# Resolved: The United States ought to adopt carbon pricing.

## Topic Overview

 This topic asks debaters to analyze a timely question of the pertinence, potential benefits and potential detriments of Carbon Pricing. The topic is especially important given the increasing danger of climate change to the survival of the human race as well as the earth itself. The fear and certainty of climate change have both increased dramatically in recent years, some even pointing to the inevitability of a ‘sixth mass extinction’. In this context, even the most profit minded businesses are realizing the importance of addressing climate change. Thus, the status quo corporate inaction and lack of staunch, universal policy has largely come into question. The particulars in the debate over Carbon Pricing, as well as the environmental needs that led to the necessity of regulations concerning energy production and use can be found in the further readings section of this file.

 Affirmative debaters on this topic will be able to access ground in several ways. First, the dangers of business’ environmental apathy, that have been proven to be very real by thousands of researchers and scientists, will be used by AFF debaters to illustrate the outdated and unsafe practices of corporations within the United States. Second, AFF debaters will be able to access links to several economic benefits of carbon pricing that would potentially pass on the earnings from Carbon Pricing directly to the populous, as well as the efficiency inherent in Carbon Pricing as compared to status quo policies or similar options. Additionally, affirmative cases will be able to isolate some very real “harms” to the environment that could be solved relatively quickly with an effective carbon pricing regime.

 Negative debaters on this topic will be able to debate from a handful of solid areas of argumentative ground. First, the very real infeasibility of past forms of carbon reduction policies can be used to illustrate the potential ineffectiveness of a future universal carbon pricing regime. While this seems defensive at best, there have been very real harms from current cap-and-trade policies as well as several instances of blatantly ineffective enforcement systems leading to worse pollution. Second, if only the United States were to implement Carbon Pricing, the lack of a clear universal standard across countries would simply create pollution havens where companies would flee the US’s more restrictive laws. This could effectively increase the amount of pollution as countries fall prey to corporate influence in their environmental policymaking efforts. Unfortunately, in an increasingly polluted world, the point of no return is quickly approaching, fixing the issue of climate change could potentially have already passed the point of feasibility.

 Additionally, there is some debate to be had on both sides of this topic stemming from the specification of “Carbon Pricing” as some forms of carbon reduction policy such as cap-and-trade and direct carbon taxation could potentially fall in and out of that category allowing for a variety of ways to approach the topic for both AFF and NEG.

 Finally, interesting critical ground exists across this topic. Many thinkers have criticized the way we as humans have engaged with the environment as if it were a standing reserve of resources that exist to be dominated and controlled by humankind. Along these same lines, debaters interested in critiquing anthropocentrism and concepts of state apparatuses engaging with the environment will find ample resources criticizing the environmentally destructive empires set up by world powers like the US, China, and more. Finally, the question of the degree to which environmental concerns intermingles with capitalism at the heart of this topic opens up linkages to a wide variety of critical thinkers.

## Further Reading

Hendrickson, C. Y. (2018). Global Carbon Pricing: The Path to Climate Cooperation.

Rabe, B. G. (2018). Can We Price Carbon?. MIT Press.

“Carbon Pricing, Growth and the Environment” by Lawrence A. Kreiser, 2012

“Carbon Pricing: Early Experience and Future Prospects” by John Quiggin, David Adamson, Daniel Quiggin, 2014

“Climate Policy after Copenhagen: The Role of Carbon Pricing” by Karsten Neuhoff, 2011

“Pricing Carbon: The European Union Emissions Trading Scheme” By A. Denny Ellerman, Frank J. Convery, Christian de Perthuis

“State and Trends of Carbon Pricing 2014” – Report by World Bank, 2014

“How Much Carbon Pricing is in Countries’ Own Interests? The Critical Role of Co-Benefits” Ian W.H. Parry, Mr. Chandara Veung, Mr. Dirk Heine of the IMF, 2014

http://www.theguardian.com/environment/2012/jul/16/carbon-price-tax-cap

http://www.climatecentral.org/news/oil-companies-carbon-price-19054

http://www.brookings.edu/blogs/planetpolicy/posts/2015/07/13-carbon-footprint-governement-shadow-prive-morris

## Affirmative Case

I affirm the following resolution: Resolved: The United States ought to adopt carbon pricing.
 **Bowen,2014**(Alex, qualifications,“The Case for Carbon Pricing”*Grantham Research Institute on Climate Change and the Environment.*(2014):p.5)

Human-induced climate change poses enormous risks to our environment, economies and societies. Nations have come together under the auspices of the United Nations to debate what needs to be done to manage these risks.1 They have agreed that it is prudent to attempt to limit the increase in the global mean temperature to 2°C or less and have recognised that that entails sharp reductions in annual global emissions of greenhouse gases over the next few decades.

Thus:My value for the round will be **Justice** and with this my criterion will be **deontology**

#### Contention 1) the environmental status quo

**Bowen,2014**(Alex, qualifications,“The Case for Carbon Pricing”*Grantham Research Institute on Climate Change and the Environment.*(2014):p.5)

The increasing emissions of greenhouse gases in the course of activities such as electricity production, driving cars and cutting down forests has upset the balance between the entry of greenhouse gases to the atmosphere and their removal by their absorption in the land and oceans and chemical transformation. The mounting concentrations of greenhouse gases in the atmosphere are bringing about global warming and climate change, thereby leading to a wide range of potential effects on the environment, economies and societies. These effects will differ by location and timing but it is very likely that most will be adverse, the more so the larger the global temperature increase. The risks of catastrophic outcomes rise with the temperature change.

#### SA) Climate change is directly affected by carbon emissions

https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1

Climate model projections reveal a simple emergent relationship for our future climate: surface warming increases nearly linearly with the cumulative CO2 emitted since the preindustrial age. This relationship has been illustrated in terms of how surface warming increases with the cumulative CO2 emission using a climate model emulator ([Allen et al. 2009](https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1)), an Earth system model of intermediate complexity ([Matthews et al. 2009](https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1); [Zickfeld et al. 2009](https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1)), and a suite of Earth system models forced by an annual rise in atmospheric CO2 Our aim is to understand how the sensitivity of surface warming to cumulative carbon emissions from fossil fuels is controlled: this sensitivity ΔT/ΔI is defined by the ratio of the change in global-mean surface air temperature ΔT (K) and the change in fossil-fuel cumulative carbon emission ΔI (in petagrams of carbon denoted by PgC) since the preindustrial age. This sensitivity of surface warming to carbon emissions relates to two climate metrics: for experiments with only atmospheric CO2 forcing, ΔT/ΔI is identical to the transient climate response to cumulative carbon emissions (TCRE) on decadal to centennial time scales ([Gillett et al. 2013](https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1); [Collins et al. 2013](https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1)) and approaches the equilibrium climate response to cumulative carbon emissions (ECRE) on centennial to millennial time scales ([Frölicher and Paynter 2015](https://journals.ametsoc.org/doi/full/10.1175/JCLI-D-16-0468.1)).

