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Why Does Politics Keep Getting in the Way of Pricing Carbon? - Part 1

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Keywords: Cap-and-Trade, Carbon and De-carbonization, Natural Gas, Climate, Coal, Oil, Environment, Energy, Energy Collective Exclusive, Fuels, Politics & Legislation, australia, carbon tax, climate policy, energy policy, Full Spectrum

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Summary

- While a carbon price is every economists' favorite climate plan, real-world political constraints get in the way (just ask Australia!)
- In a new paper in *Energy Policy*, I examine a variety of political economy constraints that limit the environmental efficacy and economic efficiency of real-world carbon pricing policies.
- Households in the United States appear willing to pay just \$80-200 per year to combat climate change, equivalent to a carbon tax of roughly \$2-8 per ton of CO2. In contrast, estimates of the full social cost of carbon — the level of carbon tax envisioned by economists — are an order of magnitude or two larger, ranging from roughly \$15-150 per ton (and rising steadily over time).
- Climate policy makers ignore political economy constraints at their peril—and part two in this series explores what can be done to seize the opportunity space for improvement in climate policy design.



Ask an economist how to combat climate change, and you're likely to get a pretty simple answer: put a price on carbon.

"If you let the economists write the [climate] legislation, it could be quite simple," MIT business school economist Henry Jacoby told NPR last year, implying that the whole plan to curb greenhouse gas emissions could "fit on one page."

In short, tax fossil fuels in proportion to the amount of carbon they release. Make coal, oil and natural gas more expensive. "That's it; that's the whole plan," as NPR's David Kestenbaum put it.

Jacoby and MIT Sloan School colleague John Reilly envision a carbon tax sufficient to increase the price of gasoline by 25 cents in the first year, rising to \$1.00 per gallon. In rough terms, that's a tax of \$25-100 per ton of CO2.

While many economists admit a slightly more nuanced view (acknowledging the need for "supplemental

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policies” to address other market failures hampering climate solutions, including innovation spillover risks and infrastructure lock-in) or prefer emissions trading programs instead of taxes, Jacoby and Reilly’s one-page climate plan isn’t far off from the typical economist’s prescription for climate change.

In economics-speak, climate change is “an externality” — a set of costs (e.g., climate change-related damages) that are external to current market transactions, since no one has to pay for the costs associated with their CO2 emissions.

As such, the traditional economic prescription for climate externalities involves establishing a “Pigouvian fee” on the sources of GHG emissions that corrects for the un-priced externality, either via a tax on carbon dioxide (CO2) and other GHGs (a “carbon tax”) or via a market-based emissions cap and permit trading mechanism (“cap-and-trade”). There’s a lot of debate about which approach — tax or cap-and-trade — is better, but both rest on a common economic foundation, and I’ll refer to both collectively as “carbon pricing policies.”

If these instruments successfully establish a carbon price equal to the full climate change-related external costs associated with emissions of CO2 and other GHGs (the so-called “social cost of carbon”), they will equalize the marginal social and private costs of GHG emitting activities, restoring an economically efficient of emissions (economists call this “a Pareto optimal level”).

There’s only one hitch: people generally want their energy to be cheaper, not more expensive!

Last week, [Australia repealed its carbon tax](#), ending a brutal, decade-long fight over climate policy. The repeal is just the latest and most glaring example of the [extremely up-hill political battle](#) facing any effort to put a hefty price on carbon—i.e., a price sufficient to fully internalize the social costs of CO2 emissions and substantially reduce greenhouse gas emissions.

In a [new peer-reviewed paper published in the June edition of Energy Policy \(Vol 69\)](#), I dive in to these “political economy constraints on carbon pricing policies” and their impacts on the economic efficiency and environmental efficacy of climate policy. From my paper:

“[S]everal political economy factors can severely constrain the implementation of these carbon pricing policies, including opposition of industrial sectors with a concentration of assets that would lose considerable value under such policies; the collective action nature of climate mitigation efforts; principal agent failures; and a low willingness-to-pay for climate mitigation by citizens.”

What I find is that while estimates of the full social cost of carbon range from \$15 to \$150 per ton of CO2 in 2012 dollars (rising steadily each year), households in the United States may be willing to pay as little as \$2 to \$8 per ton to combat climate change, [according to](#) a range of public values and willingness-to-pay research.

In other words: that one-page climate plan sounds great in theory. In the real-world, political constraints can mean carbon pricing policies end up falling far short. That creates an opportunity for improved climate policy designs that perform much better under political economy constraints.

In a two-part series, I’ll first explain how and why political constraints frequently bind carbon pricing efforts and why that leads carbon pricing to fall short on its on terms. In a follow-up post soon, I’ll discuss the implications for climate policy design, and how to move towards more creative (and yes, complicated) policy proposals that might actually work in the real world...

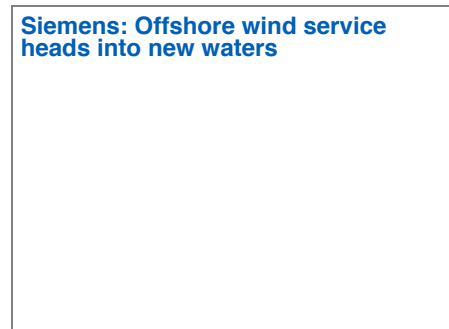
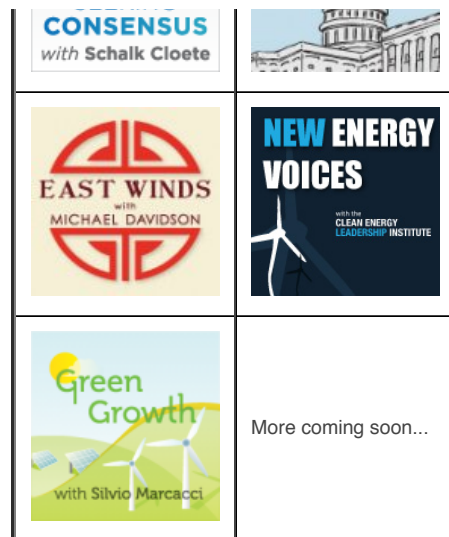
Note, [my Energy Policy paper](#) is behind a paywall and can be accessed by anyone with a ScienceDirect membership. For those who can’t access it and want a copy, please [email me](#) and I’m happy to send one along.

Part 1: Why is it so hard to tax carbon?

My paper surveys both the relevant political economy theory and presents evidence of political constraints in action drawn from public opinion and willingness-to-pay (WTP) research and the very public debate over climate policy in the United States in 2009 and 2010.

A brief disclaimer: This evidence is U.S.-specific and is not meant to be representative of other political economies. The political economy constraints posed by industrial interests and consumer WTP for climate policies will vary in each national or sub-national political economy. However, the evidence presented from the United States is highly consistent with the theoretical predictions and provides a real-world example of the potential for political economy constraints to be binding on the implementation of carbon pricing instruments. Furthermore, while political constraints differ from nation to nation, they certainly exist in all political economies. Policy makers and climate advocates ignore them at their peril...

First off, we have to understand that while social welfare can be maximized under an efficiently implemented carbon tax or cap-and-trade system and government revenues may theoretically be



Comments		
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		<p>“Well written article, but it’s existence seems to suggest the carbon taxation would serve its purpose. It would seem that the first logical problem regarding taxing carbon as means to alleviate climate change is that - it is totally illogical. (I’m going to come off here as a defender of petroleum and nothing could be further from the truth. I have no petroleum interests or biases - other than ...”</p> <p>July 25th, 2014 by DurwoodDugger</p>
		<p>“There seems to be a common idea floating around that energy storage, especially batteries, are a new technology, and if we just incentivize the first round of deployments, costs will fall, and the rest will pay for themselves. Well, batteries are actually made in huge volumes already, tens of millions of cells per year, for the US market alone. And for grid-scale applications, they ...”</p> <p>July 25th, 2014 by Nathan Wilson</p>

recycled in a manner that maximizes overall welfare, the imposition of a carbon price causes consumers and producers alike to experience both a private welfare loss and a transfer of surplus to government tax revenues. You can see this in Figure S.1 and Table S.1 below, which are a little bit of Environmental Economics 101.

Fig. S.1: Partial equilibrium diagram of an environmental externality and Pigouvian taxation

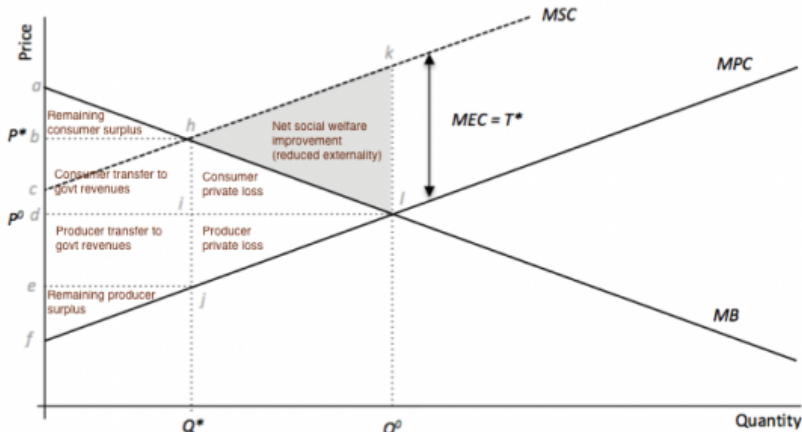


Table S.1: Welfare analysis of environmental externality and Pigouvian taxation (in Fig. S.1)

	No Tax (Q, P^0)	Optimal Tax T^* (Q^*, P^*)	Welfare Change vs No Tax
Consumer Surplus	adh	abh	<ul style="list-style-type: none"> Transfer $bghi$ to govt. revenues Loss of hij
Producer Surplus	dfl	efj	<ul style="list-style-type: none"> Transfer $deij$ to govt. revenues Loss of ijl
Govt. Revenue	-	$bejh$	<ul style="list-style-type: none"> Increase of $bejh$
Total Surplus + Revenue	afl	$afjh$	<ul style="list-style-type: none"> Loss of hjl
External Costs	$cfik$	$cfjh$	<ul style="list-style-type: none"> Reduced by $hijk$
Net Social Welfare	$afl - cfik = ach - hkl$	ach	<ul style="list-style-type: none"> Increased by hkl

Source: Jenkins (2014). Click either image to enlarge.

