Climate Issue Brief

Task Force on Climate Policy
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State Clean Energy Policies: The Foundation for an Electric Sector Cap-and-Trade Program

As the U.S. Congress contemplates legislation to address the threat of global climate change, much of the pressure to reduce emissions is being placed upon the electric sectors, which is responsible for approximately 40 percent of the nation's emissions of carbon dioxide (CO2). Legislative initiatives, such as the American Clean Energy and Security Act, passed by the U.S. House of Representatives, would impose a price on emissions of carbon arising from energy activity via a cap-and-trade mechanism.

In a November 2007 resolution, NARUC expressed its support for a well-designed, economy-wide federal program to limit carbon emissions, which we conclude is necessary in order to remove uncertainty regarding new energy industry investment.

For decades, the goals of State clean energy investment have been consistent with initiatives that only now are being explicitly described as "carbon policies." Recent experience demonstrates that such policies as programmatic end-use energy efficiency and renewable portfolio standards are not merely "complementary" to the price signal established by a carbon policy, but could constitute the primary means for reducing CO2 emissions in the energy sector. This issues brief explains why these policies should be considered a foundation upon which an effective electric and gas sector carbon program can be built, and how they can be counted on to (1) deliver the needed reductions; and (2) deliver them at costs that will be lower than those imposed by price alone.

Sources of Electric-Sector Emission Reductions. Power-sector CO2 emissions can be reduced in three ways:

1. re-ordering the dispatch the existing portfolio of generation;
2. replacing or modifying existing generation with lower-carbon generation or technology[1] ; and
3. reducing consumption of electricity by end users.

Is a Price Signal Enough? In many parts of the country, only a very high carbon price would produce a meaningful change in the dispatch of the existing generation fleet, and incent the development and operation of low-carbon technologies such as carbon capture and storage. While pricing carbon sends a necessary price signal to consumers and electricity markets, a policy that tries to reduce emissions through price alone will be much more costly per ton abated than such a program that also includes proven techniques to deliver low-cost, clean energy resources.[2]

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At the consumer level, prices alone will not reduce demand nearly enough to meet carbon goals. However, years of experience in delivering programmatic end-use energy efficiency demonstrate that programmatic investments in end-use energy efficiency are likely to result in significant reductions in demand (and in associated emissions).[3] The efficiency savings potential in electricity markets has been shown to be on the order of 25% of total electricity usage at a levelized cost of about three cents per kilowatt-hour (kWh).[4] This is much less than the average national retail price of electricity, currently more than 8 cents per kWh.[5] It is also far less than the marginal cost of new generation which, depending on the technology, is estimated to cost 5 to 10 cents per kWh or more.[6]

Affecting the Generation Mix. At the generator level, there are a number of reasons why policies, rather than price alone, will be more effective in securing cost-effective emissions reductions. Analyses conducted by the Electric Power Research Institute (EPRI) indicates that carbon prices as high as $50 a ton would not affect the generation mix and CO2 emissions in the Midwest ISO, a coal-heavy region.[7] In modeling similar allowance prices in gas-dominated ERCOT, EPRI reached similar conclusions.

State Programs. Instead of relying solely on price to drive emissions reductions, policymakers can facilitate significant reductions through expansion of a wide range of State-level clean energy programs and support for demonstration projects in new technologies. Carbon programs that allocate allowances for consumer benefit and invest allowance values in clean energy programs have the potential to provide the greatest benefit to energy consumers. Strategic investment of auction allowance values through expanded State clean energy programs will enable low-cost reductions in CO2 emissions and will keep allowance prices and end-user electric rates significantly lower than would occur from a price signal alone.

Modeling for the Regional Greenhouse Gas Initiative (RGGI) in ten Northeast States indicates that increasing the region's spending on energy efficiency would significantly lower the overall cost to the economy of RGGI's planned carbon reductions. RGGI's study found that doubling investments in energy efficiency throughout the ten-state region would lower projected load growth by two-thirds.[8]

Conclusion. National climate change policy faces the challenge of achieving deep emissions reductions while minimizing economic disruption. Since one of the principal aims of a cap-and-trade program is to lower the overall societal cost of environmental improvement, it is crucial to design a national carbon policy that taps the lowest-cost emission reductions available to the economy and avoids creating unnecessary costs. As a source of substantial low-cost carbon emission reductions, State clean energy policies should provide an essential foundation for an energy sector cap and trade program.

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1 This includes renewables and fossil generation with carbon capture and storage, as well as supply-side efficiency improvements.

2 McKinsey & Company, in its study *Reducing U.S. Greenhouse Gas Emissions: How Much at What Cost?*, concluded that CO2 emission reductions could be achieved at a far lower cost to the economy if the nation can capture sizable gains from energy efficiency, but that achieving these low-cost reductions will require strong, coordinated, economy-wide action in the near future. http://www.mckinsey.com/clientservice/ccsi/greenhousegas.asp

3 Rate designs and rebate programs, like those associated with critical peak pricing, demonstrate this because the rebates or the prices have to be very high relative to the average price of electricity

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in order to produce the desired consumer response.

4 *See* J. Laitner and V. McKinney, *Positive Returns: State Energy Efficiency Analyses Can Inform U.S. Energy Policy Assessments* (2008) (A review of 48 different assessments shows "an average 23 percent efficiency gain with a nearly 2 to 1 benefit-cost ratio); *see also* Martin Kushler et al., *Five Years In: An Examination of the First Half-Decade of Public Benefits Energy Efficiency Policies*, 29, 30 tbl.5 (2004), *available at* http://www.aceee.org/pubs/u041.htm (stating that the efficiency programs in the aggregate are very cost-effective, with savings ranging from $0.023 to $0.044/kWh).

5 Energy Information Administration, *Total Electric Power Summary Statistics* (Aug. 25, 2008), http://www.eia.doe.gov/cneaf/electricity/epm/tablees1a.html.

6 *Lazard, Levelized Cost of Energy Analysis – Version 2.0 at 2* (2008), *available at* http://www.narucmeetings.org/Presentations/2008%20EMP%20Levelized%20Cost%20of%20Energy%20-%20Master%20June%202008%20(2).pdf.

7 *"The Change in Profit Climate: How will carbon-emissions policies affect the generation fleet?"* Victor Niemeyer, (EPRI) -- Public Utilities Fortnightly May 2007.

8 William Prindle, et al., *Energy Efficiency's Role in a Carbon Cap-and-Trade System: Modeling Results from the Regional Greenhouse Gas Initiative iii* (2006), available at http://aceee.org/pubs/e064.pdf.