#### C2) Carbon pricing is the most efficient way to see progress

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

Compared to other types of instruments, carbon pricing can address the vast heterogeneity of GHG emitters, thus helping to minimize the cost of pollution control. Heterogeneity might result from firms producing diverse goods or having distinct technologies, and thus different emissions per unit of output, which translates into unequal marginal costs of pollution abatement. Under perfect information and substantive rationality, all polluters should choose that level of emissions abatement for which the associated marginal cost equals the carbon price. Hence, with a carbon price signal, the marginal abatement costs would become equal among all polluters, implying that a given level of abatement is met at least global cost. No other instrument than pricing is able to realize the same outcome. Since polluters show inertia or are not always perfectly aware of available abatement technologies and associated costs, one should expect the global cost to not reach the exact lowest level. Nevertheless, empirical research suggests that reliance on nonprice policy instruments often leads to considerably higher abatement costs.[5](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0005), [6](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0006) The reason is that such instruments are less effective in covering diverse sources of emissions. For example, it is impossible to implement technical standards for the millions of technologies and products worldwide, and moreover update these frequently to account for nonstop technical innovation. To illustrate, two studies show, using different models, that a fuel economy standard for cars results in considerably higher costs of reducing CO2 emissions than fuel taxes.[7](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0007), [8](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0008) Note that older empirical studies found the abatement costs of uniform standards to be up to a factor 22 higher than those of pricing instruments

#### C3)Carbon Pricing Provides a Continuous Incentive for Adoption and Innovation of Carbon‐Efficient Technologies

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

Carbon pricing contributes to so‐called *dynamic efficiency* as it stimulates innovation and adoption of technologies emitting less carbon. By increasing the cost of carbon‐emitting technologies and activities, carbon pricing provides a financial incentive for consumers and producers to invest in technologies reducing emissions. This not only encourages more adoption of existing low‐carbon technologies, but also indirectly promotes the development of new ones. Empirical evidence suggests a positive relationship between higher energy prices and the development of more energy‐efficient technologies.[10](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0010) Compared with emission or technology‐based standards, carbon pricing provides a continuous and stronger economic incentive for adoption of, and R&D on, improved abatement technologies. Econometric studies find that under stable energy prices, innovations generally reduce consumer prices, while after oil price hikes, they tend to make equipment more energy efficient.[11](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0011) This suggests that carbon pricing is an essential element of a policy package aimed at redirecting technical change towards the cleaner goods and ways of production. Further support for this comes from a comprehensive theoretical analysis. Examining the effect of the European carbon market (EU‐ETS) on innovation, one study finds that carbon pricing is responsible for a 10% increase in clean innovation (measured by patents), in spite of the relatively low prices experienced so far.[13](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0013) Another study provides additional evidence on the innovation effects of EU‐ETS.[14](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0014) Both confirm the results of an earlier patent‐based study that energy prices have the largest inducement effect on energy‐related innovations.[15](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0015) A third study analyses 3412 firm‐level patent data from 80 countries for the car industry between 1965 and 2005, concluding that firms tend to innovate more in clean technologies when they face higher tax‐inclusive fuel prices. Corrected prices are essential to rapid innovation in the right direction, as relative prices steer innovation opportunities and associated investments. This aspect is underappreciated in many discussions about technological change and climate change, where pricing is downplayed as if innovation/diffusion subsidies and other innovation policies, such as information provision or stimulating cooperation between innovators, were sufficient. To fully appreciate the subtlety of this point, it should be recognized that rather than current carbon or energy prices, expectations about future prices are relevant. Of course, a high carbon price today acts as a signal for the near and more distant future, so that it will contribute to stimulating investments and R&D with the aim to reduce dependence on high carbon energy in all sectors of the economy.

## AFFIRMATIVE EXTENSIONS

### A2: Economy

#### Carbon pricing would mitigate climate change in a cost effective manner over time and prevent corporate flight to pollution havens.

**Clark 2012** [Grantham Research Institute and Duncan Clark; “What is a carbon price and why do we need one?” Monday 16 July 2012

A carbon price is a cost applied to carbon pollution to encourage polluters to reduce the amount of greenhouse gas they emit into the atmosphere. Economists widely agree that introducing a carbon price is the single most effective way for countries to reduce their emissions. Climate change is considered a market failure by economists, because it imposes huge costs and risks on future generations who will suffer the consequences of climate change, without these costs and risks normally being reflected in market prices. To overcome this market failure, they argue, we need to internalise the costs of future environmental damage by putting a price on the thing that causes it – namely carbon emissions. A carbon price not only has the effect of encouraging lower-carbon behaviour (eg using a bike rather than driving a car), but also raises money that can be used in part to finance a clean-up of "dirty" activities (eg investment in research into fuel cells to help cars pollute less). With a carbon price in place, the costs of stopping climate change are distributed across generations rather than being borne overwhelmingly by future generations. There are two main ways to establish a carbon price. First, a government can levy a carbon tax on the distribution, sale or use of fossil fuels, based on their carbon content. This has the effect of increasing the cost of those fuels and the goods or services created with them, encouraging business and people to switch to greener production and consumption. Typically the government will decide how to use the revenue, though in one version, the so-called fee-and-dividend model – the tax revenues are distributed in their entirety directly back to the population. The second approach is a quota system called cap-and-trade. In this model, the total allowable emissions in a country or region are set in advance ("capped"). Permits to pollute are created for the allowable emissions budget and either allocated or auctioned to companies. The companies can trade permits between one another, introducing a market for pollution that should ensure that the carbon savings are made as cheaply as possible. To serve its purpose, the carbon price set by a tax or cap-and-trade scheme must be sufficiently high to encourage polluters to change behaviour and reduce pollution in accordance with national targets. For example, the UK has a target to reduce carbon emissions by 80% by 2050, compared with 1990 levels, with various intermediate targets along the way. The government's independent advisers, the Committee on Climate Change, estimates that a carbon price of £30 per tonne of carbon dioxide in 2020 and £70 in 2030 would be required to meet these goals. Currently, many large UK companies pay a price for the carbon they emit through the EU's emissions trading scheme. However, the price of carbon through the scheme is considered by many economists to be too low to help the UK to meet its targets, so the Treasury plans to make all companies covered by the scheme pay a minimum of £16 per tonne of carbon emitted from April 2013. Ideally, there should be a uniform carbon price across the world, reflecting the fact that a tonne of carbon dioxide does the same amount of damage over time wherever it is emitted. Uniform pricing

#### Carbon Pricing Decentralizes Policy, Reducing Regulators’ Need for Information

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

Carbon pricing is consistent with flexibility and autonomy of choice, allowing emitters to freely change their behavior to reduce their costs. They can opt for emitting and paying any charges or taxes associated with emissions, or for undertaking a variety of activities, immediately or after relevant investments, to abate emissions. Carbon pricing thus means decentralization of policy, with associated low information needs and administrative costs. In addition, carbon pricing implies low transactions costs for firms, as, unlike eco‐labeling, it requires no separate life cycle analysis to account for all carbon dioxide emissions of products and services. Instead, firms will integrate carbon prices in existing cost‐accounting systems of their products and services.

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#### Companies like carbon pricing

**Kahn 2015** [Brian Kahn “In Stunning Reversal, ‘Big Oil’ Asks for Carbon Price” June 1st, 2015 http://www.climatecentral.org/news/oil-companies-carbon-price-19054]