The line “MPC” illustrates the hypothetical marginal private cost of activities that emit CO2 in the absence of a carbon price. Meanwhile, “MSC” is the marginal social cost, or the full cost incurred including the climate-related damages (the “externality”) associated with CO2 emissions. This marginal external cost, “MEC,” is the difference between MSC and MPC. MB is the marginal benefit of emitting activities, and constitutes the demand curve for emissions.

Here’s where that one-page carbon tax plan comes in: Price carbon at a tax T^* equal to the marginal external cost and the quantity of carbon emitted should fall from Q to Q^* . The result: overall social welfare improves by the area of the triangle hkl , which is the portion of the externality that’s erased by the carbon tax. That’s the “magic” of the carbon price as it’s supposed to work in theory.

But these figures also demonstrate the substantial private welfare losses incurred by both producers and consumers, who see their own welfare shrink: from the big triangle adh to the little triangle abh for consumers and from dfl to efj for producers. Overall societal welfare may go up, but individual producers and consumers will see their own private welfare fall. That’s the very nature of an externality! What was once a free ride is now “internalized” and we all have to pay up. Ouch!

By design, pricing carbon will increase factor prices for carbon-intensive energy products and other intermediate and end-use products that involve GHG emissions during production or distribution. This increase in factor prices will cause a redistribution of economic resources as production and consumption shift (over time) to a new, less carbon-intensive equilibrium. However, while Figure S.1 above presents the transition from one market equilibrium to another (i.e. from Q to Q^*) as costless, or “frictionless,” such transitions in reality can impose substantial *additional* private costs, as some assets — from power plants and factories (physical capital) to worker skills (human capital) — are simply worth much less under this new equilibrium and represent real “sunk costs.”

It doesn’t take a political scientist to see how there might be some political friction associated with the private costs imposed by carbon pricing. But just to be sure, political scientists have developed a series of theoretical frameworks that explain what’s going on here, which I survey in my paper. I’ll summarize

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Christine Hertzog is a consultant, author, and a professional explainer focused on Smart Grid. [More »](#)

Elias Hincley is a strategic advisor on energy finance and energy policy to investors, energy companies and governments [More »](#)

those (intuitive) theories briefly here.

First off, several industrial sectors possess a high concentration of assets that would lose considerable value under carbon pricing policies. Think owners of those Australian coal mines, utilities with dirty power plants, or carbon or energy-intensive industries like steel or cement manufacturing. Political scientist [Dale Murphy](#) calls these firms with “high [asset specificity](#),” and these sectors are likely to mount vociferous opposition to such policies to protect the value of their sunk investments.

Highly motivated industries also frequently exert their influence over political processes, and Nobel Laureate [George Stigler](#) is famous for developing an “economic theory of regulation” that documents how such interests frequently “capture” regulatory processes for their own ends. Theory predicts the same behavior to be rampant when carbon pricing policies are proposed, which can effectively prevent carbon pricing in the first place or distort policy design to favor impacted industries (think carve-outs and exemptions for “trade exposed” industries, free carbon credits, and plentiful low-cost “offsets” in many real-world climate policies).

At the same time, additional political economy constraints primarily arise from a geographic and temporal mismatch between the broad societal benefits of mitigation and the private costs borne by consumers and citizens.

The private costs of climate mitigation will be felt in the near-term and, assuming an equitable distribution of mitigation responsibilities, will be felt most severely in advanced industrialized nations such as the United States.

In contrast, the vast majority of *benefits* from climate mitigation will be enjoyed by future generations and will be diffused across the entire planet. In fact, [assuming poor nations are most vulnerable](#) to weather extremes and changing climate patterns, benefits may be concentrated to a greater degree in developing economies.

Efforts to mitigate climate change must therefore confront two tricky challenges:

- First, the main actors required to mitigate emissions face a higher share of the mitigation costs than the benefits (dubbed by political scientists and economists a “[principal-agent](#)” problem): current generations (and mostly in rich nations) pay the most, but future generations (and mostly in poor nations) benefit the most.
- Second, the huge number of actors required to take simultaneous action to reduce emissions introduces the mother of all [collective action challenges](#), introducing strong [incentives to “free ride”](#) and let others pick up the cost of mitigation. No nation, let alone any individual, can solve climate change alone. As a result, unless you have confidence everyone else is going to pitch in and work together, it’s hard to justify taking on *any* significant mitigation costs yourself.

These theories would predict that individuals and nations should be willing to pay much less for climate mitigation than is ideal. Given the principal agent and collective action challenges, it’s actually perfectly rational to be willing to pay much less than the full social cost of carbon, as worries about free ridership, lack of confidence in collective action, and the mismatch between the near term costs and the long-term and diffuse benefits shift everyone’s economic calculus.

The result: when governments try to price carbon, we don’t end up with anything close to the ideal carbon pricing plan economists envision. Instead, these various political economy constraints become binding, restricting the level of carbon price possible and often halting carbon pricing efforts long before you get the ideal social price.

In my paper, I survey available evidence from both academic willingness-to-pay (WTP) surveys and public opinion research during the contentious U.S. debate over climate change legislation (the “Waxman-Markey bill”) during 2009 and 2010. What I found is that all available evidence indicates households in the United States are willing to pay just \$80 to \$200 per household per year to help combat climate change.

In other words, while Americans broadly view climate change as a problem and want to see something done about it, they’re just not willing to pay all that much to confront the problem—just as theory would predict. [One study](#) by Yale’s Matthew Kotchen and Anthony Leiserowitz and Virginia Tech’s Kevin Boyle illustrates just how quickly support for climate policy falls when the price tag starts to rise.

[Figure 2. Willingness-to-pay for climate mitigation under different policy instruments \(Kotchen et al. 2013\)](#)



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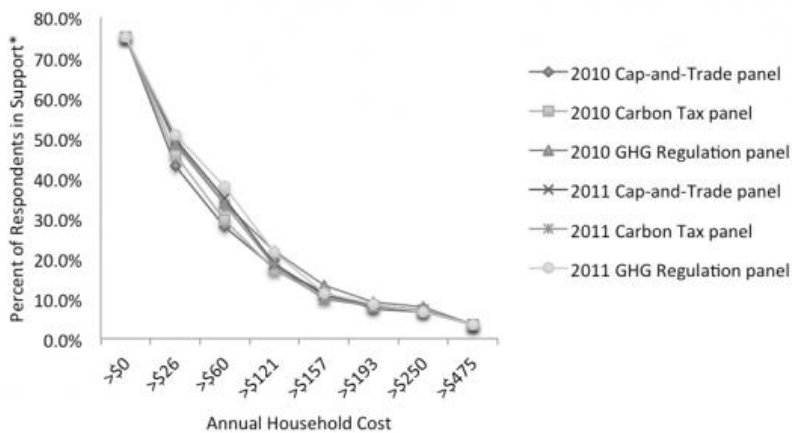
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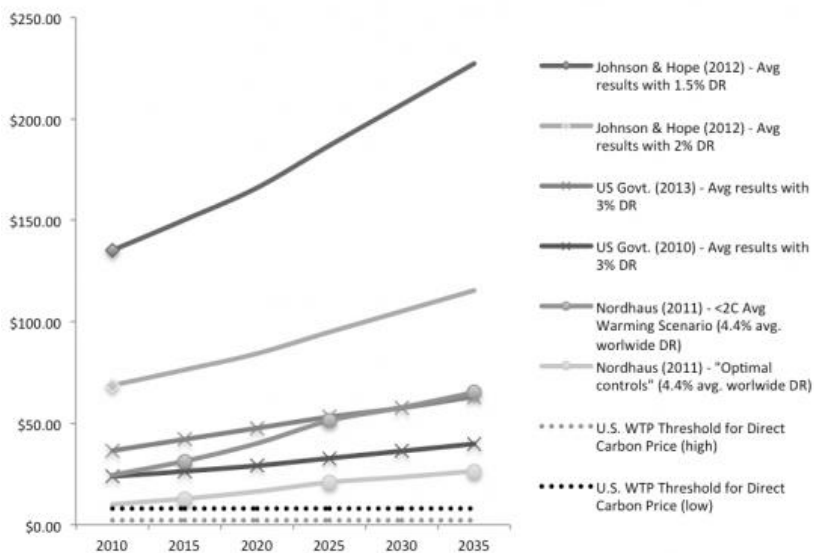
Source: Jenkins (2014). Click image to enlarge.

Taking into account variance in household size, consumption patterns, and carbon intensity of electricity supply, average household CO2 emissions range from approximately 25 to 48 metric tons across the 50 states and the District of Columbia. The average U.S. household emits about 34 metric tons.

