projected U.S. consumption. In the most recent report, the U.S. is expected to be a net exporter of LNG by 2016, and all natural gas by 2021.

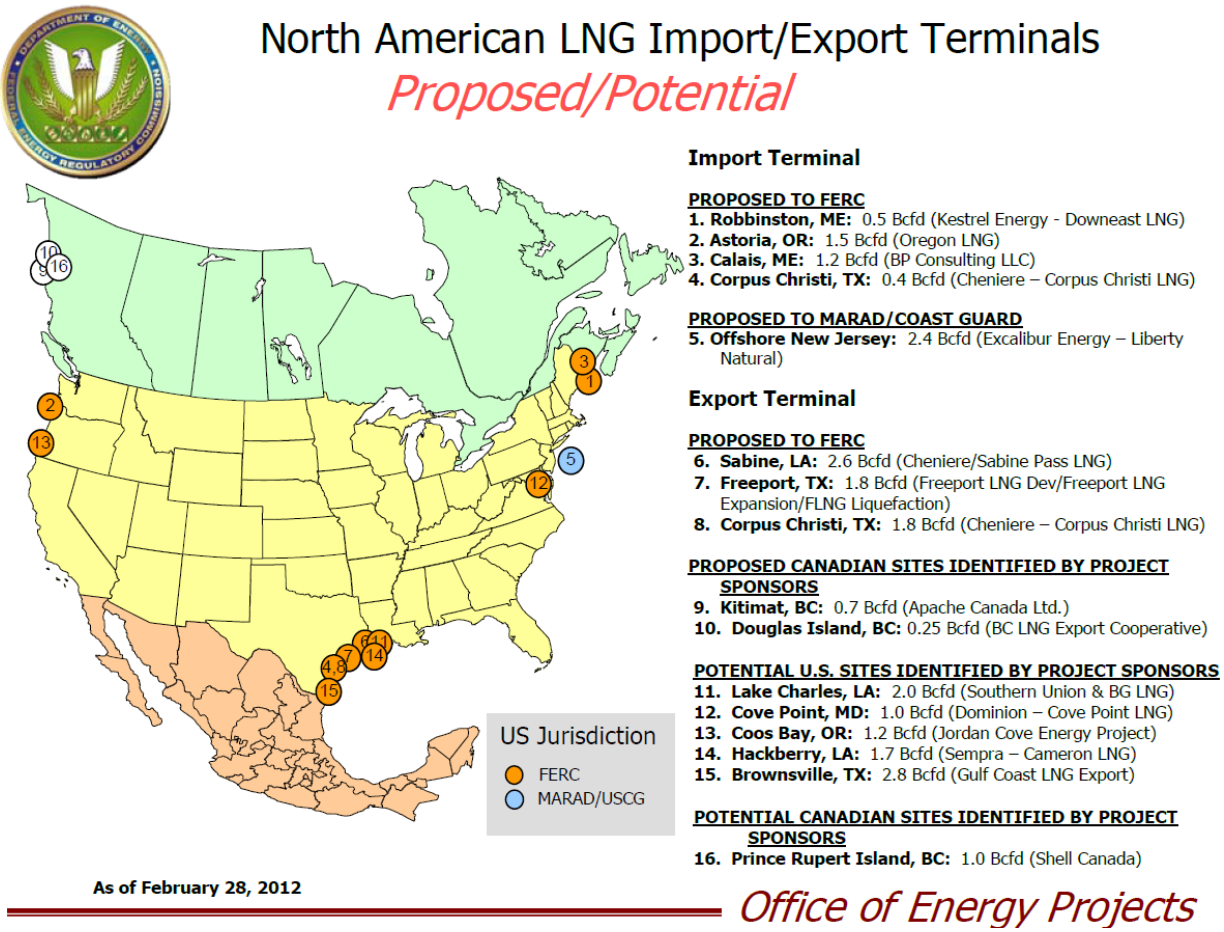


Figure 3: Proposed and Potential LNG Terminals

Costs are commonly cited as a deterrent to implementing energy policy. This might be a valid concern if the act of not making a decision was itself costless, but it's not. First, there may be social costs related to the manner in which we use energy, and the magnitude of this social cost is potentially large. However, even if there isn't a social cost to energy usage, there are still costs associated with the absence of a decision. Utilities and consumers continue to make long term investment decisions in electricity generating equipment that has long engineering lives, based on assumptions of what type of policy the U.S. will ultimately adopt to price power plant emissions. Some of these participants base their decisions on the assumption that these costs will be small, and some are assuming that these costs will be large. One of these groups is going to be wrong. The stranded cost decisions related to electric restructuring in the late 90s and early 2000s resulted in billions of dollars paid by electricity consumers, and we may very well be having those discussions again within the next ten years. And the government won't be paying them this time, either.

In conclusion, the relative inaction of the federal legislature has given way to the EPA as the prime mover of U.S. energy policy, but key EPA decisions have stalled or been stayed in the courts. Considerable uncertainty, then, remains in U.S. energy policy, making it difficult for industry participants to make decisions regarding the future. This has the potential to harm producers and consumers of energy alike, both now and in the future.