Let’s see if you can guess the source for the following quote. “We want to be a part of the solution and deliver energy to society sustainably for many decades to come.” If you guessed a major solar, wind or renewable energy company, you’d be wrong. If you guessed six of the world’s largest oil and gas companies, give yourself a gold star. In a stunning reversal of years of obstructionism to creating a global framework to deal with climate change, CEOs from global oil and gas behemoths Shell, BP, Total, Statoil, Eni and the BG Group have signaled that they’re ready for a price on carbon. The CEOs of the companies, with nearly $1.4 trillion in annual revenue, sent a letter on Friday, which was released publicly on Monday, to Christiana Figueres, the United Nation’s climate chief, as well as Laurent Fabius, France’s Foreign Affairs and International Development Minister who will also lead the Paris climate talks later this year. In it, they ask for national and regional governments to set a price on carbon and for those regional carbon markets to be linked. “We need governments across the world to provide us with clear, stable, long-term, ambitious policy frameworks,” the letter states. The timing of the letter is no coincidence. Representatives from 190 countries are meeting in Bonn, Germany this week to continue hammering out details for an international climate agreement that is expected to take shape by the end of the year. The desire for a price on carbon might seem anathema to companies that make much of their billions from extracting oil and gas, two of the main drivers of carbon dioxide emissions that are warming the planet. And make no mistake, the six companies are not talking about getting out of the oil and gas business anytime soon. In fact, a separate letter to the media highlights natural gas as an important bridge fuel. And despite signing the letter, Shell is also headed back to the Arctic this summer to drill for oil. But in the big picture, the lack of a price on carbon creates an uncertain environment for companies that tend to plan decades into the future. The sooner a price is set, the quicker companies can adjust their plans for future profitability. In addition, there’s been growing pressure from shareholders that want more clarity on how oil companies plan to continue making money in a world where carbon emissions need to decline in order to avoid the worst impacts of climate change. The growing power of the divestment movement, which aims to get pension funds and endowments to remove fossil fuel companies from their portfolio, is also posing a growing issue for fossil fuel companies. “The investors have really woken up in the past 12 months,” Frances Way, co-chief operating officer of programs at CDP, said. “There’s a push to ask that as a responsible investor, should they be supporting oil and gas at this point.” CDP works with investors and companies interested in planning for the impacts of climate change and how to reduce emissions. For fossil fuel companies, reducing emissions means reimagining what kind of company they are. “It depends if you see it as a fossil fuel business or an energy business. Can they can diversify and change over time?” Way said. “I feel a number of individuals are trying to get a point of dialogue about the strategy and risk and being more transparent.” Figueres has said she wants to have fossil fuel companies at the table for climate talks. The letter signals a willingness that they’ll be pulling up a seat as good guests and not party crashers.

### Carbon Pricing is effective

#### Price Incentives Work

**Bowen,2014**(Alex, qualifications,“The Case for Carbon Pricing”*Grantham Research Institute on Climate Change and the Environment.*(2014):p.5)

Empirical evidence shows that price changes do change behaviour. If in the case of carbon dioxide the price is set uniformly across the economy, these effects will be pervasive, without policy-makers themselves having to identify where there are opportunities for abatement – so pricing economies on the information that policy-makers need. If a government tried to allocate specific greenhouse gas emission quotas to each and every producer of such gases, and those producers had to stick to their quotas exactly – the ‘command and control’ approach – it is extremely unlikely that the reduction in greenhouse gas emissions would be achieved at least cost, because the government would not have accurate information about how the costs of abatement varied across businesses.

#### Carbon pricing is effective

**Bowen,2014**(Alex, qualifications,“The Case for Carbon Pricing”*Grantham Research Institute on Climate Change and the Environment.*(2014):p.5)

Carbon pricing only works as a policy instrument if it succeeds in reducing the demand for greenhouse-gas-intensive activities. The evidence suggests that it is likely to do so, particularly over the longer run and when price changes are expected to persist, because demand does respond to prices. For example, energy demand has been found to be responsive to changes in energy prices. Indeed, two recent studies suggest that energy demand is more sensitive to prices than many earlier estimates indicated. Agnolucci (2009) investigated energy demand from the British and German industrial sectors and found a long-run price elasticity of demand of -0.64 (i.e. a 10% rise in price, other things being equal, leads in the long run to a fall in energy demand of 6.4%). Adeyemi and Hunt (2007) analysed industrial energy demand across the members of the Organisation for Economic Co-operation and Development (OECD), and found some support for the hypothesis that the response of energy demand to a price change is asymmetric: it depends whether the price increases or decreases. They estimated that the price elasticity of demand for a price increase above its previous maximum is -0.5; for a price increase below its previous maximum it is -0.6; and for a price decrease it is -0.3. That is consistent with the hypothesis put forward by Gately and Huntington (2002) and Huntington (2006) that price increases induce technological improvements designed to economise on the now more expensive energy inputs; if the price falls subsequently, the producer does not usually find it profitable to return to using its previous technology, so energy demand does not increase as much as it fell in the first place. The demand for petrol provides another example. Brons et al. (2008) reviewed studies of the price elasticity of demand for gasoline and found that the mean short-run price elasticity was -0.34 and the mean long-run elasticity was -0.84. Both in the short and the long run, the impact of a change in the gasoline price on demand was mainly driven by responses in fuel efficiency and mileage per car and to a slightly lesser degree by changes in car ownership. That illustrates the point that the adjustment to price increases takes place along several dimensions. Technological changes are induced that lead to greater fuel efficiency but consumer behaviour and purchase patterns are altered too. Empirical estimates suggest that, even in the long run, a given percentage increase in the price of carbon will bring about a smaller percentage decreases in industrial sector demand for energy and consumers’ demand for petrol. One implication is that increases in the carbon price are likely to increase tax revenue, at least until alternative low-carbon technologies become more cost-competitive and displace existing high-carbon ones. Price changes also affect the direction taken by innovation. Popp (2002) has demonstrated that higher energy prices induce energy-saving technical progress. He concludes that “my results also make clear that simply relying on technological change as a panacea for environmental problems is not enough. There must be some mechanism in place that encourages new innovation.” Carbon pricing is one such mechanism. Further evidence using firm-level data is provided by Aghion et al. (2010), who found a strong impact of tax-adjusted fuel prices in inducing more technical change in the auto industry, directed towards clean technologies

### A2: corporations

#### Corporate accountability is a good thing

**Bowen,2014**(Alex, qualifications,“The Case for Carbon Pricing”*Grantham Research Institute on Climate Change and the Environment.*(2014):p.5)

Those who produce greenhouse gas emissions are therefore imposing potentially huge costs on other people over time. However, emitters of greenhouse gas pollution do not have to face the consequences of their individual actions, through markets or other ways, unless policymakers intervene. If they can be made to do so, they will be discouraged from emitting as much and the products they make will become relatively more expensive, discouraging demand for them. The imposition of costs will also spur innovation to find less costly, less greenhouse-gasintensive ways of providing goods and services. This is the basic case for putting a price on greenhouse gas emissions by deliberate policy measures.

#### Companies are moving faster than many governments on carbon pricing

**Economist 2018** “Companies Are Moving Faster than Many Governments on Carbon Pricing.” *The Economist*, The Economist Newspaper, 11 Jan. 2018, www.economist.com/business/2018/01/11/companies-are-moving-faster-than-many-governments-on-carbon-pricing.

Of the 6,100-odd firms which report climate-related data to CDP, a British watchdog, 607 now claim to use “internal carbon prices”. The number has quadrupled since CDP first began posing the query in its annual questionnaire three years ago. Another 782 companies say they will introduce similar measures within two years. Total annual revenues of these 1,389 carbon-price champions amount to a hefty $7trn. Most come from rich countries, but more developing-world firms are joining them. Corporate carbon-pricing comes in two main varieties. The first involves business units paying a fee into a central pot based on their carbon footprint. Microsoft, for example, charges all departments for every kilowatt-hour of dirty energy they contract or air mile flown by executives, to help meet firm-wide climate targets. This payment, equivalent to $8 per ton of carbon dioxide, is designed to encourage those who can cut emissions most easily to do more, and nudge everyone to do something, says Rob Bernard, who oversees the software giant’s environmental activities. Tracking exactly how much of the power a business unit consumes comes from coal, say, is not always straightforward. Fee-based systems like Microsoft’s therefore remain rare. Although some smaller firms have toyed with them, Disney is the only other big multinational to use one. Many more firms use shadow carbon prices to stress-test investments for a world of government-mandated levies. Investors increasingly demand that companies take that possibility seriously

### A2: backlash

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

Motivational crowding out may arise when financial incentives or punishments undermine intrinsic motivations to contribute to public goods,including environmental policy or public goods issues.This has stimulated critiques that (carbon) pricing may be less effective than expected *ex ante*, because it would reduce proenvironmental behavior of some individuals. However, various studies suggest that at the aggregate level carbon taxes are, if anything, more effective than predicted. Carbon pricing may actually contribute to motivational crowding in. At the microeconomic level, we are not aware of any occurrence of considerable crowding out due to carbon pricing. One may wonder why there is so much concern about motivational crowding out. Backed by experimental data and a survey among economists, a recent study concludes that a plausible reason is that certain influential, early publications as the ones mentioned above have been interpreted as demonstrating that crowding out was a general phenomenon, whereas it only applies to particular settings.