Combing this estimated willingness-to-pay range with the distribution of average household emissions presented above implies that, within the United States context, political opposition from citizens is likely to mount quickly for carbon pricing policies as the imposed price moves upwards in the range of roughly \$2–\$8 per ton. That’s a pretty small carbon tax! (Note: Other national or sub-national political economies may exhibit varying tolerance levels for carbon pricing, reflecting both differences in WTP and average household emissions.)

In marked contrast, economic estimates of the social cost of carbon range from roughly \$15 to \$150 per ton in 2012 dollars, with economists envisioning prices rising steadily each year. See Figure 3 below, for a representative range of social cost of carbon estimates. (The variance in these estimates derives predominately from differing choices of social discount rates [DR] applied to account for the inter-temporal distribution of mitigation costs and benefits, although other factors are also important).

Figure 3. Selected estimates of the social cost of carbon



Source: Jenkins (2014). Click image to enlarge.

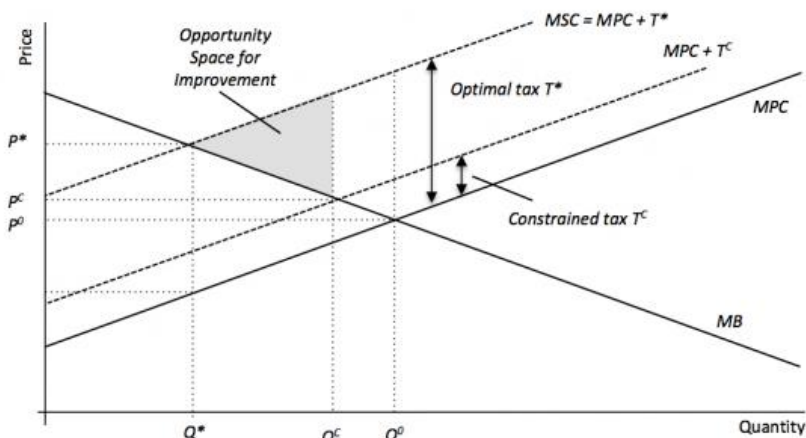
In short: real-world political economy constraints in the United States may bind carbon pricing policies long before they reach the ideal pricing levels envisioned by economists. Indeed, a politically feasible carbon price in the United States may be anywhere from 60 percent to roughly two orders of magnitude lower than estimates of the full social cost of carbon.

So what happens to that one-page climate plan that started off this story? Well unfortunately, these

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political economy constraints mean things don't work out quite as planned, and a politically-constrained carbon tax can't deliver either the economic efficiency or environmental efficacy envisioned by economists.

Figure 4. Politically constrained carbon price and the opportunity space for improvement.



Source: Jenkins (2014). Click image to enlarge.

As illustrated in Fig. 4 from my paper above, the economic theory behind carbon pricing policies envisions the implementation of an “optimal” carbon tax T^* such that T^* equals the full social cost of carbon (as in Fig. S.1 above).

In the real-world, however, political constraints mean efforts to price carbon probably result in a tax T^C well below T^* . This constrained carbon price can only increase the price of the carbon-emitting good, G to P^C and reduce consumption to Q^C . This constrained carbon price thus fails achieve the Pareto optimal equilibrium, leading to remaining external damages in excess of marginal social benefits (the shaded area in Fig. 4) and to continued excess CO2 emissions (equal to $Q^* - Q^C$).

In other words: on it's own terms, a politically-constrained carbon price is neither economically efficient nor environmentally efficacious. So much for that one-page climate plan...

[In Part 2 of this series](#), I talk about the opportunity space this creates for creative climate policy designs that can out-perform the traditional carbon pricing prescription.

Don't worry! That one-page climate plan probably can't get the job done in a world of real and often-binding political constraints. But that doesn't mean climate policy is sunk. [It's just time to get more creative...](#)

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July 26, 2014

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Durwood Dugger says:

Just to keep things in perspective, each year its estimated that about 750 giga tons of CO2 moves through the earths carbon flux system. Of that about 29 giga tons (3.8%) are of anthropogenic origin (IPCC AR4). These are estimates given for very complex biological and biochemical systems and we have no real way of determining our accuracy (how big our errors might be) in these estimations beyond approximations. While most of us agree that humans are impacting climate (scientific consensus), the exact amounts and long term affects are still highly debated (rarely mentioned, but evinced by the number of different climate change models constantly generated).

We have a global population that is running out of primary resources and whose growth will stop one way or another in the next few decades limited by food and other critical resources - or disputes over them. With the end of that population/market growth, global economic growth will surely stop and probably shrink and deflate dramatically - not at all conforming to our capitalistic economic system needs. Not only can we not afford carbon taxes on a few industries that almost all of society supports and uses, we can't afford taxes open to political distribution that are not precisely directed at the probems - nor can hope to maintain them under coming economic conditions. We are failing to prioritize our major species problems and we are failing to realize their windows of opportunity for correction.

While human impacts on climate are an import problem, it is a relatively low priority problem (with now unavoidable consequences - if our estimates are correct) compared to the problems of resource depletion (especially finding an energy source much less expensive than petroleum) and the end of population growth (if not shrinkage) that we face in the relative short term. Failing to deal effectively with the latter problems will make human climate impacts not only unimportant - it wil make them self resolving - as our species annihilates itself and its anthropogenic climate impacts.

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July 26, 2014

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Bob Bingham says:

with the priorities on your list but I do agree that the outlook is dire. I think that a lot of problems will stem from the shortage and price of food.

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Robert Bernal says:

If properly developed, the world will stop overpopulation at about 10 or 11 billion (just as the developed nations today control their growth to some reasonable degree). This, of course requires huge energy resources (also, so we don't destroy ourselves via resource wars). Such power source will have to be a step UP from fossil fuels (and from renewable sources and their huge amounts of storage, if affordable). With *unlimited* energy, we can create the necessary resources for human needs (whatever they may be) as long as there are *seeds and crustal material*. This is a BIG planet, we were given *everything* we need to colonize the solar system! Whatever threats we pose to the biosphere can be isolated. Instead of devouring all the fauna, and dying from "overpopulation", we simply develop more resources. *Theoretically*, we could grow all the food, desalinate all the water and provide the physical necessities for hundreds of billions of people, even at very high standards simply by doing such *outside of* the natural biosphere.

Of course, we won't (and therefore, I agree with your concern!). The carbon cycle is unbalanced because the ppm CO₂ in the very air of an *entire planet* is increasing on an *accelerating* pace. It must cause some degree of warming and chemical alterations *within* the biosphere unless we seek to capture the fossil fueled wastes and isolate it from the biosphere, just as we must isolate any nuclear wastes from the biosphere. Guess which is easier to do? The one that is on the order of a million times less in volume!

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Durwood Dugger says:

Population growth - like climate change depends on your input assumptions - and model. While UN population growth estimates have shown declining growth rates as most nations develop, in some cases growth rates among some developed nations have started growing again. The most encouraging growth rate decline models assume that Asia will mirror the west regarding population growth rate declines and increased affluence, however that isn't at all proven, or is how fast Asian traditions of large families will take to change - a considerable factor in itself.

"Projected figures vary depending on underlying statistical assumptions and the variables used in projection calculations, especially the [fertility variable](#). Long-range predictions to 2150 range from a population decline to 3.2 billion in the "low scenario", to "high scenarios" of 24.8 billion. (http://en.wikipedia.org/wiki/World_population_growth#Modern_era).

Those kinds of ranges don't encourage my confidence in accepting just the low ranges. As we both acknowledge - a clean free energy source could change primary resource and economic limitations completely. However, it is some times hard to tell clean free energy schemes - from perpetual motion machines. In any case no estimate of population growth or even decline - takes us back to a natural sustainable level within the natural phosphorus cycle of between one and two billion - and or without reliance upon technological miracles.

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Bob Bingham says:

Every commentator focuses on the economic aspect of a carbon tax with little or no idea as to why it is being introduced. We have 400 parts per million of CO2 in the atmosphere and we should have a maximum of 280 ppm. The big increase is due to the burning of fossil fuels and farming. This will bring real difficulties to food production and eventually a seven metre sea level rise. If we are to stop it getting worse we will have to stop burning fossil fuels. That is what we must achieve and a carbon tax is only and interim stage to help finance the transfer. <http://www.climateoutcome.kiwi.nz/climate-threats.html>

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Peter Lang says:

Why should we have 280 ppmv? That's near the lower limit for supporting life. Low concentrations are also where we have the glacial interglacial cycles and extreme climate volatility. However, at higher concentrations life thrives. So, you need to do better than make baseless assertions like this.

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Engineer- Poet says:

Nonsense. Life does just fine at 200 ppmv. [Levels have gone as low as 180 ppmv for extended periods in the last million years;](#) everything, humans included, came through without ill effects.

It's 400 ppmv we should be worried about. It is territory that few living species on earth, and no extant ecosystems, have ever had to cope with.

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July 26, 2014

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Peter Lang says:

"Life does just fine at 200 ppmv. [Levels have gone as low as 180 ppmv for extended periods in the last million years;](#) "

Nonsense yourself, Poet. At those levels we are in an ice age. Life struggles. The planet is laregly dry, windy desert.

However, when CO2 concentrations are at higher levels life thrives. Furthermore, the planet's climate is more stable whern warmer (and higher CO2 conventration). You need to be objective, rather than continually scaremonggering. The CAGW doomsayers and Climate Cultists have had their day. It's time to get rational and objective. The Climate Cultists and doomsayers have lost credibility, and the more they shreek "doomsday! Doomsday" they more they lose it.

