NICHOLAS INSTITUTE FOR ENVIRONMENTAL POLICY SOLUTIONS
DUKE UNIVERSITY

Conquering Cost: Optimal Policy Approaches to the Cost of Climate Change
Workshop Briefing Memo
Executive Summary
30 July 2009
Jan Mazurek, Brian C. Murray, and Lydia P. Olander

Economic activity and energy use grow and contract in a direct relationship. A central problem in climate change policy is therefore how to both encourage economic growth tied to "clean energy" sources and discourage the fossil fuel burning, non-carbon dioxide (CO_2) greenhouse gas emissions (GHGs), and deforestation that fuel climate risk.

The American Clean Energy and Security Act of 2009 (H.R. 2454) sets a gradually declining "cap" that covers about 85% of U.S. total greenhouse gas emissions and virtually all emissions from the combustion of fossil fuels. Regulated firms can buy or sell ("trade") credits in an open market to help meet their emission requirements. Concerns about onerous compliance costs are as old as climate policy, and will dominate debate in the Senate this fall.

"Cost" serves as an umbrella term for a number of issues. Broadly, it can mean the effect of climate policy on gross domestic product. Cost can portend a loss of competitive advantage in heavy industry to trading partners without a climate regime—or a loss of actual manufacturing to them. Higher prices for fossil fuel–based energy can weigh disproportionately heavily on lower-income brackets of the U.S. population.

At its heart, a cap-and-trade system contains costs better than a "command-and-control" tax on emissions because it lets the market find the most efficient, least expensive ways to change. But if assumptions built into the policy structure are off—such as estimates for technology deployment, offsets availability, or the global scope of a post-Kyoto cap regime—costs could rise, making discrete price-containment measures necessary and relief to stressed industries and households critical. Similarly, international carbon policy influences domestic costs and the stringency of policy levers required.

When or whether more advanced market correctives come into play is a function of fundamental market design. If such tools are necessary, it is imperative to understand the cost interactions among them. This paper defines several cost-containment measures and explores their interactions. The Nicholas Institute for Environmental Policy Solutions has developed policy options that gird against the costs of climate policy in four areas:

- **Offsets:** Capped entities can minimize cost by meeting obligations with cheaper reductions (usually voluntary projects) elsewhere in the economy or in other countries not subject to a cap.
- **Cost Uncertainty and the Allowance Reserve:** Carbon market conditions might dictate intervention is necessary, when prices rise too high or are too volatile. Such

interventions include the "Strategic Carbon Reserve" included in the Waxman-Markey bill as well as safety valve.

- **Competitiveness Provisions:** Some mechanisms address potentially disproportionate costs borne by trade-sensitive U.S. industrial sectors.
- **Addressing Costs for Low-income Households:** Allowance allocation and other transfers address impacts on lower-income brackets of the U.S. population.

Overall, policy structure prevents high costs when it sets appropriate reduction targets, offsets provisions, and time frames. Finer-tuned policy levers may be necessary in reaction to allowance volatility or prolonged high prices, including the strategic reserve or the safety valve (or cost collars). Still other tools remedy costs for certain groups, such as trade-sensitive industries or low-income households, including free allocations or direct rebates through existing state low-income assistance funding mechanisms. More stringent policy remedies to protect trade-sensitive industries include such mechanisms as a border tax.

In addition to these intra-lever issues, however, it is clear that the four policy levers also interact with each other in complex ways. For instance, a cap without stringent GHG abatement levels leads to low allowance prices which in turn make large amounts of offsets likely unnecessary. Conversely, a stringent cap could call for a greater supply of offsets from uncapped sources to control cost. Offsets not only reduce compliance costs to capped entities but ostensibly result in lower energy bills which would be passed on to industrial and residential consumers, including low-income segments of the U.S. population, thus requiring less from the relief measures specifically directed to these segments of the population.

Offsets policies also may be used to prevent leakage and promote the competitiveness of trade-sensitive U.S. sectors. For instance, Waxman-Markey's sectoral offset provisions encourage high-emitting uncapped countries to set targets for certain sectors and receive incentive payments for going below those targets through an international offset market. A variation on this, called "sectoral CDM (Clean Development Mechanism)," is being discussed for the post-Kyoto framework. It addresses some of the problems with the current project-based CDM, notably leakage. But it remains unclear to what extent such provisions are administratively and politically feasible.

Incorrect assumptions about cost-driving factors, such as the timing of low-carbon technology advancement, or other considerations, such as the global scope of the cap, could cause costs to increase above initially predicted levels, making price-containment measures more relevant and relief to stressed industries and households more critical.

In the same way that offsets can reduce costs of achieving the cap, a cap accompanied by a price-containment mechanism such as the strategic reserve can help to guard against price volatility and extremely high costs. Conversely, if rising abatement costs trigger the strategic reserve auction, reserve allowances reduce the need for further domestic reductions and offset purchases. The reserve also is related to international offsets under Waxman-Markey. The measure targets revenue from the reserve auctions to purchase and

to retire additional international offsets from Reduced Emissions from Deforestation and Degradation (REDD) and place them in the reserve. Placing more REDD credits into the market presumably helps keep credit prices down and provides environmental co-benefits in form of saving forests and the species that depend on them. But if prices remain below the price point for strategic reserve relief, there will be no auction and thus no means to purchase the REDD credits for reserve purposes. At the same time, however, there will be no cost-containment need for them.

Waxman-Markey's free allocations to trade-sensitive U.S. sectors and to low-income households compete for a limited allowance supply. Allocating more allowances to competitive sectors reduces the allocation available for low-income households and vice versa. At the same time, the strength of the allocation lever to defray costs to these groups is directly linked to allowance prices. Higher allowance prices raise the allowance value allocated to targeted groups. To some degree, this phenomenon is self-correcting: the higher the allowance price (or cost), the greater the initial harm to disproportionately impacted groups, but the greater the relief from allocating allowances to them.

Questions for further consideration may include:

- **Offsets:**
    - If the Senate tightens cap targets and timetables, what quantities of domestic and international offsets are necessary to reduce costs? Does this introduce a tension between offset quantity and quality?
    - If sectoral offsets are not viable, and CDM is cut from major emitters, will this significantly curtail offset supply and impact costs?
    - Are there ways to design the international forestry (REDD) provisions in a way that will provide early offset supply and help to maintain lower costs?
    - If there remain offset supply uncertainties, what does that mean for mechanisms to help contain allowance price?

- **Reserve:**
    - Under what circumstances will incorrect predictions of offset supply lead to price increases (or decreases) that trigger demand for price-containment mechanisms, such as the reserve, or price support mechanisms, such as the auction floor price?
    - How close does the reserve mechanism under Waxman-Markey come to providing the type of price containment that a hard safety valve would? How would changes in the size of the reserve affect this tradeoff?
    - Under Waxman-Markey, the reserve comes from "within the cap." Should creating the reserve with extra allowances outside of (supplemental to) the cap be considered?
    - What is the precise relationship between reserve auction revenues and REDD? How much could the reserve mechanism be expected to generate to finance REDD?

- **Competitiveness:**

    - Are the revenues available for trade-sensitive manufacturing sectors sufficient to compensate them for potential losses to uncapped competitors?
    - Can border tax adjustments do a more effective job than allowance values allocation?
    - To what extent are such provisions administratively and politically feasible?

- **Low income:**

    - Are current low-income allocations called for in the Waxman-Markey bill sufficient to make these households "whole" (along with the LDC allocations distributed to all households, including poor ones)? If not, what corrections might fix this?