### A2: price uncertainty

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

A concern sometimes raised is that uncertainty about the social cost of carbon (SCC), or assessing a monetary SCC value in the first place, translates into uncertainty about the appropriate value of a carbon price. While such uncertainty about the SCC indeed exists, support seems to be increasing for the view that it is higher than 100 US$ per ton CO2, as indicated by recent surveys.118, 119 One should realize, though, that controversy about the SCC value is not at all a barrier in implementing a carbon price. If using cap‐and‐trade, the cap—set in accordance with a political climate or emissions goal like the two‐centigrade target—will determine the adequate price level. If using a carbon tax, then a rising tax schedule has to be applied until the responses by consumers and producers are in line with the same climate goal. In other words, the reality of carbon pricing is not limited by academic controversies on the possibility of defining and estimating an optimal level of pollution. One can defend the necessity of pricing carbon and at the same time be rather skeptical about the concept of an optimal carbon price.

#### Carbon Pricing Takes into Account that in Making Purchasing Decisions, most Consumers are more Influenced by Prices than by Environmental Concerns

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Even if one is environmentally conscious, it is impossible to perfectly know which goods to buy and in what amounts to achieve environmental goals. It is, moreover, unthinkable that one can voluntarily contribute to all public goods in the world.[39](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0039) Even though many people would like to contribute at a personal cost to a more responsible use of the natural environment, such cooperative behavior frequently depends on the perception of what others will do.[40](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0040) The fact that an individual action alone has a negligible impact tends to discourage most people to undertake these voluntary actions. Moreover, many consumers are not particularly environmentally conscious in their purchase behavior, being sensitive to personally salient concerns, notably financial considerations, when making purchasing decisions. An effective climate policy has to reach out to this group. Carbon pricing is capable of doing this as it naturally intervenes in a core element of markets, namely prices of goods and services. It does so without the need for people to act altruistically, show voluntary environmentally benign behavior, or have the ability to handle much information about products as in the form of eco‐labels. This does not deny proenvironmental behavior.[41](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0041), [42](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0042) There is no clear evidence, though, that voluntary action can overcome very large differences in prices between green and dirty products/services, nor that it applies to a large group of consumers. Of course, policymakers are encouraged to leverage cooperative behavior when they have the opportunity to do so, but this approach cannot represent the main solution to climate change. Probably the most relevant voluntary behavior is that voters choose politicians who will strike a climate agreement that supports effective climate policies in all countries (see PE Issue 4 in the section on *Political Economy Issues*). Once implemented, carbon pricing does not require proenvironmental behavior. Nevertheless, the evidence available so far suggests that, if anything, proenvironmental behavior makes carbon pricing more effective, which is all good for climate policy (PE Issue 5 in section on *Political Economy Issues*).

#### As Carbon Pricing Alters Relative Prices, Firms and Consumers Automatically Internalize Global Warming Effects

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

Carbon pricing changes relative prices of all goods and services in accordance with the Polluter Pays Principle. As a consequence, when making decisions that cause GHG emissions, firms, consumers, and investors consider not just their private costs and benefits, but also the social costs associated with (direct and indirect) emissions generated in every phase of the product life cycle, from resource to waste. The entire economy then becomes less carbon intensive, since all consumers and producers will adjust their decisions to prices corrected for the climate externality. To obtain the same result with nonprice instruments would require that the regulator possesses all relevant information about emissions and abatement options to control in detail all polluting processes and behaviors. This would evidently be extremely difficult and imply a huge cost of governance.

Carbon pricing means that the prices of fossil energy fuels will adequately reflect the carbon content of these fuels. As a result, industries that use more carbon‐intense fuels will face higher input costs and thus ask higher output prices from their customers. In turn, sectors using these outputs as inputs will also see their output prices go up. Finally, consumers buying products or services from the latter sectors will confront higher prices as well. As all these agents are motivated to purchase the cheaper input, product or service, a shift will occur to options with relatively low direct and indirect emissions. In other words, with a fairly simple carbon‐pricing policy on fossil fuels each price in the economy will be corrected so as to reflect in some way the overall CO2 emissions effect of the associated good or service. This means that no economic decision escapes the regulatory effect of carbon pricing—it is a systemic solution. This does not mean carbon pricing is the complete and only solution: as discussed in the *More Than Carbon Pricing* section, complementary instruments are needed, because of informational failures and bounded rationality, among others.

## NEGATIVE CASE

**I negate the following resolution:** The United States ought to adopt carbon pricing.

**Because this resolution brings into question whether the United States should price carbon or not, the value for this debate should be governmental obligations**

**Governments’ obligations are to provide the most good to the greatest number of their citizens possible.**

**Goodin, Robert. Fellow of philosophy at Australian National University, 1990 (The Utilitarian Response)**

Whatever its shortcomings as a personal moral code, there is much to be said for utilitarianism as a ‘public philosophy’. Utilitarianism of some form or another is incumbent upon public policy-makers because of the peculiar tasks they face and because of the peculiar instruments available to them for pursuing those tasks. Given those substantially inalterable facts about the enterprise in which they are engaged, public policy-makers have little choice but to batch-process cases, acting through rules, principles, and policies, which are broadly general in form and substantially uniform in application. When looking for general, uniform public rules, principles, and policies, the premium is upon doing the right thing on average and in standard cases. In that context, utilitarianism seems to be a highly attractive proposition.

**And, the standard we should use in this debate to measure governmental obligation is maximizing equality of wellbeing.**

**According to Maiese:**

**Without consideration for equality in human wellbeing, those out of power become dehumanized. Dehumanization is a prerequisite to violence – it makes conflict, human rights violations and genocide inevitable – it’s empirically proven.**

**Maiese 03** [Michelle, Graduate Student of Philosophy at the University of Colorado, Boulder; Research Staff at the Conflict Research Consortium; “Dehumanization,” http://www.beyondintractability.org/essay/dehumanization/]

While deindividuation and the formation of enemy images are very common, they form a dangerous process that becomes especially damaging when it reaches the level of dehumanization. Once certain groups are stigmatized as evil, morally inferior, and not fully human, the persecution of those groups becomes more psychologically acceptable. Restraints against aggression and violence begin to disappear. Not surprisingly, dehumanization increases the likelihood of violence and may cause a conflict to escalate out of control. Once a violence break over has occurred, it may seem even more acceptable for people to do things that they would have regarded as morally unthinkable before. Parties may come to believe that destruction of the other side is necessary, and pursue an overwhelming victory that will cause one's opponent to simply disappear. This sort of into-the-sea framing can cause lasting damage to relationships between the conflicting parties, making it more difficult to solve their underlying problems and leading to the loss of more innocent lives. Indeed, dehumanization often paves the way for human rights violations, war crimes, and genocide. For example, in WWII, the dehumanization of the Jews ultimately led to the destruction of millions of people. [9] Similar atrocities have occurred in Rwanda, Cambodia, and the former Yugoslavia.