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July 27, 2014

Like it?

0

Bob Bingham says:

The last time the world had today's level of 400 part per million of CO2 was four million years ago and the trees and plants at that time were adapted to the climate that went with it. Those trees had taken thousands or years to evolve to match those condition. The trees we have today are adapted to a CO2 level of 280 PPM and a climate 0.8C cooler and are rapidly going into conditions 2C warmer and with dramatical changed rainfall conditions of either drought or flood.

We can expect to see much large numbers of trees and other plant life dying in the coming years and in my opinion farming as we know it will be near impossible if we reach a 3C increase in temperature.

<http://www.climateoutcome.kiwi.nz/climate-threats.html> .

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July 27, 2014

Like it?

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Peter Lang says:

400 ppmv just before the start of the Younger Dryas (see figure 6)

"[Stomatal proxy record of CO2 concentrations from the last termination suggests an important role for CO2 at climate change transitions](#)"

http://www.academia.edu/2949675/Stomatal_proxy_re

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July 27, 2014

Like it?
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Peter Lang says:

"in my opinion "

I accept it is your opinion. I don't agree. In my opinion your opinion is just part of the group think adopted and propogated by the Climate Cult.

There is evidence which suggests GW and increasing CO2 concentrations over the past 100 and 200 years have been strongly beneficial (after "carefully accounting for the impact of other confounding factors"). It strains credulity to believe that warming and increasing CO2 concentrations would suddenly change from being beneficial to being damaging, just at the time we happen to be alive.

This paper by Richard Tol strikes me as reasonable:
"THE ECONOMIC IMPACT OF CLIMATE CHANGE IN THE 20TH AND 21ST CENTURIES"

<http://www.copenhagenconsensus.com/sites/default/files>
(see Figure 3)

There is much evidence to show that life thrives when the planet is warmer, but struggles when colder.

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July 27, 2014

Like it?
1

Engineer- Poet says:

*At those levels we are in an ice age.
Life struggles. The planet is laregly dry, windy
desert.*

Nonsense right back at you. At 180 ppmv, the equator was lush and green. The Ogalalla aquifer (which we have just about drained) was filled to capacity during those days. The Sahara wasn't a desert, it was a jungle.

I admit that one hell of a lot of prime real estate was under a mile of ice at the time. But that doesn't mean the world was inhospitable to life. Very much the opposite.

*when CO2 concentrations are at higher levels
life thrives.*

But does it thrive when CO2 rises at the anthropogenic 2 ppm/yr, compared to the natural 0.0001 ppm/yr? When the climactic zone for a species moves far faster than it can

grow, said species is at high risk of going extinct.

Furthermore, the planet's climate is more stable whern warmer (and higher CO2 conventration).

Yes, but it is stable in a state that is hospitable to our extant species and ecosystems, our food crops... and us? Conditions hospitable to mosquitoes and certain other species are very unfriendly to humans; ask anyone who's had malaria.

You need to be objective, rather than continually scaremonggering.

Not all that long ago, grasslands I've driven through were so dry they became deserts of wind-blown sand dunes. The hill formations currently there are those very sand dunes, pinned down by grasses when rainfall rose enough to grow them. On our current course, they may return to wind-blown dunes devoid of vegetation in my lifetime.

Where I live, lake levels are a concern. I've seen open water turn to dry land and back again in more than one place. Should the balance shift in the favor of evaporation over precipitation, huge amounts of value will be destroyed as forests die, farmland grows less, and prime waterfront becomes inland nothing.

You call it "scaremonggering" [sic]. I call it believing my own eyes.

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July 27, 2014

Like it?

0

Peter Lang says:

Poet,

Sorry, I am not interested in your beliefs or of the beliefs of Climate Culitist's or any other doomsayers.

It's a pointless argument discussing beliefs. The climate doomsayers' beliefs, exaggeration, scaremongering and more has been going on for at least 25 years. My interest is in policy analysis and pragmatic policy. Your comments demonstrate you and I could not have a rational discussion about that <http://twentytwoords.com/a-flowchart-to-help-you-determine-if-youre-having-a-rational-discussion/> . So, lets just drop it.

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July 26, 2014

Like it?

1

Peter Taylor says:

Like most responsible citizens I accept the need to pay taxes. I am happiest when those taxes are used to ensure that I can live in a community that is safer, better educated, has universal access to health care and is rich socially and culturally.

So, why might I have real concerns about carbon taxes. Because I have no faith that Governments will use my money to fix the problem. Also, once I have paid the tax, is not the Government implicitly saying it is fine to go ahead and behave in an irresponsible way?

The best way to fix the problem is to get clean technologies that can deliver usable energy at a price equal to, or lower than, dirty technologies.

Developing and deploying those technologies is commercially extremely risky. That effectively means nothing like the investment necessary is flowing to support them. Fix that problem and we might have a fighting chance of not hitting 500PPM .

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July 26, 2014

Like it?

0

Robert Bernal says:

It needs to be set up so that it is revenue neutral. I would prefer it to go into the actual development of a source, a step UP from fossil fuels, but others will prefer that it goes into the development of renewables (which is seen as a step down from a land size and availability/storage POV), hence disagreements. Still, others believe that we can "do it all" with just efficiency (which isn't good enough). However, the revenue neutral approach simply taxes the carbon rich and gives it to the energy poor which is supposed to create a market condition more favorable to both renewables and large scale nuclear, and possibly, even a source that can provide more power than the renewables yet which could integrate much better than flat baseload nuclear.

<http://www.motherjones.com/environment/2014/03/british-columbia-carbon-tax-sanity>

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July 25, 2014

Like it?

0

Peter Lang says:

A suggestion: wherever units are used it needs to be made clear what they are: e.g tonnes C or tonnes CO2. \$/t C or \$/t CO2, t or t/a.

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July 26, 2014

Like it?

0

Jesse Jenkins says:

Good suggestion. Ill edit accordingly. All figures in the article are dollars per metric ton of co2.

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July 27, 2014

Like it?

0

Peter Lang says:

I should have mentioned: especially in chart captions, titles / axes / legend.

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July 25, 2014

Like it?

2

Durwood Dugger says:

Well written article, but it's existence seems to suggest the carbon taxation would serve its purpose. It would seem that the first logical problem regarding taxing carbon as means to alleviate climate change is that - it is totally illogical. (I'm going to come off here as a defender of petroleum and nothing could be further from the truth. I have no petroleum interests or biases - other than the reasons offered.)

The American public at almost every level knows that the taxes they are charged almost never go to the solving the problems those taxes were proposed to resolve, but rather are siphoned off for political leverage advantages and or political personal gains. Carbon taxes (regardless of there form will be no different). A punitive carbon tax that is not legally limited to and that does not directly resolve anthropogenic climate change would only be a further drag on the global economy. Moreover assuming that most of carbon tax monies would never be spent on CO2 emission purposes - it would actually reduce our economic resources and priorities to deal with CO2 and other pollutants. A global economy whose growth is undeniably coming to an end as we max out global critical resource economics while global population continues to grow.

Like it or not we live in a global petroleum standard economy. Unlike the former gold standard - which was a consensus standard (gold having no functional value) - petroleum is an essential, critical and utilitarian economic standard. Not only is petroleum an exchange medium - it physically creates many of the essential products that our lives depend on - not the least of which is food and the chemicals required to achieve Green Revolution production levels. While it's true that we will never completely run out of petroleum for critical chemical needs, the costs of those chemicals will change dramatically.

What isn't recognized as we move toward replacing peak oil is that our current life style economy is based on the current economy-of-scale of the global petroleum industry. Petrochemicals are only 5% of the petroleum industry and are essentially an economic byproduct of the petroleum energy industry's exploration, drilling, refining, storage and distribution segments. Significantly shrink the petroleum energy industry (which will happen whether we want it to or not as petroleum becomes more expensive to produce - (<http://www.resilience.org/stories/2014-07-24/world-oil-production-at-3-31-2014-where-are-we-headed>) and the economies-of-scale that allow us our cheap but critical petrochemical derivatives will change drastically - especially NPK and food production management chemicals. The extended economic impacts of a shrinking petroleum energy industry will become one of those unintended consequences with catastrophic impacts - unless several things happen:

1. We recognize the loss of economy-of-petroleum-industry-scale impacts in advance - particularly food production related and attempt to compensate.
2. That we find a replacement energy source for petroleum - that is much lower in

costs than current petroleum costs - in actual cost. Low enough in cost such that the new less expensive energy source can help absorb the greater energy consumption and cost of acquiring ever dilute critical food production resources now and especially in the future while maintaining economic living standards at levels similar to current ones.

3. We recognize just how far out of balance (non-sustainable) global population is compared to the food production resources remaining and those food production resource's growing costs in terms of energy expended to acquire them. With the obvious affects of automation at almost every level of industrial production and continuing decline of need for human labor, we are creating our own species demise by allowing global populations to grow wherein there is no functional purpose for most of the individuals composing them.

4. Realize that the only truly direct way of dealing with all environmental challenges including CO2 and maintaining our species and our planet - is to reduce human populations back to sustainable levels - between 1 and 2 billion people.

5. We realize that items 1 and 2 may not be technically or economically achievable.

In other words the only real and effective policy to climate change and all other anthropogenic environmental problems - is population reduction - wherein the human population can live within planetary resources and natural maintenance processes. Anything less is not only ineffective it wastes both remaining resources and time - the window of opportunity to change our current catastrophic growth path.

