CLIMATE XCHANGE

RESEARCH OPTIONS TO ASSIST DEVELOPMENT OF CARBON POLLUTION PRICING BY STATES

To support policy development each state will need extensive research on the appropriate carbon pricing design for their state, given the large differences that exist between states. These differences include the extent of fossil fuel extraction and processing in the state, the amount of fuel of each type consumed in the state by both households and employers, income levels and the distribution of income among households, and the state's existing tax system.

RESEARCH QUESTIONS INCLUDE

FEE OR TAX LEVELS? What fee/tax levels are needed in order to achieve the state's mandates or goals for reductions in its greenhouse gas emissions by particular years?

WHAT SECTORS OF ECONOMY ARE COVERED? Should the fees cover all sectors of the economy (electricity generation, motor vehicle fuels, heating fuel use, industrial use, agriculture, etc.) or omit certain sectors?

JUST CO_2 OR ALL GHG'S? Should the fees be restricted to carbon dioxide (CO_2) emissions or also cover other significant greenhouse gases such as methane, HFC's, and SF_6?

HOW TO COLLECT FEES? What administrative mechanisms would be used to collect the fees, and can this be done largely with existing operations of state agencies, or will new systems need to be created?

WHAT TO DO WITH REVENUES? What portion of revenue should be returned to households and employers that pay the fees? If revenue is returned or rebated, by what method (rebates, tax cuts, or a combination)?

INVEST THE REVENUES? Should some of the revenues be used to fund programs that reduce greenhouse gas emissions, adapt to climate change, or provide for a "just transition" of workers and communities?

IMPACTS ON PEOPLE AT DIFFERENT INCOME LEVELS? Considering both the fees and any rebates that are provided, what will be the net impacts on households at different income levels and on employers of different types?

HOW TO PROTECT LOW-INCOME PEOPLE? What should the state do to ensure that low-income people do not face increased burdens from the system of carbon charges?

IMPACTS ON THE ECONOMY? What will be the overall impacts on the state's economy?

OPTIONS FOR DIFFERENT TYPES OF STUDIES

Research that answers many of the questions above is essential to successful advocacy for a carbon pricing policy with state government and with private stakeholders. Different types of studies will be appropriate in different states, depending on such factors as the type of economy, current political attitudes toward carbon pricing, which design issues are most controversial, and the amount of funding that is available or can be raised.

POLICY DESIGN

One type of study looks at the factors that go into designing a carbon fee system, discussing the pros and cons of different policy characteristics, possibly with reference to a particular geographic area. This is a "qualitative" study, not intended to produce quantitative results for the impacts on emissions, household living costs, and business costs. Such a study could address most of the questions listed above, omitting the ones that require complex quantitative modeling.

See: Recommendations for New Mexico Carbon Pollution Pricing Policy

IMPACTS ON HOUSEHOLDS AT DIFFERENT INCOME LEVELS

Key to the reality of a carbon fee policy is how it will affect different households, particularly those with low- and moderate-incomes. Studies that quantitatively examine solely this question have been done at both the national and state levels, usually dividing households by income. They might

also provide results by size of household, by location (urban, suburban, or rural), or other characteristics.

See: An Analysis of Impacts on Households at Different Income Levels from Carbon Pollution Pricing in Maryland

IMPACTS ON BUSINESS COMPETITIVENESS

These studies examine how carbon fees would affect the competitiveness of companies within the state in comparison with companies in the same industries outside the area. Often this question is addressed as part of a comprehensive study or a macroeconomic study (see below).

MACROECONOMIC IMPACTS

The "macro" refers to looking at impacts on the overall economy, usually in terms of employment, economic growth, average changes in household incomes, government tax revenues, etc. Such studies tend to be quite expensive because to produce fairly precise results that require the use of a complex econometric model that can only be built, maintained, and run for a particular policy scenario by economists who devote large amounts of time to the enterprise. Less precise results can be obtained from less-sophisticated models. Carbon fees at low and moderate prices per ton of CO_2 emissions generally do not cause large macroeconomic impacts, so use of less expensive models may be sufficient.

See: The Economic, Demographic, and Climate Impact of Environmental Tax Reform in Washington and King County

IMPACT ON REDUCING GREENHOUSE GAS EMISSIONS

Of course the goal of these policies is to reduce emissions of carbon dioxide and other greenhouse gases. A projection of these reductions over time can be done, although there is a large amount of uncertainty, particularly as you project over longer time periods. To make a projection, it is necessary to have:

1 | the trajectory for the carbon price over time

2 | what sectors of the economy it will cover

3 | detailed information on the state's current sources and uses of energy

4 | economic and energy supply interactions with nearby states, and

5 | estimates from economic studies on the responsiveness of energy demand for each type of end-use to changes in price in the short- and long-run.

See: The Greenhouse Gas Reduction Impact of a Carbon Pollution Charge in Maryland

IMPLEMENTATION ISSUES

Even after a basic design is chosen, there are a variety of issues involved in how to implement the policy in a particular state. These include: how will the fees be collected from fossil fuel sellers; how will the carbon content of imported electricity be determined; how will rebates/dividends be delivered to households and employers; how will the amount of money coming in from sales to different sectors be estimated; and how will state agencies ensure that households that are not on state tax rolls receive rebates in a timely fashion.

COMPREHENSIVE STUDIES

Rarely have studies covered all of the areas discussed above, in part because of the expense involved. One comprehensive study at the state level is Analysis of a Carbon Fee or Tax as a Mechanism to Reduce GHG Emissions in Massachusetts, co-authored by Climate XChange's Marc Breslow in 2014 for the state's Department of Energy Resources.

CLIMATE XCHANGE CAN HELP

Climate XChange is available to discuss your state's situation, your particular research needs, and the amount of work and expense required to meet these needs. We are capable of performing and/or contracting the types of studies described above.

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