## Contention 1: Carbon pricing actually increases emissions

https://amgreatness.com/2017/12/06/why-carbon-taxes-actually-increase-global-emissions/

Western nations. For example, China produced 0.6 kilograms of carbon dioxide per dollar of economic output in 2014, whereas America produced 0.3 kg of CO2, and Germany produced just 0.2 kg. On top of this, China shows no signs of decreasing its emissions any time soon: [China’s currently building hundreds of new coal-fired power plants](http://www.climatechangenews.com/2017/03/31/chinese-co2-emissions-really-peaked/), which will ensure its CO2 emissions continue to rise for decades to come. Taken together, these facts suggest that every factory pushed out of the West due to carbon taxes actually increases global emissions dramatically, and this will continue to be the case for decades to come. A number of other studies came to the same conclusion. One important [paper published in Proceedings of the National Academy of Sciences,](http://www.pnas.org/cgi/doi/10.1073/pnas.1006388108) found that carbon reductions alleged to the Kyoto Protocol were more than offset by increase emissions from imported products. Glen Peters of the *Centre for International Climate and Environmental Research*said this of the research:*Our study shows for the first time that emissions from increased production of internationally traded products have more than offset the emissions reductions achieved under the Kyoto Protocol … this suggests that the current focus on territorial emissions in a subset of countries may be ineffective at reducing global emissions without some mechanisms to monitor and report emissions from the production of imported goods and services.* Essentially, local carbon taxes are not a useful tool for mitigating a nation’s carbon footprint. If anything they actually raise global emissions. The paper also notes that China accounts for some 75 percent of the developed world’s offshored emissions.

## Contention 2 – Federal Policies On Emissions Hurt the Economy

**Barrasso and Heitkamp, 2014** – John is junior senator from Wyoming and Heidi is a member of the North Dakota Democratic-Nonpartisan League Party and is the junior senator from North Dakota (John and Heidi, “The New Anti-Coal Rules Will Cut Jobs and Hurt the Economy,” Wall Street Journal, 2014, http://online.wsj.com/articles/the-new-anti-coal-rules-will-cut-jobs-and-hurt-the-economy-1401751493)//VIVIENNE

On Monday, the Obama administration unveiled new regulations to restrict the amount of carbon dioxide produced by existing power plants. While we agree that America needs to balance energy needs with environmental concerns, the timing of this effort could hardly be worse for the struggling U.S. economy. We learned just last week that the economy is shrinking for the first time since 2011. America's labor-force participation remains low. Millions of Americans continue to have difficulty finding good jobs. These excessive new regulations will likely force power plants to close, putting Americans out of work. The administration repeatedly promised to deliver regulatory certainty and give states "flexibility" if they meet the tough new standards. The fact is that states have to present their plans to the Environmental Protection Agency for final approval. If the EPA doesn't approve the state plan, the agency could impose its requirements on the state. The 645-page rule would give states a few options to reduce emissions. Those options are still very restrictive and will take away good jobs, increase energy costs and hurt the economy. EPA Administrator Gina McCarthy said that the agency's regulations will decrease energy costs by 8% by 2030. We remain skeptical and believe that consumers will see higher rates. Businesses, large and small, and manufacturers will have to pay much more for their electricity; these increased prices will be absorbed or passed on and will further hurt the economy. In states that already require higher portions of renewable fuels, electricity costs are on average 30% higher than in other states. Recent studies have estimated that this rule would lead to certain job losses, with one study by the U.S. Chamber of Commerce estimating that an aggressive carbon policy would eliminate hundreds of thousands of jobs by forcing coal-fired power plants to shut down. This does not even begin to address capacity and reliability issues that the administration all too often brushes aside. Coal-fired power plants will be especially hard hit, disproportionately hurting coal-producing states like Wyoming, North Dakota, Pennsylvania and Montana. When excessive Washington red tape closes a power plant or a coal mine in a small community, those jobs aren't the only ones to go. The lost revenue base hurts public schools, police and busing services for seniors who can't drive. Teachers, laborers and doctors move away, looking for a better chance somewhere else. Small businesses don't have enough customers, so they shut down—the town withers away. The pain is felt locally, but America's environmental policies must reflect the fact that carbon dioxide is produced globally. The U.S. share of carbon-dioxide emissions has been dropping for more than a decade. Meanwhile, emissions in developing countries have soared. China's have increased by 173% from 1998 to 2011. These new EPA policies will produce minimal environmental benefits unless other countries also aggressively reduce emissions, to the detriment of their economies. That is unlikely in the near term. While working together in the Senate, we have consistently supported policies that will help the nation develop energy as clean as it can, as fast as it can. As representatives of energy-producing states, we have also seen firsthand that the country and the economy cannot function without coal and other fossil fuels. The American people must be allowed to be part of this discussion. We have heard overwhelmingly from people in Wyoming and North Dakota that they don't support extreme and expensive regulations. During the president's first term, Congress rejected, on a bipartisan basis, a national energy tax. These new regulations will in effect impose a national energy tax—but without the input of Americans or their representatives. We would invite President Obama and EPA Administrator McCarthy to come out to Wyoming and back to North Dakota to see the real-world effects these policies have on jobs, families and communities. We want them to meet the people and go to the communities that will be hurt by these regulations. We also want them to see how states like ours are balancing the pristine beauty of their environment with the need for a vibrant economy. The president has challenged the world and every American to spend more and regulate more to combat climate change. We think that it's a debate worth engaging in and that the president should bring his proposal to Congress. Our constituents, at a minimum, deserve this consideration.

## Contention 3: Climate policies contribute to air pollution and deforestation

**Ballonoff, 14** – Economist, a former utility rate regulator in Kansas and Illinois, writer for the Cato Institute (Paul,“A Fresh Look at Climate Change”, Winter, “AN INTERDISCIPLINARY JOURNAL OF PUBLIC POLICY ANALYSIS”, The Cato Journal, Volume 34, Number 1, http://object.cato.org/sites/cato.org/files/serials/files/cato-journal/2014/2/cato34n1issuelow.pdf#page=119)//VIVIENNE