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July 25, 2014

Peter Lang says:

Like it?

1

As far as I am aware, there has been little if any analysis of a third policy alternative:

"This is the decision to be made in this decision analysis. The choice is between three alternative policy options: 'No GHG Emissions Controls', 'International Treaty' or 'Free Market'.

1. 'No Controls' – adaptation but no policies to mitigate global GHG emissions. This is the baseline policy against which the other policies are compared;
2. 'Treaty - Legally binding international agreement(s) to global GHG emissions reductions;
3. 'Free Market' policies - No legally binding international agreement. Each country acts in its own best interest. Global emissions reductions are achieved by removing the impediments that are preventing the world from having low emissions energy cheaper than fossil fuel energy. Developed countries develop the technologies and sell them to developing countries in commercial transactions. The process could be facilitated by freer trade and removal of restrictive regulations that thwart the development of better technologies."

Why hasn't the third alternative been thoroughly investigated?

Note:

Policy alternative #1 is what William Nordhaus calls "No Controls" It is the baseline against which other policies are compared; See for example, Nordhaus (2008) "A Question of Balance" Table 5.1 and 5.3.

Policy alternative "2 include carbon pricing (of all types), Kyoto type agreements, etc.

Policy alternative #3 seems to have not been considered. This is the free market alternative. The one that demonstrable will survive if we remove the blocks. It's worked for as long as humans have been able to communicate.

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July 26, 2014

Like it?

0

Jesse Jenkins says:

Hi Peter,

How would this option 3 differ from the status quo? What measures would you suggest to make it a reality? And why are you confident it will lead to substantial emissions reductions?

I'm not totally clear what you are suggesting so it is hard to respond. Thanks.

Jesse

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July 27, 2014

Like it?

0

Peter Lang says:

Hi Jesse,

Thank you for your reply and your questions. They are excellent questions, and a lot can be said in reply. I can't cover it all, so I'll have to keep it short for this web site. I'll provide one example, but of course there will be many others.

Q1. How would this option 3 differ from the status quo?

Option 3 differs from the status quo (and from Option 1) in that the policy is to ACTIVELY REMOVE the impediments that are preventing the world having low-cost, low-emissions technologies (where appropriate). We'd remove the many distortions to the markets we've been imposing over the past 50 years.

Nuclear energy is one example. We've had 50 years of anti-nuclear scare-mongering. The general population in the developed countries has 'radiation phobia' and a paranoia about anything to do with nuclear energy. It is irrational on any objective basis. The consequences are that the population demands government's put regulatory constraints on nuclear power that are a distortion to the markets. Regulatory ratcheting has increased the cost of nuclear generated electricity by a factor of about 8 above where it would be now if not for the public paranoia and consequent regulations that impede progress and inflate the cost. If the USA would take the lead, educate its population and get them to support bringing the regulatory regime into balance with all other options on an objective basis – such as fatalities/TWh – then prices could begin to come down at around 10% per doubling of capacity. At that rate, small modular nuclear power plants, could be about half the cost of new coal plants (in 2013 \$) by around mid-century and break even with new coal by 2030. Vendors in countries across the world would compete to improve the breed and bring the costs down.

The main impediments are:

1. Public paranoia about nuclear power > government legislation and regulations that make nuclear uncompetitive with fossil fuels and therefore, impede progress.

2. There is justifiable reluctance by investors to invest in nuclear plants because of the high risk that the public will force high costs or even shut down before the plants has operated for its economically viable life. So investors demand a high risk premium to invest in nuclear power.

3. As a result of all this development has been slowed. Costs are much higher than they could and should be. The plants are not as advanced as they would be if development had not been impeded. And global CO2 emissions are about 10% to 20% higher than they would have been if the anti-nukes had not been so successful at thwarting the development of nuclear power from about the 1970s on.

Q2. What measures would you suggest to make it a reality?

First, I'd suggest the US Administration needs to get rid of their anti-nuke energy and science advisers and appoint appropriate, unbiased, competent (for the role), advisers to those important and influential positions.

Second, I'd set out to educate the population and get them out of their paranoia about nuclear power. Explain that it is the safest way to generate electricity and why. Work to get at least one of the major Enviro NGO's to take a leading role. Once the President wins over one of them, the flood gates will burst. A good US administration, working with the Europeans, could largely reduce the nuclear paranoia in a decade or so.

Third, I'd suggest the USA should negotiate with the other IAEA countries to get their IAEA reps to reset the radiation limits to scientifically justifiable levels: see this short brochure for a quick overview of this issue: http://home.comcast.net/~robert.hargraves/public_html/RadiationSafety26

Fourth, redirect the NRC. Change its role so that it no longer acts as what has been dubbed the 'Nuclear Rejection Commission'. Get it operating like other regulatory bodies so the licencing costs and delays are in proper balance with competing technologies that cause 150 to 600 times more fatalities per TWh of electricity supplied: <http://nextbigfuture.com/2012/06/deaths-by-energy-source-in-forbes.html> .

Fifth remove all the impediments that are doing more harm than good. Impediments are:

1. Legislated
2. Regulatory
3. Licencing (costs, delays and excessive caution/bias against new technologies)
4. Education (misrepresentations, anti-nuke propaganda)
5. Lack of commercial competition (between vendors and countries)
6. Investor risk premium due to all the above

Q3. And why are you confident it will lead to substantial emissions reductions?

Because free markets virtually always succeed. They've been succeeding for the past 10,000 years, and perhaps for over 100,000 years. They are self-sustaining.

In the case of the nuclear example, nuclear is inherently much cheaper technology than anything else (because of its high energy density). We have only just begun the path of where that will lead as development progresses. But we've delayed it, just like we delayed the motor car by requiring a man walk along in front of it to warn horse-drawn carriages of its approach.

At a 10% cost reduction rate per doubling of world-wide capacity, small modular nuclear reactors, like the 'mPower', would be half the cost of

electricity generated by new coal plants in Australia (in 2012 A\$) by about 2050 assuming a doubling of world capacity every 2 years (or by 2060 with a capacity doubling every 3 years) – big assumptions, but once nuclear power is significantly cheaper than the alternatives it will be in all electricity industries' and consumers' interests to replace existing fossil fuel plants with the cheaper, safer, cleaner modular small nuclear power plants.

Q4. I'm not totally clear what you are suggesting so it is hard to respond. Thanks.

The above is a short sketch. I hope it provides at least a partial, but brief, answer to your questions.

There are many other solutions as well. For example, with cheap electricity from nuclear power plants we can make unlimited, emissions-neutral transport fuels from sea water (diesel, petrol, gasoline, aviation jet fuel).

To achieve this we need to remove the impediments to appropriately free-ish markets. Remove the market distortions we've been imposing over a century or so. Free-ish markets invariably succeed and survive. They do not require a UN bureaucracy and police force to make them work. They don't need an expensive compliance regime and emissions monitoring system. All that can be avoided. There would be no need for a UNFCCC once it is established. There is no need for binding international agreements like Kyoto.

What a joke Kyoto was. What are the chances of such agreements lasting a decade, let alone a century? Get Russia to sign up, Oh, yea! :)

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July 25, 2014

Eric Peterson says:

Like it?

1

As I follow a Chevy 454, in my Prius that gets over 40 MPG, with dual fuel tanks that is jacked up to ford a 3 foot raging river going to Safeway to buy some beer, I find it to be very disconcerting about the future.

I admit I have owned a vehicle like this, to tow a trailer for business. I could and would find another way today.

We try to do everything with our transportation in the USA. I should know since my childhood, teenage years and all my adulthood has very much centered around vehicles.

I find that society as a whole has not been very concerned with efficient use of energy. We have decided that where we work and where we live have to many miles away. The idea of having business and living next to each other has been discouraged because it does not promote economic growth, but it does promote efficiency.

I have nothing against a jacked up pick up if it has a purpose. I have a lot of problems with zoning that does not permit housing with business so that people can live and work. Commuting is an old idea today. Commuting is not necessary and should be discouraged.

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July 25, 2014

Peter Lang says:

Like it?

3

Jesse,

It's not politics that gets in the way of carbon pricing. It's rational analysis. Rational analysis shows the 'Expected Value' of carbon pricing policy is low or perhaps even negative. The reason is that the probability of success of carbon pricing policy is low.

What those who quote the work of economists who argue for carbon pricing are missing is that the assumptions that underpin the carbon price modelling are unlikely to be achieved in the real world.

William Nordhaus and Richard Tol, two of the leading economists in the field, have shown that unless there is a high participation rate, the cost to the participant would be very high (e.g. 250% cost increase for participants if participation rate is 50%) (See Figure 1 in Submission 2 here:

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_). But even 50% participation across the world is effectively impossible in the next half century. Participation in the EU ETS is only 46% (i.e. the proportion of EU's GHG emissions included in the ETS). If that's all the EU ETS can achieve now, how long before they could achieve an 80% participation rate. And how long before the whole world, including countries like Eritrea, Ethiopia, Mogadishu and Somalia, could achieve 80% participation rate in their countries - i.e. the emissions from every cow, sheep and goat are included in the carbon pricing scheme?

Richard Tol's article here explains how game theory shows why there is very low probability of carbon pricing succeeding under such conditions: <http://www.voxeu.org/article/global-climate-talks-if-17th-you-don-t-succeed> .

As mentioned above, the flaw in the argument of those advocating carbon pricing is they don't seem recognise or they ignore the fact that the assumptions used in the carbon pricing models are highly unlikely to be achieved.

