

Reducing the Cost of Addressing Climate Change Through Energy Efficiency

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In addition to reducing greenhouse gas emissions, one of the principal aims of a national cap-and-trade program is to lower the overall societal cost of such reductions. As such, it is crucial to design the national cap-and-trade system so that it inherently taps the lowest-cost emission reductions available to the economy. Although a carbon cap is essential to ensure that the U.S. meets its emissions reduction goals, its impact on energy prices alone will not bring about some of the most cost-effective emission reductions due to a number of well-known market barriers to energy efficiency.

The most cost-effective method of reducing greenhouse gas emissions is through energy efficiency which provides “avoided tons” of carbon at the lowest cost.¹ Experience in numerous states shows that efficiency improvements on average cost about 3 cents per lifetime kilowatt-hour saved² compared to about 7 cents to over 13 cents per kilowatt-hour for conventional electricity generation.³ Energy efficiency reduces the cost of cap-and-trade because less new energy facilities are needed and also because a smaller portion of existing facilities need to be upgraded to help meet emissions ceilings. A cap-and-trade program that maximizes the role of end-use energy efficiency in buildings, industry, and transportation systems, will, therefore, achieve carbon reductions at a lower cost than a program that simply focuses on generators through a carbon cap and carbon price. Climate change legislation should aim to contain costs by advancing energy efficiency in two main ways, in addition to the carbon price – (1) by providing funding for energy efficiency using revenue from carbon credits; and (2) through a set of complementary policies in an energy efficiency title to the legislation.

Use of Auction Revenues: Investment is needed rising to about \$15-20 billion each year for energy efficiency deployment programs and policies in the residential, commercial, and industrial sectors. This is in addition to more than \$6 billion each year needed for low-income energy efficiency programs, \$8 billion for transportation policies and programs, and \$3 billion for clean energy R&D.⁴ States and utilities should be provided funds to start and grow energy-efficiency programs as soon as possible, and before the cap has begun. Such funding should ramp up over about 5-7 years, then remain at a sustained level. Initially this funding can be based on population and energy use, but over time a substantial majority should be based on each state’s performance in achieving energy efficiency savings, using evaluation protocols to be developed by EPA. A substantial majority of the energy efficiency funding should primarily go to states and utilities, allowing for a wide variety of energy efficiency policies and programs, with the balance going to specific federal programs and to local governments.

We recommend funding for energy efficiency focusing on state and utility programs serving all customer classes, low income programs, third-party and end-user programs, and research, development and demonstration programs. Low Income programs should address

weatherization, multifamily and manufactured housing, and transportation issues that are unique to the low-income population. Third-party and end-user programs allow large market players such as energy service companies, large retailers, and large manufacturers to promote efficiency in multiple states in a uniform manner. We suggest programs to incentivize both substantial improvements in whole-building energy efficiency and for high-efficiency building equipment, consumer electronics and household appliances. The policies recommended for RD&D focus on doubling the funding for clean energy RD&D for the DOE Offices of Energy Efficiency and Renewable Energy, Science, and Electricity Delivery and Reliability within the Department of Energy, and additional funding for the new ARPA-E program. Underlying the recommended energy efficiency programs and policies is the development of procedures to evaluate, measure and verify energy savings to ensure that the suggested programs are achieving the desired outcomes.

Complementary Policies: In addition to increased funding and targeted programs, additional policies are necessary to increase the role of energy efficiency in reducing greenhouse gas emissions in a variety of areas beyond the scope of the programs discussed above, and to reduce the amount of direct energy efficiency funding that is needed. We propose that an energy-efficiency title address such issues as:

- Establishing a national energy efficiency resource standard (utility energy saving targets);
- Establishing advanced building energy codes and appliance standards;
- Extending and enhancing current federal energy efficiency tax incentives;
- Establishing programs to promote comprehensive energy retrofits to existing buildings including homes, commercial buildings, multifamily buildings, and assisted housing;
- Developing building energy efficiency labeling and disclosure programs;
- Expanding the current Industrial Assessment Center program and initiating a parallel Building Training and Assessment Center program;
- Developing a comprehensive energy-efficient mortgage program;
- Achieving an average of at least 42 miles per gallon for cars and light trucks by 2020.
- Additional policies for the transportation sector that are still being developed.

¹ See Richard Cowart, “Carbon Caps and Efficiency Resources: How Climate Legislation Can Mobilize Efficiency and Lower the Cost of Greenhouse Gas Emission Reduction,” 33 Vermont Law Review 201-223 (2008).

² Kushler, York and Witte, 2004, *Five Years In: An Examination of the First Half Decade of Public Benefits Energy Efficiency Policies*. Report U042. Washington, DC: American Council for an Energy-Efficient Economy.

³ Lazard. June 2008. *Levelized Cost of Energy Analysis — Version 2.0*:

[http://www.narucmeetings.org/Presentations/2008%20EMP%20Levelized%20Cost%20of%20Energy%20-%20Master%20June%202008%20\(2\).pdf](http://www.narucmeetings.org/Presentations/2008%20EMP%20Levelized%20Cost%20of%20Energy%20-%20Master%20June%202008%20(2).pdf)

⁴ A separate coalition is making recommendations for additional funding for transportation programs.