Climate science, and especially understanding the interaction of human activity with climate, remains one of the key scientific challenges of our time. Humans have profoundly affected vast swaths of Australia, Eurasia, and the Americas, at least in the immediate term, by agricultural and other practices. But understanding long-term effects is not so easily guided by seemingly simple projections from short-term observations. For example, it is widely accepted that in the 50,000 years that humans have occupied the continent of Australia, the flora and fauna have been changed profoundly (Gammage 2012). Yet, even with a century of very detailed research, it is not known for certain that the seemingly obvious inference that use of fire for clearing land over that long period has had any longterm effect on the natural climate of Australia (Smith 2013, Mulvaney and Kamminga 1999: 60–62). It is therefore not speculation that humans can have large-scale effects on the environment. It is critical we take the risks seriously. Global climate has a profound effect on human viability. Geologically, we are at the warm cusp of an interglacial period. The period of human recorded history has occurred within a period of warming generally. Glaciation historically has occurred rather rapidly on geological time scales. The risk of severe cooling does not seem imminent, nor does the risk of severe human-induced warming. If we can find scientifically demonstrated ways to regulate the global thermostat, we certainly want to know what those might be. The extravagant claims made by many in the climate change community have not advanced that effort, and may have contributed a widening mistrust of use of science for determining policy. Real science is not simply the application of ad hoc models to predict pending disasters; it also compares the results of predictions to actual events. The technical community that has produced false predictions of global warming, by failing to compare predictions to subsequent actual events, adds an unfortunate chapter to a long history of abuse of the appearance of science for political purposes (Michaels 1999a, 1999b). The empirically demonstrated evidence on water use by plants in an enhanced CO2 environment is the opposite of the commonly claimed effect from models that look only at assumed increased heating due to CO2 increases. Empirically, CO2 has recently been associated with warming only until increased green growth set in. That increased growth however continues so long as the extra CO2 is present. Despite reluctant rhetoric, other climate modelers recently studying the process have also created models that show higher CO2 concentration increases biomass. (Cox et al. 2013, Huntingford et al. 2013). But like the IPCC, many such authors seem to regard the model, not the reality against which compared, as the primary evidence. That attitude is unique in the physical or biological sciences, where reliability of prediction is judged by correspondence to empirical evidence. Reflecting a similar error, much climate policy relies heavily on projecting assumed trends. NASA, for example, has recently displayed the results of an entire set of models that assume continued warming and then predict its effects.2 But the prediction is meaningful only if the future warming exists. Trend data are only reliable for forecasts if the underlying conditions assumed remain constant and are a relatively complete description of the underlying real processes. Climate trend models have not fully accounted for the ability of plants to use water more efficiently at higher CO2 concentrations and have underrated the capacity for **aerial fertilization to sharply improve sequestration via plant growth**. Had they done so, like the 1991 ARS study or the 2012 Australian analysis, they may have predicted temperature and other effects more accurately. The misuse of modeling as a surrogate for science, which superficially allows advocacy to claim science without looking at actual evidence, has not been unique to climate warming. The new ice age foreseen in the 1950s to early 1970s did not visit us. The U.S. National Center for Atmospheric Research, one of the more prominent prophets of the new ice age, later switched to prophecy of global warming—presumably for political rather than scientific purposes. The forecasted population explosion and exhaustion of physical resources did not carry the earth past a presumed inherent carrying capacity by the early 1990s, foretold in well-known studies led by the Club of Rome and the American Association for Advancement of Science (Hardin, Lyons, and Edelson 1973; Meadows, Singer, and Perlman 1973; Meadows et al. 1974), and which were criticized even at the time (Cole et al. 1973). A 2004 update (Meadows et al. 2004) to the forecast changed the dates but not the methods, and did not improve the forecast. Instead of explosive growth, world population growth slowed, itself unpredicted by all but one theory (Ballonoff 1998). Moreover, as mineral prices were falling in real terms, efficiency of use increased, and absolute remaining known resources have generally grown in both relative and absolute terms. This is especially true for energy resources: known reserves have grown, despite that total use has far outpaced forecasts, and real price (as opposed to nominal dollar price) has fallen, not exploded to the predicted heights forecasted by the U.S. Department of Energy and others (Ballonoff and Moss 1991, Ballonoff 1997). The technology-driven mechanisms of expanding reserves also characterize the current expansion of energy reserves through fracking. What all of these examples show is that models alone, without comparison of their results to

actual evidence and without embodying what is known from experimentally demonstrated behavior of nature, are not science, and may be extremely misleading foundations on which to base policy. This article has focused on the empirical effects of climate policy related to effects of atmospheric CO2 concentration on energy development policy, especially for electricity. Some policies are not affected by the evidence on CO2 concentration. Energy efficiency remains a compelling goal in all climate scenarios because it leads to the most effective use of all energy capital investment and is readily achieved by normal market forces. Renewable generation remains a desired option for certain purposes of energy security, as well as for aspects of grid supply (assuming the grids are competently operated, reliable, and paid for), for potentially reducing grid losses, and as a substitute for other fuels. Such purposes, as well as programs such as “sustainable landscapes” that encourage preservation and expansion of green areas, seem justified by the demonstrated empirical effects of CO2. But many of the documented effects of current climate policies show a counterproductive effect on development. Efforts to reduce CO2 emissions by subsidizing biofuels, including subsidizing wood itself as an electricity generation fuel, appear instead to be the principal cause of deforestation. Policies to avoid carbon fuels may be inhibiting development of more economically efficient central grids and degrading the operation of existing grids, thus making more difficult the task of serving the underserved with reliable and low-cost electricity. That result, in turn, paradoxically causes expanded use of hydrocarbons in the form of kerosene, with its own soot and air pollution effects, as kerosene is available where grids are not. Forest products are also harvested to substitute for unavailable reliable electric power and, as a result, contribute to deforestation. The empirically demonstrated ability of global greening to absorb greatly enhanced CO2 concentrations and mitigate warming would seem to make policies to avoid carbon fuels in developing countries unnecessary. The demonstrated natural sequester of CO2 in plants as atmospheric CO2 concentration increases seems to obviate the need for foreign development capital projects to artificially sequester CO2. In sum, the rather extensive funds dedicated to such uses by multilateral and national sources of development capital would be more effective in meeting development goals if used to increase least-cost reliable supply. It is apparent that the demonstrated science of the direct and indirect effects due to increased CO2 concentration is rather different from that expected by many. Past climate policy has very often been based principally on models that have not been borne out by experience. Models alone are not science; models merely reflect the assumptions embedded in them. In climate models, and climate policy generally, those assumptions have apparently not reflected demonstrated evidence. Climate policy should reflect what experimental and empirical evidence show to be true.

## NEGATIVE EXTENSIONS

#### Carbon Rebound Represents the Most Effective Way to Limit Energy

**Baranzini, 2017** Andrea, et al. “Carbon Pricing in Climate Policy: Seven Reasons, Complementary Instruments, and Political Economy Considerations.” *Wiley Interdisciplinary Reviews: Climate Change*, vol. 8, no. 4, 2017, doi:10.1002/wcc.462.

The issue of energy rebound and how carbon pricing could mitigate it has received little attention in the public debate on carbon pricing. One reason may be that this argument was neglected by previous comprehensive reviews of environmental policy analysis. In line with this, rebound has so far not been considered a standard criterion in environmental policy analysis. Rebound denotes that energy conservation, including through adoption of more energy‐efficient technologies, can indirectly create additional energy uses and associated emissions. Hence, the net conservation effect will be lower than the initial energy savings—or even negative in some cases, known as Jevons paradox. Rebound involves diffusion of technologies as well as various economic mechanisms. Technological advances and improvements in energy efficiency tend to lead to a direct reduction in energy consumption. However, given the improved efficiency, the energy services—for instance, traveling by car—become cheaper, which stimulates more intensive use of these services. Moreover, money saved due to more energy efficiency will increase spending on other goods and services, and hence associated energy use and emissions. Compared to other policy instruments, opportunities for such rebound effect are limited if carbon pricing is in place, because it is a systems approach that reduces rebound consistently across all carbon‐intensive goods and technologies.[21](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0021) Such pricing would discourage money savings due to energy conservation to be spent on energy‐intensive goods and services, as the latter will have a higher price due to carbon pricing. Empirical evidence suggests that such ‘re‐spending rebound’ is non‐negligible and deserves serious attention in policy design.[22](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0022) Furthermore, in many cases, carbon pricing can reduce absolute rebound due to the direct rebound or intensity effect, because it may partially compensate the fall in the user (fuel) cost due to implementing more energy‐efficient technologies (as in transport[23](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0023)). In these circumstances, the direct rebound effect on demand, in absolute terms, will be lower than in a situation without carbon prices as then initial demand is higher. Carbon pricing will further ensure that consumers automatically, without even realizing, make a trade‐off between the individual benefits of new or higher energy consumption due to rebound and related climate change damages.[24](https://onlinelibrary.wiley.com/doi/full/10.1002/wcc.462#wcc462-bib-0024) Indeed, carbon pricing will mainly discourage rebound associated with a price correction for environmental damage costs exceeding direct individual benefits of the respective consumption decision.

