

MEMORANDUM

TO: Maria Cantwell, U.S. Senate

FROM: Julie Fish, Policy Analyst

DATE: February 4, 2016

RE: Recommendations for Combating Climate Change

Introduction and Summary

The United States is at a pivot point. Either we continue business as usual, entrenching damages to the planet and economy, or alternatively we change direction and begin abating greenhouse gas emissions (GHG) in commitment to the wellbeing of the planet and its inhabitants. GHG emissions are a global public good, therefore it is individually rational to do very little and hope others will do a lot. Society is reaping the benefits of this public good and without consequence damages will only increase; however, if we implement a carbon tax not only will it be the cheapest way to reduce emissions but also the most effective (Tol, 2014). It is time to make those who produce emissions pay for the privilege and compensate those harmed (Nordhaus, 2013). I believe imposing an increasing over time carbon tax starting at \$30 per ton will reduce emissions and grant enough revenue to further combat climate change in order to stay on track of remaining below 500 ppm CO₂ by 2050.

There is widespread agreement amongst environmental economists that putting a price on emissions can achieve large results. Imposing a carbon tax creates a penalty on those who use fossil fuels and thereby generate CO₂ emissions. An initially low but rising tax will stabilize the climate (Tol, 2014). Eight years ago, a tax of \$30 per ton of carbon would have generated \$50

billion of revenue per year. Had we instated this policy, we would have presently reached close to half a trillion dollars in revenue and brought GHG emissions reasonably down (Nordhaus, 2008). Ultimately, the revenue of a carbon tax may be used to reduce other taxes and this would bring benefits that at least partially offset the costs of emission reduction (Tol, 2014).

Background

Economist Nicholas Stern asserts that the biggest market failure the world has ever seen is the emission of CO₂ and other GHGs. When entities emit CO₂, they impose costs on others without paying for their actions, otherwise known as negative externalities. To deal with this, the government can create policies that prohibit or limit behavior that are causing increased costs to others.

What consequences do we face if we continue running the country under business as usual? With no policies implemented we are likely to see changes on a scale that the world has not seen for tens of millions of years. By the end of the century the world would be projected beyond 750 ppm CO₂e. This relates to the cost of delay, meaning if we continue to postpone strong action for 30 years, we would be around 530 ppm CO₂e. If at that point we try to stabilize at 550 ppm, we would spend similar to starting now to reach 450 ppm CO₂e. Essentially, waiting 30 years from now would cause an expenditure of 4% of GDP versus a much less costly slow flow of 1% of GDP over 50-100 years starting now.

Policy Recommendation

The current actions taken by the United States to combat climate change ranges from subsidies for installation of low-carbon energy sources to regulations requiring energy efficiency standards in buildings and motor vehicles. These policies are not sufficient and are expected to have only

marginal impact on overall atmospheric concentrations of GHGs. We must instate a carbon tax that starts at \$30 per ton in order to give proper weight to the enormity of this climate change problem and remain under 500 ppm CO₂ by 2050. The carbon tax is a solution to determining the monetized damages associated with an incremental increase in carbon emissions (Greenstone, 2011). This is the social cost of carbon function, and with no emissions limitations set in place, \$30 represents today's approximate damages to society per ton of CO₂ emitted. The annual social cost per capita of all CO₂ emissions for the United States is close at least \$150 per person (Nordhaus, 2008). Enforcing a tax will raise the revenue needed while abating GHG emissions at a minimal cost to society. This in turn will make people and companies more aware of their behavior and give emphasis that their emissions are degradations to the planet. Increasing the tax slowly over time will be less relevant to society as we move away from fossil fuels which will be pushed forward by a tax in the first place.

It is understood that it is necessary for global emerging economies participation in solving climate change. A carbon tariff, or tax levied on imported goods proportional to the carbon emitted in the manufacturing of those goods, should be employed and will give non-cooperating countries incentive to join in suit (Krugman, 2010). The efficiency of a tax on carbon is enhanced by near-universal participation. With a carbon tax instated, there will be an incentive for society to invest in more efficient energy and make the switch to alternative energy (Tol, 2014). These alternative sources will stimulate the economy and bring about new sectors of industry. In fact, innovation is best stimulated by abatement policy. If companies believe their emissions are to never be regulated and taxed upon then they will not innovate. From this perspective, a carbon tax is preferred because subsidies are often short-lived and direct regulation does not provide the same incentive to innovate beyond the target (Tol, 2014).

References

- Greenstone, M., Kopits, E, & Wolverton, A. (May 2011). Estimating the Social Cost of Carbon for Use in U.S. Federal Rulemakings: A Summary and Interpretation. *MIT Center for Energy and Environmental Policy Research*. Retrieved from <http://web.mit.edu/ceep/www/publications/workingpapers/2011-006.pdf>
- Krugman, P. (2010, April 7). Building a Green Economy. The New York Times. Retrieved from http://www.nytimes.com/2010/04/11/magazine/11Economy-t.html?_r=0
- Nordhaus, William D. (2013). *The Climate Casino: Risk, Uncertainty, and Economics for a Warming World*. Yale University Press. New Haven, United States of America & London, England.
- Nordhaus, William D. (2008). *A Question of Balance: Weighing the Options on Global Warming Policies*. Yale University Press. New Haven, United States of America & London, England.
- Stern, N. (May 2008). The Economics of Climate Change. *The American Economic Review*, 2, 1-37. Retrieved from http://www.jstor.org/stable/29729990?origin=JSTOR-pdf&seq=1#page_scan_tab_contents
- Tol, R. S. J. (2014). *Climate Economics: Economic Analysis of Climate, Climate Change, and Climate Policy*. Glos: Edward Elgar Publishing Limited.