"Some of the key assumptions that underpin the economic analyses are:

- There will be negligible leakage (of emissions between countries, between industries and between emissions sources)
- All GHG emission sources are included (all countries and all GHG emissions in each country)
- There will be negligible compliance cost and negligible fraud
- There will be an optimal carbon price and the whole world implements it in unison
- The whole world acts in unison to increase the optimal carbon price periodically and will continue to maintain the carbon price at the optimal level for all of this century (and thereafter).

If these assumptions are not met, the estimated benefits of carbon pricing would not be achieved."

Source: Submission 2:

http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_

It is clear that carbon pricing is highly unlikely to succeed. Any country or region attempting it will be damaged economically and receive no benefits (in terms of climate damages avoided). Therefore, it seems to me, carbon pricing cannot be justified on rational grounds.

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July 26, 2014

Lewis Perelman says:

Like it?

1

Good observation, Peter. Complements what I said earlier.

Of course the reason the analysis you present shows that carbon pricing is unlikely to work is because it is politically unrealistic. As you note, it presumes a degree of political conformity that has proven effectively impossible to achieve, and that is no more likely to be attained in the foreseeable future.

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July 25, 2014

Peter Lang says:

Like it?

1

Comment removed by Peter Lang because of many typos. Reposted above.

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July 25, 2014

Lewis Perelman says:

Like it?

2

Nice survey of the conundrum, Jesse.

Let me point out for all that Resources for the Future and the Petersen Institute for International Economics have hosted interesting workshops/seminars where multiple analysts have chewed over the carbon pricing problems.

A summary of a workshop "Fiscal Reform and Climate Protection: Considering a U.S. Carbon Tax" sponsored by RFF and PIIE (no recordings unfortunately) is here: <http://j.mp/1w90Zho>.

This page has access to a report by RFF on The Role of a Carbon Tax in Tax Reform and Deficit Reduction as well as audio and video (link was broken today but may be restored) of a seminar discussing it: <http://j.mp/UqRuLG>.

What I take away from these protracted discussions, along with Jesse's present assessment, is that pricing carbon via tax or otherwise is one of those academic nostrums that seems to make eminent sense in theory but that has little to no feasibility in the real, contemporary world.

I confess, BTW, that I have not been immune to propounding such idealized fixes myself. In the 1970s, my paper proposing a renewable resources trust fund, financed via a tax on fossil fuels as well as other nonrenewable resources, was a finalist for the Mitchell Prize. (Lost out to John Holdren.) It was later published in a book: <http://j.mp/1qcCXxY>

My young brain was still partly saturated in those days with the welfare economics I had studied extensively in graduate school. Live and learn, as they say.

One thing I learned, particularly from subsequent experience working in/for government, is that internalizing externalities is far easier said than done.

In this particular instance, the case for pricing carbon stands on shaky legs, even before considering dynamic political resistance.

For one thing, it presumes that the "social cost of carbon" -- on *climate* -- can be known and measured. Without getting into an exhaustive deconstruction of the substantial, inherent uncertainties in climate science and models, the fact is that measuring the tangible impacts of carbon -- that is, GHG and other industrial effluents, some which are not even carbon -- is extremely difficult and unreliable. Projecting climate trends and therefore impacts into the future is even more unreliable, and effectively impossible at the granular regional or local levels at which tangible effects would have to be assessed.

Related to those uncertainties is the dilemma of iatrogenic illness. That is the treatment that winds up doing more harm than the disease it aimed to cure.

A carbon tax by itself solves nothing, nor is it intended to. Its rationale is to skew markets so that alternative, "carbon-free" energy sources achieve price parity or superiority to conventional fossil fuel options. Those alternatives are in effect medications that proponents think the body politic needs to take to "cure" the disease of AGW. The carbon tax is sort of a sugar coating aimed to make the medicine more palatable -- by making the candy, food, etc. people now are ingesting taste worse.

But there is, in reality, little clinical experience to "prove" that those recommended medications are both safe and effective. Indeed, as Miller, Cloete, and others have demonstrated repeatedly in this forum, the efficacy of many of those prescribed treatments is not so clear, while they come with their own negative side effects, or "externalities."

Related to that is the possibility that the cure for one malady may actually increase the patient's vulnerability to another, equally or more debilitating one. In economic terms, this might be construed as opportunity costs. This is not merely a hypothetical problem.

Consider, by analogy, the chemotherapy treatment that effectively destroys cancer tumors, but so damages the immune system that the patient is crippled or killed by infectious disease. That the consequences may be unintended does not make them more tolerable.

Actually, the Copenhagen Consensus Centre has sponsored multiple analyses by leading economists to remind the public and politicians that budget priorities come with opportunity costs -- a fiscal version of iatrogenic illness. Starting with the reality that governments/economies have only limited discretionary funds to invest in solving a multiplicity of problems, the CCC analyses have assessed what the relative benefits and costs would be of a fixed amount of money -- say, \$70 billion -- allocated among several alternative programs aimed at improving social welfare.

Among other things, these analyses have shown that "climate protection" schemes aimed at inducing lower GHG emissions have much higher costs and yield much lower benefits than do several other ways of making the world better off. In particular, they show it is (or would be) more cost-effective to invest in solving problems associated with AGW "externalities" directly -- e.g., by reducing the incidence of malaria by providing mosquito nets and also investing in vaccine development in the near term -- than by curtailing global warming decades in the future, thereby marginally curbing the conjectured spread of malaria or other "social costs" much later rather than ameliorating such problems now.

Putting all that aside, we come to the imposing problems of implementing the proposed internalization scheme. In Jesse's assessment (among others) the supposed "willingness to pay" already seems far too small compared to the behavior-changing prices required. I suggest that the survey data used to gauge such willingness likely overstate it considerably. The simple reason, as sages through the ages have noted, is that "talk is cheap." Social scientists know, actually, that survey respondents will commonly say things they think are socially/politically acceptable that they don't really mean. New Year resolutions, not to mention marital vows, are among the many intentions people express that more or less exceed subsequent behavioral implementation.

Some hope to finesse that barrier by proposing a revenue-neutral tax that would either

be refunded or reallocated to yield no increase in the overall tax burden. But the political palatability of that scheme hinges on the public's trust that that promise would be kept, that it's not a bait-and-switch finagle or other kind of manipulative deception, and moreover that the initiative will yield the promised benefits.

But those assumptions don't conform to the harsh political context that exists today. Consider that we recently observed the 50th anniversary of the passing of the landmark Civil Rights Act during Lyndon Johnson's administration. At that time, surveys showed that some 70% of the American public trusted government to do the right thing most of the time. In the course of the subsequent Vietnam War, that degree of public trust eroded down to around 30%. Today, expressed public trust not only in government but many other institutions is at historic lows. And not just in the US but most of the world as well.

The endemic cynicism resonates with the old joke about the three biggest lies: (1) That was my wife. (2) The check is in the mail. (3) I'm from the government and I'm here to help you.

Moreover, recent Pew Trust survey research shows that the political polarization that has calcified government into gridlock is intensifying in the US: Voters are migrating toward more rigid, intransigent Left and Right ideological positions. This ominously recalls Yeats: "Things fall apart, the center cannot hold."

Finally, while I am sincerely looking forward to the next parts of Jesse's essay, and his proposals, we need to consider whether it is realistic to expect the US federal government to do anything about much of anything for the foreseeable future. It really seems not.

Nor is that just personal pessimism. It is the view that seems to have taken hold among the most passionate, committed political activists. Tuesday's Washington Post reported this:

Code Pink activists have gone through the cost-benefit analysis and determined that making a scene outside of the Capitol isn't worth it. Congress, it seems, has gotten so pathetic that even the protesters aren't bothering to show up.

There is more here: <http://j.mp/1kej2QE>

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July 24, 2014

William Hughes-Games says:

Like it?

2

As long as companies and individuals are allowed to contribute to political parties, this, and a whole raft of other problems, will not go away. It sounds expensive at first glance to provide politicians with a set amount of money for their election campaigns from the public purse, but it would be far cheaper than the true costs of the present system. Jim Hansen has proposed the best system of Carbon Tax that I know of called Tax and Dividend but despite it being an election winner for any party that proposes it (who could resist getting a dividend in their bank account every month from 'the man'), no party would dare anger their financial masters by proposing it. *Foundation* by Azimove had a grain of truth amongst the science fiction. Namely small actions at a critical juncture can have huge consequences and here the action needed is to make it illegal for anyone to contribute to a political party. The system is corrupt and may even be compromising our survival.

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July 24, 2014

Like it?

0

Jesse Jenkins says:

The influence of money in politics is clearly another manifestation of the political obstacles arising from entrenched commercial interests. However, you write: "Jim Hansen has proposed the best system of Carbon Tax that I know of called Tax and Dividend but despite it being an election winner for any party that proposes it (who could resist getting a dividend in their bank account every month from 'the man'), no party would dare anger their financial masters by proposing it." I will discuss this proposal in more detail in Part 3, but I just wanted to clarify, there not great evidence that this is such a political winner. The dividends do soften public opposition (from voters) to carbon pricing (relative to using revenues for general budget purposes) but two things to keep in mind: 1) it's not a dividend "from the man," it's a refund from taxes we would each pay ourselves. As a per capita dividend, it would be a progressive redistribution of carbon revenues, but it's still something we all have to pay, and the initial hit to our pockets is where the public opposition arises. 2) the dividends do nothing to blunt industrial opposition to the proposal, as they don't get any money back. This is a key difference between the cap and dividend proposals (100% of revenues go back to citizens via equal per person dividends) and other "tax shift" propoposals which would use revenues to reduce income *and* usually corporate taxes as well (as in BC and Australia). Anyway, stay tuned for Part 3. How the revenues from a carbon pricing policy are used can be more important than the price itself, but I'm not convinced rebates, dividends, or tax shifts are the best use for such funds. See part 3 on what I see as a much superior proposal, politically, environmentally, and economically...