#### The next Ice Age is coming now. Scientists now think increasing C02 Emissions might be a good idea.

**Mark Whittington 2015, Houston Science News Examiner, July 12, “Solar scientists say we need to get ready for a mini ice age in the 2030s”** [**http://www.examiner.com/article/solar-scientists-say-we-need-to-get-ready-for-a-mini-ice-age-the-2030s**](http://www.examiner.com/article/solar-scientists-say-we-need-to-get-ready-for-a-mini-ice-age-the-2030s)

Some climate scientists are so worried sick about global warming that they are showing signs of psychological stress, Esquire informs us. UPI has some good news and some bad news concerning climate change on Saturday. The good news is that global warming is not going to happen after all, at least for a long while. The bad news is that we’re in for a mini-ice age starting about 2030. The culprit is an engine that affects climate far more powerful than anything humanity can devise. That engine is the sun.The sun is the source of all climate, its light and heat interacting with the complex system on Earth with its atmosphere and bodies of water. Solar scientists are predicting a 60 percent decrease in activity on the sun, which will trigger the mini-ice age. The last time this event happened cause a mini-ice age between 1645 and 1715 during which the Thames regularly froze during the winter. If the solar scientists are right, we’re in for some bitter cold winters for at least a decade, perhaps more, in the middle of the 21st Century. This is a far cry from the confident predictions of climate scientists of melting ice caps, rising sea levels, storms, famines, and pestilence that they say will result from global warming. The prediction suggests that far from wanting to cut back on carbon dioxide emissions, the world community might want to consider increasing them instead. A little greenhouse effect might go a long way toward mitigating the frigid future that yet another group of scientists say is in store for us. On the other hand, the dueling predictions suggests that some caution and no little flexibility might be in order where policies related to global warming or global cooling or whatever constitutes climate change is this week.

#### Ice age leads to extinction—comparatively outweighs warming

**Chapman, 8[Phi., Managing Director at CMW Geosciences Pty Ltd, “Sorry to ruin the fun, but an ice age cometh”, The Australian, 4/23,**  [**http://www.theaustralian.com.au/archive/news/sorry-to-ruin-the-fun-but-an-ice-age-cometh/story-e6frg73o-1111116134873**](http://www.theaustralian.com.au/archive/news/sorry-to-ruin-the-fun-but-an-ice-age-cometh/story-e6frg73o-1111116134873)**]**

There is no doubt that the next little ice age would be much worse than the previous one and much more harmful than anything warming may do. There are many more people now and we have become dependent on a few temperate agricultural areas, especially in the US and Canada. Global warming would increase agricultural output, but global cooling will decrease it.**¶** Millions will starve if we do nothing to prepare for it (such as planning changes in agriculture to compensate), and millions more will die from cold-related diseases.¶ There is also another possibility, remote but much more serious. The Greenland and Antarctic ice cores and other evidence show that for the past several million years, severe glaciation has almost always afflicted our planet.¶ The bleak truth is that, under normal conditions, most of North America and Europe are buried under about 1.5km of ice**.** This bitterly frigid climate is interrupted occasionally by brief warm interglacials, typically lasting less than 10,000 years.¶ The interglacial we have enjoyed throughout recorded human history, called the Holocene, began 11,000 years ago, so the ice is overdue. We also know that glaciation can occur quickly**:** the required decline in global temperature is about 12C and it can happen in 20 years.¶The next descent into an ice age is inevitable but may not happen for another 1000 years. On the other hand, it must be noted that the cooling in 2007 was even faster than in typical glacial transitions. If it continued for 20 years, the temperature would be 14C cooler in 2027.¶ By then, most of the advanced nations would have ceased to exist, vanishing under the ice, and the rest of the world would be faced with a catastrophe beyond imagining.¶ Australia may escape total annihilation but would surely be overrun by millions of refugees. Once the glaciation starts, it will last 1000 centuries, an incomprehensible stretch of time.¶ If the ice age is coming, there is a small chance that we could prevent or at least delay the transition, if we are prepared to take action soon enough and on a large enough scale.¶

## The carbon price is hard to set

**Bowen,2014**(Alex, qualifications,“The Case for Carbon Pricing”*Grantham Research Institute on Climate Change and the Environment.*(2014):p.5)

Estimating the social cost of carbon is, however, a profoundly difficult exercise. The difficulty arises because there are several deep uncertainties in estimating the present value of the economic damage from carbon dioxide while it is in the atmosphere, including uncertainties about the science (the warming resulting from emissions of carbon dioxide and other greenhouse gases and the environmental changes accompanying warming, such as precipitation changes and sea level rise) and uncertainties about the economic impact of climate change. Moreover, these uncertainties are rendered greater by the long residence time of carbon dioxide and other greenhouse gases in the atmosphere, which means that the social cost of carbon today depends on forecasts of greenhouse gas emissions, atmospheric concentrations of greenhouse gases, warming and other climatic changes, and the economic impacts of these over at least two centuries. The slow removal of greenhouse gases from the atmosphere also presents an ethical choice for policy-makers: how much weight should be placed on the impacts of climate change on unborn generations, compared with equivalent impacts today?

### answer 2: we solve investment

https://www.sciencedirect.com/science/article/pii/S0921800915001056

It is widely acknowledged that introducing a price on carbon represents a crucial precondition for filling the current gap in low-carbon investment. However, as this paper argues, carbon pricing in itself may not be sufficient. This is due to the existence of market failures in the process of creation and allocation of credit that may lead commercial banks — the most important source of external finance for firms — not to respond as expected to price signals. Under certain economic conditions, banks would shy away from lending to low-carbon activities even in the presence of a carbon price. This possibility calls for the implementation of additional policies not based on prices. In particular, the paper discusses the potential role of monetary policies and macroprudential financial regulation: modifying the incentives and constraints that banks face when deciding their lending strategy — through, for instance, a differentiation of reserve requirements according to the destination of lending — may fruitfully expand credit creation directed towards low-carbon sectors. This seems to be especially feasible in emerging economies, where the central banking framework usually allows for a stronger public control on credit allocation and a wider range of monetary policy instruments than the sole interest rate.

