



**Joint Program on the Science
and Policy of Global Change**

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Rep. John Boehner (R-OH)
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It has come to my attention that an analysis we conducted examining proposals to reduce greenhouse gas emissions, Report No., 146, Assessment of U.S. Cap-and-Trade Proposals, has been misrepresented in recent press releases distributed by the National Republican Congressional Committee. The press release claims our report estimates an average cost per family of a carbon cap and trade program that would meet targets now being discussed in Congress to be over \$3,000, but that is nearly 10 times the correct estimate which is approximately \$340. Since the issue of legislation to control greenhouse gases is now under consideration, I wanted to take an opportunity to clear up any misunderstanding created by this press release and to avoid further confusion.

Why is this amount so different? As far as I can tell the \$3,000+ is based on the potential auction revenue the government could collect by auctioning the allowances over the period through 2050 where a simple average over all years from 2015 to 2050 was computed. The tax revenue collected through such an auction, the costs of reducing greenhouse gas emissions, and the average impact on a household are very different concepts. Thus, there are several things wrong with this calculation. First, the auction revenue is determined by the CO₂ price and how many allowances are issued—allowances tell us how many tons of CO₂ (or more broadly greenhouse gases) will continue to be emitted. The cost of reducing emissions depends on how much emissions *are reduced* not on how much *continues to be emitted*. Second, the CO₂ price reflects the cost of the last ton of emissions reduced but there are many options that cost much less than avoiding the last ton and so using the CO₂ price multiplied by the number of tons (either reduced or emitted) is also wrong. Third, the average cost to a household depends on how allowances or the allowance revenues are distributed. Fourth, the costs are borne over time and it is wrong to produce a simple average of such costs as that does not take account of the time value of money.

We assumed in the analysis we did that the revenue is returned to households. From data in the report we can calculate the economic cost in each year (percentage loss times the base welfare level in each year), and divide this by the US population, and then multiply this amount by four to estimate the cost for a representative family of four. We further apply an economic discount rate of 4% to get the Net Present Value (NPV) cost in each year in the future. Doing this we find that the NPV cost per family of four starts at about \$75 in 2015, rises to nearly \$510 by 2025, and then falls to \$205 by 2050. We can calculate the average annual NPV cost per family by summing over all years and dividing by the number of years, and this shows the average annual net present value cost to be about \$340 - only a part of which would be actual energy bill increases. This \$340 includes the direct effects of higher energy prices, the cost of measures to reduce energy use such as adding insulation to homes, the higher price of goods that are produced

using energy, and impacts on wages and returns on capital. The cost per household will vary from our hypothetical average family of four depending on the household's circumstances. Those households with large heating and cooling bills because of the climate in which they live or who drive more than average will face higher costs. Those with smaller homes who live in benign climates will have lower costs. The higher energy prices encourage reductions in energy use by increasing the payback on improvements in energy efficiency, and through such investments households can avoid paying more for energy. Jobs and wages in fossil fuel industries are likely to decline but job opportunities will increase in industries that produce alternative energy sources or that provide ways to save energy.

While the \$340 average annual cost we estimate for a family is just one tenth of the \$3000+ cited in the misleading press release, Congress should address the costs of this transition for middle and lower income families while developing Cap-and-Trade legislation. In another paper (Report 160, Analysis of U.S. Greenhouse Gas Tax Proposals) we make some calculations on the burdens of a GHG tax on families at different income levels. Our Report 160 shows that the costs on lower and middle income households can be completely offset by returning allowance revenue to these households.

Climate change poses severe risks for the US and the world. It will take efforts in the US and abroad to reduce emissions substantially to avoid the most serious risks of climate change. One of the perplexing aspects of the problem is that the solution involves using cleaner energy sources that are more costly than conventional fossil fuels. And the higher energy prices needed to cover the higher costs will fall disproportionately on the poorer members of society in the US and in the world. However, the less wealthy members of our economy also stand to suffer most from climate change—whether it is through the risks of increased food prices if climate change disrupts crops, the lack of access to air conditioning under extreme heat, or vulnerability to other extreme weather and storm events such as hurricanes which may increase with climate change. Many of the proposals currently being considered by Congress and as proposed by the Administration have been designed to offset the energy cost impacts on middle and lower income households and so it is simplistic and misleading to only look at the impact on energy prices of these proposals as a measure of their impact on the average household. Concern about the cost impacts on middle and low income families needs to be focused on making sure allowance or tax revenue is used to offset cost impacts on these households rather than as an excuse for not proceeding with measures that would help avert dangerous climate change.

Sincerely,



The full reports cited above are available on our WEB site.

<http://globalchange.mit.edu/pubs/reports.php>