

To: Brad Biddle

From: Sarah Laidlaw

Re: Carbon Tax Versus Cap-and-Trade

Date: April 16, 2009

There are generally two proposals under consideration when it comes to diminishing harmful greenhouse gas emissions at the macro level: a cap-and-trade system and a carbon tax. The less glamorized of the two is the carbon tax, but there are many outspoken carbon tax supporters who believe it is the superior solution to the problems of greenhouse gas emissions.

Taxing is the traditional system in the U.S. for raising revenue and affecting behavior -- consider cigarette taxes, chemical taxes, and taxes on gas guzzling vehicles.<sup>1</sup> President Nixon made efforts to use taxes to help the climate by proposing taxes on lead additives in gasoline in 1970 and on sulfur dioxide emissions in 1972, but neither was enacted.<sup>2</sup> An actual carbon tax was considered by the Clinton Administration in 1992, but too many exceptions were supported by special interests and the effort failed.<sup>3</sup>

A carbon tax has been tried in Norway, Sweden, Germany, and Canada.<sup>4</sup> The first U.S. carbon tax was implemented in 2007 in Boulder, Colorado, taxing end-users for electricity emissions.<sup>5</sup> The Boulder tax costs the average Boulder household an extra \$1.33 per month and the revenue is used to fund other greenhouse gas reducing

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<sup>1</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 2 (2008).

<sup>2</sup> *Id.*

<sup>3</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>4</sup> *Id.*

<sup>5</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 5 (2008).

programs.<sup>6</sup> The San Francisco Bay Area implemented a similar program that charges fees to industrial businesses for their greenhouse gas emissions.<sup>7</sup>

A nationwide U.S. program has yet to be enacted, and Norway, Sweden, Germany, and Canada have now turned their efforts towards cap-and-trade programs.<sup>8</sup> As for Nixon's ideas to control lead in gasoline and sulfur dioxide emissions, they were transformed into permit trading systems similar to the cap-and-trade idea in the 1980s and early '90s, respectively.<sup>9</sup> Although a carbon tax has never been effectively implemented on a national level in the U.S., proponents persist in their support for it.

### **How Does It Work?**

The idea of carbon tax is to use the existing tax collection methods to place fees on each unit of carbon or carbon dioxide.<sup>10</sup> A tax could be placed on the carbon content of fuels produced, distributed, or sold, or on the carbon dioxide produced when the fuel is combusted.<sup>11</sup> The majority agrees that the tax must be crafted in a way to exclude non-emitting carbon fuels, and thus most likely would not include carbon that is not burned or that is permanently sequestered.<sup>12</sup> Focusing on carbon rather than a broader tax on

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<sup>6</sup> Carbon Tax Center, <http://www.carbontax.org>.

<sup>7</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 5 (2008).

<sup>8</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>9</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 2 (2008).

<sup>10</sup> Carbon Tax Center, <http://www.carbontax.org>.

<sup>11</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 4 (2008).

<sup>12</sup> Carbon Tax Center, <http://www.carbontax.org>.

greenhouse gases is argued to be the appropriate strategy because 85% of the United States' greenhouse gases are carbon dioxide.<sup>13</sup>

Another consideration for carbon tax is its method of measurement, which can use volume, similar to gasoline that is taxed at 18.4 cents per gallon, or units of energy (Btu).<sup>14</sup> In either case, the idea is to tax proportionately to the amount of carbon dioxide emitted. For example, coal produces 30% more carbon dioxide than oil per unit of energy and 80% more than natural gas, which means coal would be taxed more than oil and oil more than natural gas.<sup>15</sup>

Taxes raise revenue, which is the other aspect of a carbon tax. Carbon tax advocates point to the potential of further benefiting the environment through the strategic use of tax revenue.<sup>16</sup> Such uses include funding research and development of alternative energy technology or providing tax cuts or incentives to companies using such technology. Another possibility is to use the revenue to mitigate costs to consumers because taxes may force companies to raise rates on their products, especially energy. Economists at the American Enterprise Institute in Washington estimate that a \$15 per ton tax on carbon would result in an 11% reduction of carbon emissions and \$80 billion in revenues. However, the economists surmise such a tax would also result in a 20% increase in the average price of coal-fired electricity and a 14 cent increase in the price of gasoline.<sup>17</sup>

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<sup>13</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 4 (2008).

<sup>14</sup> *Id.*

<sup>15</sup> Carbon Tax Center, <http://www.carbontax.org>.