Proven Ineffective in other places

A total of 3,223 industrial sources that consume different fuels and emit approximately 5.2 million tons of CO2 in the baseline scenario was evaluated. When the study solely considers sources of thermal generation greater than 50 MW, the quantity is reduced to 436 sources that emit a total of 3.3 million tons of CO2 , which corresponds to 63 percent of the total. In the case of a US$5 tax per ton of CO2 emitted, no industrial source finds it economically attractive to switch from its current fuel; therefore, it is concluded that no reduction in CO2 emissions would be observed, and tax collection would correspond to $16.3 million.11 This result is robust to different errors in estimating the costs of adjustment in fuel switching (to a maximum of 25 percent of the adjustment cost). If the application of a tax of US$10 per ton of CO2 emitted is evaluated, one industry source that uses petroleum No. 6 would change to biomass. The quantity of tons of CO2 emitted would be 3,191,685, which implies a reduction of 2 percent of the total tonnage currently emitted by thermal power sources over 50 MW. The reduction in tax revenues associated with the fuel change is reflected by the same percentage. The result is not robust at different levels of errors in adjustment costs, particularly for errors greater than 5 percent in the adjustment costs in which no source would change to biomass. These results reflect the ineffectiveness of this CO2 tax, as currently proposed in the tax reform of 2014, to reduce industrial emissions. Thus, it is necessary to evaluate other, more restrictive settings to determine whether a tax actually can help reduce industrial emissions in Chile. Therefore, an evaluation of the application of the tax to all industrial sources regardless of their installed thermal power is proposed. That is, a tax is proposed on the industrial use of fuels that emit CO2 ; the amount of the tax is US$5 per ton of CO2 . Table 4 shows the results after raising awareness of different error scenarios in estimating the adjustment costs. Industrial sources that are willing to make a fuel change under a $5 tax scenario are heterogeneous, with thermal power from 1 MW to 26 MW, whereas large thermal power sources (over 50 MW) would not change their fuel. Of the sources currently using coal, 28.8 percent would change to biomass; however, sources that use fuel that pollutes less than coal would decide not to make changes in their fuel because of their relatively low emissions and payable tax amount. The following industries would adopt a new fuel: food (50 percent), plastics (20 percent), leather (20 percent), metal products (5 percent), and other (5 percent). In all simulated scenarios, tax collections would be $25.1 million and the reduction of emissions, 3.3 percent. Although it may seem counterintuitive that including a larger group of small sources increases the effectiveness of the tax, this result is logical because smaller firms have lower investment costs for a change of fuel. In contrast, investment costs are significantly higher for the largest sources and do not generate sufficient incentives to switch to cleaner fuels if taxes are low. Furthermore, because emission factors by fuel type are not affected, this result could be generalized to other Latin American countries with similar technological fuel change options to reduce emissions. However, the results could vary if other relative fuel prices exist or if the relative prices change of technologies related to changing boilers. Applying a tax of US$10 per ton of CO2 emitted does not generate major changes in fuel switching decisions on industrial sources (Table 5). Adjustment costs remain for twenty-two sources that changed from coal to biomass for all other scenarios; CO2 emissions regarding the base situation are reduced by 3.3 percent, and tax collections could reach $50.3 million. According to unreported additional estimations, a tax of $13.73 per ton of CO2 applied to all industrial sources could meet the goal of reducing industrial CO2 emissions by 20 percent. However, this result is very sensitive to errors in estimating the adjustment costs. If adjustment costs achieve 25 percent, the tax required to meet the target would rise to $51.47 per ton of CO2 . Thus, the required tax is consistent with those applied in the United Kingdom ($16), Australia ($22), British Columbia and Ireland ($28), Denmark ($31), and Finland ($48). Conclusion In analyzing the effects on Chile of the tax reform, which includes a tax of US$5 per ton of CO2 emitted for thermal generating sources over 50 MW, we conclude that no industrial source will decide to opt for cleaner fuels; the quantity of CO2 tons actually emitted remains the same. By analyzing more restrictive settings, it can be concluded that a tax of $5 to $10 per ton of the CO2 emitted by all industrial, independent sources of thermal power boilers does not generate major changes in the use of fuels. The reduction in emissions is 3.3 percent (172,125 tons of CO2 ) in nearly all the simulated scenarios, which is why industrial sources would find it more expensive to change their production systems to consume a lower contaminant fuel than to pay the tax.

**Power generation causes CO2 pollution and greenhouse emissions**

**UK Parliament, 2006**

**[October 2006** Number 268 http://www.parliament.uk/documents/upload/postpn268.pdf. “Carbon footprint of electricity generation”

download date: 6-9-08]

All electricity generation technologies generate carbon dioxide (CO2) and other greenhouse gas emissions.To compare the impacts of these different technologies accurately, the total CO2 amounts emitted throughout a system’s life must be calculated. Emissions can be both direct – arising during operation of the power plant, and indirect – arising during other non-operational phases of the life cycle. Fossil fuelled technologies (coal, oil, gas) have the largest carbon footprints, because they burn these fuels during operation. Non-fossil fuel based technologies such as wind, photovoltaics (solar), hydro,biomass, wave/tidal and nuclear are often referred to as ‘low carbon’ or ‘carbon neutral’ because they do not emit CO2 during their operation. However, they are not ‘carbon free’ forms of generation since CO2 emissions do arise in other phases of their life cycle such as during extraction, construction, maintenance and decommissioning (Fig 1).

**Failure to act now means that Global Warming will continue. This will cause a massive release of oceanic methane, and a rapid warming. The end result would be the end of life on Earth.**

**Edwards and Cromwell 2005**

["Silence Is Green The Green Movement And The Corporate Mass Media by David Edwards and David Cromwell, February 9,

http://www.zmag.org/content/showarticle.cfm?SectionID=21&ItemID=7208 download date: 5-19-08]

Humanity has chosen to floor the consumer accelerator just as warnings of imminent catastrophe are piling up. Consider the impact, for example, of "global dimming" - the phenomenon by which tiny airborne particles of soot and other pollutants reflect sunlight back into space. The cooling effect of dimming,it seems, has offset the impact of global warming caused by industrial emissions of greenhouse gases. But with atmospheric particulate pollution being brought under control, this manmade break on climate change is being released. Scientists now believe temperatures could rise twice as fast as previously thought, with catastrophic and irreversible damage just twenty-five years away.('Global Dimming', Horizon, BBC2, repeat broadcast, January 15, 2005; http://www.bbc.co.uk/sn/tvradio/programmes/horizon/dimming\_trans.shtml) As the world heats up, reservoirs of frozen methane at the bottom of the ocean could melt, with consequences that would be terminal for human life: "At this point, whatever we did to curb our emissions, it would be too late. Ten thousand billion tons of methane... would be released into the atmosphere. The Earth's climate would be spinning out of control, heading towards temperatures unseen in four billion years. But this is not a prediction - it is a warning. It is what will happen if we clean up pollution while doing nothing about greenhouse gases.However, the easy solution - just keep on polluting and hope that Global Dimming will protect us - would be suicidal." (Horizon, ibid)

**Carbon pricing encourages switches to alternatives and cuts in all the best places – achieves the quickest, most efficient reduction of greenhouse gases and pollution**

**Shapiro, 2007**

[Robert J., “Addressing the Risks of Climate Change: The Environmental Effectiveness and Economic Efficiency of Emissions Caps

and Tradable Permits, Compared to Carbon Taxes,” former U.S. Undersecretary of Commerce for Economic Affairs during the Clinton

Administration, February, http://www.aci-citizenresearch.org/Shapiro.pdf ]

Another critical economic issue is the degree to which a carbon tax would focus environmental improvements where they can be achieved most cheaply or efficiently – getting the biggest environmental bang for the dollar, Euro or yen. Cap-and-trade programs achieve this by using tradable permits: In principle, companies that can reduce their emissions enough to achieve their caps for less than the price of a permit can be expected to do that; while companies that would have to spend more to reduce their emissions that the price of a permit will buy the permits from those who can do it more cheaply. In practice, Kyoto’s 1990 base year sharply reduced this benefit by effectively relieving companies in Russia, Eastern Europe and Germany from making these calculations, along with companies in every developing nation. A global cap-and-trade program’s special vulnerability to cheating will further reduce these potential gains: Many companies and countries are likely to bring their emissions under their caps by simply understating them, without bothering to invest in energy-efficient technologies, shift to alternative fuels or buy permits from others who have done so. Carbon taxes

can achievethis form of economic efficiency without a cumbersome trading mechanism susceptible to cheating and other distortions. The tax would raise the price of carbon-based energy in proportion to its carbon content, so that countries and companies that can reduce their carbon emissions for less than the cost of the tax can be expected to do so while those which find that reducing emissions would cost more than the tax will pay it. The consequent reductions in emissions should be greatest where the cost of achieving them is lowest,both within each country and worldwide, assuming that the world’s major greenhouse gas producing countries sign on.