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July 26, 2014

Like it?

1

Alistair Newbould says:

Your point 2 emphasises the problem. In theory it is individuals who elect government not industries. So only when industries influence (financially support aka bribe) politicians dose this point have any influence on the ease of implementing such a tax.

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July 25, 2014

Like it?

2

William Hughes-Games says:

There is a danger, that if the government gets their hands on the revenue from a carbon tax, that they will get used to this added stream of income and be reluctant to forego it. As Parkinson says, expenditures increase to use up any increases in income. In addition, by giving an equal share of the tax collected, to every citizen (I would suggest rather to every registered tax payer as the data base already exists) the poorest amongst us gets money in pocket which we

immediately spend just to keep our heads above water. This is a great economic stimulus and comes back to the government in taxes after three or four financial transactions. It is a little like leagizing Pot and then taxing it. If you ring fence all the tax to educate people on the dangers of Pot as is done with tobacco, this is fine. If, however the government gets to put this revenue wherever they want it, there is an incentive to keep selling Pot for the revenue stream. There is a lot of psychology involved in changing people's behaviour. Another advantage of Hansen's system is that you can start with an insignificant rate of tax - let's say for the sake of the argument 0.1% and it will still be effective while not making a blind bit of actual difference to the price of goods. Since part of the system is to make the tax increase a little each year - say a jump of 0.1% each year - people with fossil fuel shares will want to divest from them and get into renewables before fossil fuel shares start to lose value. Their very divestment will start the slides and likely lead to more divestment. A further advantage is the simplicity of the system and hence the greater difficulty of scamming the system. Hansen's system can be expressed on half of one side of a piece of A4 paper. The American proposal for Cap and Trade goes to something like a thousand pages. This is an invitation to big corporations to find ways to circumvent the system.

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July 24, 2014

Like it?

3

Bob Bingham says:

Dressing the article up with graphs and calculations is misleading as this subject is simply a brutal struggle of power and money. A climate tax is designed to reduce coal to almost nothing and oil by 50%. Unsurprisingly this is not popular with those industries who just happen to be loaded with money and freinds in high places. We are at 400 parts per million and have locked the climate into changes that are going to destroy our way of life but we will have to wait untill a lot of powerfull people are feeling the pressure before we take any notice.

<http://www.climateoutcome.kiwi.nz/clean-energy-alternatives.html>

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July 25, 2014

Like it?

0

William Hughes-Games says:

Short, pithy and very much hitting the nail on the head.

Share this comment:

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July 26, 2014

Like it?

0

Alistair Newbould says:

Perfect William! and thanks for the link Bob.

If we can educate enough people we can bypass carbon tax and vested

interest and capital tied up in the carbon economy. We simply have to define a carbon budget for ourselves and live within that budget. Take the \$ out of the equation completely. Then the day to day decisions change - I am going to cycle to the shops today, not because petrol is \$2.20 a litre and my truck uses 12 litres per 100 km, but because I can't afford the carbon expense.

So what is needed is a carbon budget and a way to accurately define the carbon cost of day to day activities. Surely not so difficult.

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July 24, 2014

Like it?

1

Marchant Wentworth says:

These economic graphs are helpful. But in my mind, certainly one primary reasons for no serious political interest in a carbon tax has to do with not only the lack of needed support in House Ways and Means and the leadership, but lack of a clear pathway to get the numbers needed to report a bill. There are presently 39 members on the committee which means, assuming it gets out of subcommittee, 20 would need to support it. This might mean all 16 Democrats -- which in itself would be a challenge -- and then gaining through some mysterious process 4 additional Republicans. This would be a tall order, assuming the House leadership would even allow it to continue. What needs to happen long term is to put together a coalition that can sell this as the "least bad" of the legislative climate solutions out there. In the interim, the Obama administration should continue to vigorous regulatory proposals that would demonstrate it is possible to craft solutions incentivizing renewables and energy efficiency that need not cause the catastrophies touted by opponents of taking any action and may also save consumers money and create jobs.

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July 24, 2014

Like it?

2

Jesse Jenkins says:

Hi Marchant,

The inside-baseball dynamics on the Hill clearly play in here too. I've seen enough legislative efforts to know how that works and I don't mean to neglect those factors. In my view, however, they are the secondary constraints. If the primary political economy constraints are not attended to, the chances of having any requisite support on the Hill will be slim. In contrast, if the primary political constraints are attended to and not violated, the inside baseball can progress and a viable Hill strategy, as you discuss here, can be developed.

Jesse

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July 24, 2014



Capt D says:

Like it?

0

RE: "Why Does Politics Keep Getting in the Way of Pricing Carbon?"

My simplistic answer is that those responsible for making political decisions are being told by their BIG donors what is best for US (read Big Business) and what is best for each of them is not what is best for their other Big donors or the US economy as a whole, and especially not what is best for the majority of Americans that want a clean future for their children and their children's children.

Therefore we are left with a situation where:

1. The BIG Corporate players are not happy since they will have to settle with new expenses that they cannot easily pass along to their customers and therefore will affect their bottom lines.
2. The middle class is already being squeezed in today economy, so the idea of happily accepting an increase in the cost of already record high energy prices will be a bitter pill to swallow.
3. The poor, many of which do vote, see this as yet another scam to put them even further into debt.
4. The young, especially the affluent young, realize that they will be the ones stuck with dealing with an ever poorer quality of life due to both environmental and climate change issues; therefore the sooner we do something about it the better and less expensive IT will be for everyone.

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July 23, 2014

Bob Meinetz says:

Like it?

4

Jesse, not a word about a revenue-neutral carbon tax, or better: the fee-and dividend system proposed by James Hansen, which [addresses](#) every political and economic constraint you cite above.

The basic proposed structure is:

1. A fee is charged at the point of origin or point of import on [greenhouse gas emitting energy \(oil, natural gas and coal\)](#).
2. The fee is progressively increased.
3. The fee is returned to households equitably and in full.

A revenue-neutral tax (tax credit variant of fee-and-dividend) has [reduced](#) gasoline consumption in British Columbia by 17% in under five years. Maddeningly simple but effective, it's like aspirin for our globe-ache.

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July 23, 2014

Jesse Jenkins says:

Like it?

0

Bob, stay tuned for part 2...

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July 23, 2014

Like it?

**Jesse Jenkins says:**

1

My original part 2 got quite long, so I split it up into two more. Part 2 goes up Thursday AM, but it only touches on the revenue neutral proposal briefly. Part 3 will deal with it -- and alternative uses for revenue that appear to perform even better politically, economically, and environmentally -- in much more detail. Stay tuned for Part 3 on Monday!

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July 22, 2014

Joris van Dorp says:

Like it?

12

Jesse, you've done us all a great service. Your article helps focus out attention on the fact that the cost of co2 reduction is so high that it prevents a solution to the problem. This fact is known to experts, but not to laymen, the public and the politicians. Hopefully, your excellent article helps our understanding.

For me, your article helps redouble the importance of **cost-effective** co2 reduction measures. This is a point that is made by many experts including Dr. James Hansen, but also many in the climatescience 'skeptic' field. This is precisely why the advancement and deployment of nuclear energy is so important. Nuclear energy offers the prospect of large-scale co2 reduction **without** additional costs compared to fossil fuels. That is why nuclear power can help solve AGW whether the world agrees on a 'high enough' carbon price or not.

Anyone who believes that establishing a high enough price for carbon would be politically and/or economically unfeasible should love nuclear power, because nuclear power renders the question of how to achieve a high enough, reliable enough and international co2 price to protect future generations largely moot! All nuclear needs is political rehabilitation based on sound science. Nothing more!

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July 22, 2014

Joris van Dorp says:

Like it?

9

Schalk, I agree that putting a price on future global warming and/or future damages from global warming would bring the discussion on co2 emission reduction to a higher level.

But I don't agree that McKitrick's proposal would do this. Quite the contrary.

I would also remind you right off the bat that Ross McKitrick (together with Steve McIntyre) was one of the most important voices **denouncing** the 'hockeystick' visualisation of the global surface temperature history in the early 00's, even though the 'hockeystick' was later **proved to be correct**. Neither Ross McKitrick nor Steve McIntyre ever acknowledged their **mistakes**. Both of them are clearly "merchants of doubt" with respect to climate science and their proposals need to be subjected to particular scrutiny, lest humanity loses even more time as a result of their antics.

So what is McKitrick proposing exactly? He wants to introduce a carbon price that is tied to global temperature. In itself this looks selfdefeating, as it would mean that the carbon price would only rise if warming takes place, even while the purpose of co2 pricing is to **prevent** further warming in the first place. So on the outset, it is clear that McKitrick is not trying to help prevent global warming. He is trying to prevent action, by introducing a tax system that would **only** reward investment in co2 reduction

measures if warming is **not** successfully prevented! Clearly, this will do **nothing** to help fight AGW.