<sup>16</sup> Janet E. Milne, *Carbon Taxes in the United States: The Context for the Future*, The Reality of Carbon Taxes in the 21<sup>st</sup> Century, Environmental Tax Policy Institute, Vt. J. Envtl. L., 1 at 5 (2008).

<sup>17</sup> *The Real Climate Debate: To Cap or to Tax*, NY Times, Nov. 2, 2007, available at [http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?\\_r=1](http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?_r=1).

## Similarities to Cap-and-trade

An article posted by the Bulletin of Atomic Scientists, an organization focused on public awareness of threats to human survival, stated, “. . . upon closer inspection, cap-and-trade schemes and carbon taxes can start to look like two sides of the same coin.”<sup>18</sup> This statement seems fairly accurate when considering the similarities of the two propositions.

Both have the purpose of correcting the problem of harmful greenhouse gas emissions, and use the market through price incentives to control carbon dioxide and promote investment in energy saving technology.<sup>19</sup> Both create obligations for a limited number of firms, depending on who must pay the tax or who must abide by the emission caps.<sup>20</sup> Both likely result in increased costs to consumers imposed by the firms bearing the taxes or caps, and both likely result in wealth transfers from those firms to firms that will thrive in their place through investments or efficient technologies.<sup>21</sup> Both raise revenue, either directly to the government through taxes, or to participants in emissions permit sales and auctions.<sup>22</sup> Both require assessment of how to distribute funds, either from tax revenue or from the emissions permit sales and auctions.<sup>23</sup> Finally, both require monitoring and enforcement because taxable emissions must be measured and tax payments enforced while emissions allowances must be determined and allowance

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<sup>18</sup> *Carbon Tax vs. Cap-and-Trade*, Bulletin of the Atomic Scientists, Nov. 24, 2008, available at <http://www.thebulletin.org/web-edition/roundtables/carbon-tax-vs-cap-and-trade>.

<sup>19</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>20</sup> *Id.*

<sup>21</sup> *Id.*

<sup>22</sup> *Id.*

<sup>23</sup> Eileen Claussen and Judith Greenwald, *Handling Climate Change*, Miami Herald, July 12, 2007, available at [http://www.pewclimate.org/press\\_room/opinion\\_editorials/oped\\_miamih07122007](http://www.pewclimate.org/press_room/opinion_editorials/oped_miamih07122007).

trading must be enforced.<sup>24</sup> In either system, if private emissions measurements are required, smaller companies with less resources and experience may be handicapped.

Despite these similarities, there are grounds for the debate between carbon tax proponents and cap-and-trade proponents.

### **The Pro Carbon Tax Argument**

The primary argument for a carbon tax is its transparency. Transparency benefits the businesses and firms who will bear the weight of a carbon-reducing program because they have cost certainty.<sup>25</sup> A tax is set at a certain level and does not fluctuate with the market, allowing businesses to predict what they will owe and they can adjust their budgets accordingly. The transparency of the system, where everyone knows what everyone pays, also works to prevent manipulation and cheating of the system.<sup>26</sup> Proponents say the cap-and-trade system of setting emissions based on past performance may promote increased pollution beneath the emission ceilings, and unclear offset (procedures or actions that reduce carbon emissions) incentives of the cap-and-trade system may act to reward unworthy beneficiaries.<sup>27</sup>

The second major argument for a carbon tax is its ease of implementation due to the minimal government involvement and avoidance of new markets.<sup>28</sup> A tax system is easy to understand because it is already commonly used. It seems a simple system, only requiring the determination of what carbon sources or emitters to tax and what

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<sup>24</sup> *Id.*

<sup>25</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>26</sup> Carbon Tax Center, <http://www.carbontax.org>.

<sup>27</sup> *Time to Tax Carbon*, LA Times, May 28, 2007, available at <http://www.latimes.com/news/opinion/la-ed-carbontax28may28,0,28883666.story?coll=la-opinion-leftrail>.

<sup>28</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

measurement standard to use. The simplicity allows the government to apply the carbon tax to as many or as little firms as deemed appropriate.<sup>29</sup> Carbon tax supporters argue that a cap-and-trade system is too complex to efficiently and effectively develop and implement.<sup>30</sup>

Third, supporters of carbon tax believe the impact on consumers is less than that created under a cap-and-trade system.<sup>31</sup> They point to the possibility of using tax revenues to mitigate heightened consumer costs, as well as the consistency of costs that reduces unexpected consumer costs during market fluctuation.<sup>32</sup>

### **The Anti Carbon Tax Argument**

Each pro carbon tax argument elicits a rebuttal from the anti carbon tax/pro cap-and-trade side of this debate. The first response addresses cost certainty and claims that a carbon tax's inflexibility may actually harm businesses, which would have to pay the same tax no matter their economic state. A cap-and-trade system allows emissions permits to be traded at prices that fluctuate with the economy. A change in tax pricing would require active adjustments by Congress or a regulatory agency, while the cap-and-trade pricing self-adjusts.<sup>33</sup>

Secondly, implementation of a carbon tax is just as difficult as the cap-and-trade system because both require monitoring and enforcement.<sup>34</sup> Further, new taxes are never

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<sup>29</sup> Carbon Tax Center, <http://www.carbontax.org>.