Next, McKittrick is proposing to measure global warming by using the tropospheric temperature as an indicator. He claims this is a good indicator of global temperature response to co2 emissions. That may be, but it isn't a practical indictator, or at least is has not been in the past. Measuring tropospheric temperature has proved to be very difficult in practice and a definite warming trend is only recently beginning to emerge. In comparison, surface temperature measurements **have long shown** a clear warming trend (which McKittrick et.al. continues to deny even though his ridiculous claims of no warming have been totally laid to waste scientifically for more than a decade now).

So why does McKittrick choose the notoriously difficult to measure tropospheric temperature rather than the easily measured surface temperature? Probably because his aim is not to advance sound co2 reduction policy. His aim is to confuse and kneecap good co2 policy. It always has been.

In the video, McKittrick is seen to be claiming that tropospheric temperature has fallen over the last decade. This is not a scientific claim. In fact, the tropospheric temperature record is so poor that a definite conclusion about it's direction is only recently emerging (and it is up, not down). What is clear is that the record is **not in fact robust enough** to claim that no warming has taken place. If anything, the best (re)analysis of the record indicates warming, not cooling. Another dead giveaway that McKittrick's objective is not to help reduce co2 emissions. Quite the contrary.

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July 22, 2014

Schalk Cloete says:

Like it?

5

I completely agree with what you are saying. My endorsement of the McKittrick proposal is for the principle of creating a mechanism for investment into climate change predictions, thereby giving an opportunity to people on both sides of the debate to invest in their climate views. The resulting CO2 futures price would then constitute an objective free-market consensus on future climate impacts and would be a very valuable outcome in itself.

If you look at the final part of my draft article on this topic you will see that I would like to see improvement both in terms of the objective measure of climate change being used and in the incorporation of future damages into the current price.

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July 22, 2014

Joris van Dorp says:

Like it?

5

By the way, I don't believe that creating a market-mechanism for investment into climate change projection is going to lead to better quality projections. The problem is that there is only one way to determine which projection is the most accurate, and that is by observing

the global warming that actually occurs after the fact. Hence, receiving payment for accurate projections will need to occur in the future as well. Until that future arrives, the only way to determine which projection is most accurate is through continuous scientific method and dialogue.

We are already doing that now, through our national science institutions and arguably our confidence in the role of CO₂ is more than enough to warrant urgent action. [All National Academies of Science have already determined years ago that urgent action is needed now](#). So what needs to change, exactly? Why the need to attract private investment in climate science projections?

I guess at this point I could add that McKittrick's proposal contains another favorite denialist talking point, namely the denialist propensity to disparage publicly financed research as somehow inferior to research financed by private actors. Nice one McKittrick! Got it all rolled up again in one dispensable package, didn't you?

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July 22, 2014

Joris van Dorp says:

Like it?

8

I still not sure I understand what you are saying Schalk.

The purpose of any CO₂ price or tax is to **prevent** further global warming and its resulting economic and ecological impacts. Hence, it would be utterly pointless to base the (future) price of carbon on climate change impacts, because the price needs to be high enough to **prevent** such impacts in the first place.

For example, let's use the case McKittrick himself notes: a factory developer deciding whether or not to invest in low-CO₂ emissions technology now. The developer might trust climate science and believe that CO₂ emissions need to be reduced to prevent warming, so he wants to invest in CO₂ emission reduction. However, he has to presume that his competitors will likewise conclude that climate science is correct and will likewise invest in CO₂ reduction. Hence, he will need to assume that CO₂ emissions are successfully reduced and that global warming does not follow the BAU scenario. However, as soon as he concludes this, his investment in low-CO₂ technology becomes a pointless expense. He will not benefit from a lower carbon tax since the tax will not rise if global warming is successfully stopped. So his final decision is to skip the investment. But in that case, he should presume his competitors will also not invest.....! So does McKittrick really help the business sector decide on whether or not to invest in CO₂ reduction? Not at all! In fact, it creates far more uncertainty than would a fixed carbon price.

What we need to do is calculate the impacts of future climate change under a BAU scenario, and then apply that price to carbon **now** in order for the BAU scenario to disappear. What McKittrick is proposing is the complete opposite of this, namely, a system whereby investments in CO₂ reduction **only** pay off if impacts **do in fact** materialise, which is exactly what we **do not** want.

It all seems very clear to me. I am very puzzled as to why you and I continue to appear to be in disagreement over the (potential) merits of McKittrick's proposal. In my view, McKittrick's proposal fits nicely in with his long-term crusade against climate science and -policy. I don't see how his proposal could be made to work in any way shape or form. I believe we need a sufficient CO₂ price **now** - not in the future - and certainly not after climate impacts have become undeniably manifest. That would be far, far

too late.

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July 23, 2014

Like it?

0

Schalk Cloete says:

Two points:

1. The CO2 prices necessary for the 450 ppm trajectory are a matter of complete political impossibility at the moment. Pushing for this CO2 price to be implemented as a tax is not going to lead to much more than continued stalemate. Jesse's research shows that this is mostly due to economic interests. My feeling is that it is primarily because climate change is not yet perceived as a real and tangible threat by the majority of the electorate. Regardless of the fundamental reason, it is fairly safe to say that pushing for sufficiently high CO2 prices to be implemented by all major polluting countries is going to be a long and frustrating process. We don't have that kind of time.

2. The purpose of a CO2 price is not to "prevent further global warming". The purpose is to ensure that the marginal costs of climate change don't exceed the marginal benefits of cheap fossil fuel combustion. This makes the estimation of the correct CO2 price incredibly difficult. Not only must models predict future climate damages under different CO2 pricing trajectories decades into the future, but they must also predict future economic growth under these CO2 pricing trajectories. Lower CO2 prices will likely result in higher growth which allows us to discount further damages at a higher rate. The complexity of this modelling challenge is the reason why estimates of the social cost of carbon vary over an order of magnitude or more. We cannot expect of our political systems to deliver a reliable CO2 price if the magnitude of this price is so tremendously uncertain.

The McKittrick proposal essentially addresses these two concerns. Firstly, it is a CO2 pricing scheme that can also win support from the skeptic (or luke-warm) community. Secondly, if structured correctly (where the price is not linked to the observed temperature rise, but to the future expectations of the market), it will deliver a single value of the CO2 price at any given time which can be viewed as the free market consensus, i.e. the price is set by the free market. People generally have more faith in the free market to price things than the government, thereby making this pricing scheme much more feasible to implement.

The shortcomings you outlined above can potentially be addressed while preserving these positive attributes. It just requires some willingness to actually build a business case for CO2 pricing (i.e. that there is real and direct money to be made in correctly predicting the trajectory). With every year of much talk and little action, I grow more convinced that trying to enforce a fixed CO2 tax (or CO2 emissions trajectory) on society is not going to work until we see much clearer and directly attributable negative effects of climate change 1-2 decades into the future. This delay can be very costly.

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July 26, 2014

Like it?

0

Alistair Newbould says:

"My feeling is that it is primarily because climate change is not yet perceived as a real and tangible threat by the majority of the electorate."

Agreed. and whilst we can all try to understand the intricacies of carbon taxation (I have to confess to getting lost fairly early in the article) our main job is to engage anyone and everyone in the discussion and convince them of the impending danger. Become "climate bores".

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July 21, 2014

Like it?

4

Max Kennedy says:

Jesse, your 1st tricky challenge to mitigate climate change ignores one key fact, the so called principle agents have benefited the most over the last hundred years and the poor nations have born an uneven share of the harm. For them to complain they must bear the burden of fixing the damage they have profited from is arrogance in the extreme!

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July 21, 2014

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16

John Miller says:

Jesse, as you are very aware most people generally 'poll' green but often are not willing to pay or vote green when the actual cost could become a significant Household burden. Over the years I have studied and evaluated many options to replacing fossil fuels with lower/zero carbon alternatives. On average the fully amortized cost appears to be an average of close to \$100/MT. Based on average U.S. Household carbon emissions of 34 MT/yr. and incomes of \$52K/yr., this added 6.5% annual expense can be fairly difficult sell or persuade the average Household Head that it is justified (in the short term).

Another factor to consider is the probability of different climate change projections actually developing and the accuracy of the published estimated social carbon costs (SCC). The one gap I consistently observe when trying to analyze SCC studies and validate some of their assumptions/conclusions is the omission of the 'social and economic value' of current carbon consumption. Can you provide any reasonably balanced analysis references that also address current social/economic values provided by carbon consumption?

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July 22, 2014

Like it?

5

Joris van Dorp says:

"Can you provide any reasonably balanced analysis references that also address current social/economic values provided by carbon consumption?"

For what it's worth, I've read an analysis some years ago (cant find it anymore im afraid, but perhaps other here know it) which concluded that the utility of cheap (fossil fuel based) road transport is by itself responsible for about 40% of all wealth created on earth since the development of the internal combustion engine. In other words, take away cheap road mobility and the economy would be only 60% as large as it is today.

While the link between fossil fuel usage and cheap road transport is not 100%, it is large enough for us to have high confidence that the benefit to humanity of using fossil fuels (for this purpose at least) is extremely large. Arguably, it is far higher than the expected damage due to climate change for decades or even centuries to come. This is not a pleasant thought, because it support the conclusion that damaging the climate by continuous co2 emissions is in fact in our best interest for some time to come.

As it stands, in my opinion, the climate would have to be damaged to a very significant degree for humanity to experience so much damage that the benefit of using fossil fuels (for cheap road transport) is overshadowed. So in my opinion we should not think of the problem in terms of "fossil fuels vs climate protection". We should protect the climate **and** maintain the utility currently provided by cheap fossil fuels. This can be done by switching from fossil fuels to a **cost-effective** alternative. That would be nuclear energy!

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