<sup>30</sup> *Id.*

<sup>31</sup> *Time to Tax Carbon*, LA Times, May 28, 2007, available at <http://www.latimes.com/news/opinion/la-ed-carbontax28may28,0,2888366.story?coll=la-opinion-leftrail>.

<sup>32</sup> *Id.*

<sup>33</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>34</sup> Eileen Claussen and Judith Greenwald, *Handling Climate Change*, Miami Herald, July 12, 2007, available at [http://www.pewclimate.org/press\\_room/opinion\\_editorials/oped\\_miamih07122007](http://www.pewclimate.org/press_room/opinion_editorials/oped_miamih07122007).

politically popular, and the amount required to make a serious impact on climate has been called “politically impossible.”<sup>35</sup> The political unpopularity obstructs the ease of carbon tax implementation. International implementation is another consideration and one in which cap-and-trade has the easier path. Cap-and-trade is the global trend, while carbon tax is not, meaning a carbon tax would inhibit an international greenhouse gas program.<sup>36</sup> Also, cap-and-trade is the preferable system for global companies because it has greater acceptance throughout the world.<sup>37</sup>

The argument about consumer costs is ambiguous because both systems will cause increased costs to consumers, and either system may include price control efforts. Cap-and-trade has the ability to set higher emission allowances for certain companies that will help minimize the effects on consumers. Although carbon tax proponents point to the use of tax revenue to mitigate consumer costs, this subtracts from their argument that such revenues can be used to further other environmental efforts. Mitigation of consumer costs in the cap-and-trade system does not impact further environmental efforts because it does not use money to do so nor does it use money to encourage further environmental efforts. The cap-and-trade system uses the emissions allowances as mitigation and incentives, and no funding is reduced or transferred to do either.

Finally, the major argument against carbon tax and for cap-and-trade is cap-and-trade’s environmental certainty.<sup>38</sup> Setting emissions allowances allows for increased

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<sup>35</sup> *The Real Climate Debate: To Cap or to Tax*, NY Times, Nov. 2, 2007, available at [http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?\\_r=1](http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?_r=1).

<sup>36</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>37</sup> Eileen Claussen and Judith Greenwald, *Handling Climate Change*, Miami Herald, July 12, 2007, available at [http://www.pewclimate.org/press\\_room/opinion\\_editorials/oped\\_miamih07122007](http://www.pewclimate.org/press_room/opinion_editorials/oped_miamih07122007).

<sup>38</sup> *The Real Climate Debate: To Cap or to Tax*, NY Times, Nov. 2, 2007, available at [http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?\\_r=1](http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?_r=1).

certainty about environmental impacts.<sup>39</sup> Carbon tax has cost certainty, but that does not ensure how much or how little firms will lower their carbon emissions. Taxes tend to discourage output, but how much the output is discouraged is a function of the affected companies' ability and willingness to pay the tax. It seems the required support, political or otherwise, of a climate change initiative requires predictable desired results and, therefore, cap-and-trade is the superior solution.<sup>40</sup>

### **Impacts on Alternative Energy Use**

From the perspective of a small alternative energy focused company, the cap-and-trade system is preferred. It has political viability in providing predictable environmental results and avoiding unpopular taxes. More importantly to the alternative energy sector, there are greater opportunities under the cap-and-trade system through offset incentives, which grant benefits to companies that create or use technology to reduce greenhouse gases overall. Many argue that carbon tax is simpler in theory and therefore the better choice, but upon consideration of the relative pros and cons, the cap-and-trade system is a simpler path to a positive environmental impact.

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<sup>39</sup> *Cap and Trade v Taxes*, Pew Center on Global Climate Change, available at <http://www.pewclimate.org/DDCF-policy-memo/cap-and-trade-v-tax>.

<sup>40</sup> *The Real Climate Debate: To Cap or to Tax*, NY Times, Nov. 2, 2007, available at [http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?\\_r=1](http://www.nytimes.com/2007/11/02/us/politics/04web-redburn.html?_r=1).