



Insight

Primer: Understanding Common Assertions about Climate Policies

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Climate policy proposals typically come with a host of claims about the beneficial effects of the policy and the harms of inaction, but many of these claims are exaggerated or misdirected. This primer examines some of the most prominent claims and analyzes the data undergirding them.

Do Climate Policies Create Economic Growth?

“The goal is to create 10 million new jobs over the first 10 years through employment and training programs associated with Green New Deal grants and projects.” —[Data for Progress](#), [Green New Deal](#)

Many climate policy proposals, such as the version of the “Green New Deal” referenced above, boast that they will create jobs or, more generally, produce economic growth. This claim is misleading at best.

The Broken Windows Fallacy helps to explain why this claim falls flat. The name comes from the idea that someone could stimulate the economy by smashing windows, because window repairmen would make more money, and they would then spend the money elsewhere. But this theory is only observing half of the equation: the output, in this case of money to repair the window. Equally important, however, is the input. The money that was spent to repair the window had to come from somewhere else, reducing the spending elsewhere in the economy.

The Green New Deal as a job creator is similar, because each dollar of capital and each laborer requisitioned to the new policy outcome represent a dollar and laborer taken from somewhere else in the economy—on net there is no benefit. Where does the capital to supply those jobs come from? Where would it have been otherwise? As a rule of thumb, we assume that holders of capital are seeking profitable ways to invest it. For a government policy to create more growth than non-interference, the government would have to be better at identifying opportunities for wealth creation than the private sector—[something we know is not true](#).

Read More:

[We Need to Cut Carbon Emissions Without Killing Economic Growth](#)

[President Obama’s Environmental Legacy](#)

Do Mandates to Buy Clean Energy Save Money?

“A homeowner will save \$19,000 over the course of a 30-year mortgage,” –Drew Bohan, Executive Director of the California Energy Commission, speaking on a regulation that all new homes be built with rooftop solar panels (Source: [National Public Radio](#))

Policies that mandate demand for solar power or other renewable energy are commonly justified by comparing the cost of the renewable energy to an alternative and showing a cost saving. There are two problems with this approach to policymaking.

First, it assumes that private entities are incapable of identifying those opportunities on their own. The opposite is true: Private investors, and especially banks and insurers, are very good at identifying opportunities for cost savings. Not every home has a solar panel because the potential for savings is determined by a variety of factors, including local electricity costs, tree cover, and which direction the building faces. A blanket requirement captures little benefit because we assume people are already taking advantage where possible, and it simultaneously imposes costs on people for whom the switch is not net-beneficial.

The second and more important problem is that these policies ignore the market response to the mandate and thereby drive up prices. The mandate forces an increase in demand, but it does not on its own increase supply. Thus, the price of the product will increase. Even if the price does not rise immediately, it will be higher in the future relative to the price with no mandate, because the policy steers demand away from the most efficient place. Without the mandate, all technologies must compete for market share, and the best way to acquire more market share is to improve productivity and produce more at a lower cost. A mandate, by entrenching certain technologies, secures for certain suppliers a greater market share without any increase in productivity, undercutting the market’s basic incentives.

For a real-world example, consider the Renewable Fuel Standard (RFS). This policy mandates that ethanol must be blended into the gasoline supply for both environmental and energy security purposes, artificially driving up demand for ethanol. Past American Action Forum (AAF) research indicates that the RFS imposes roughly [\\$4-\\$16 billion of cost](#) each year from the energy efficiency loss alone. If the cost of increased demand as a result of the regulation is included, that figure rises by another [\\$5.8-\\$19.3 billion](#) each year.

Simply, a policy mandate forcing a purchase is certain to increase costs. It cannot reduce costs unless there is a market failure being remedied.

Read More:

[California’s Renewable Portfolio Standard is Going to be Expensive](#)

[The Renewable Fuel Standard’s Policy Failures and Economic Burdens](#)

[Energy Efficiency Regulations Impede Clean Energy Growth](#)

[Mandating Rooftop Solar Power Will Cause More Harm Than Good](#)

Will Climate Change Cripple the Economy?

“A new US government report delivers a dire warning about climate change and its devastating impacts, saying the economy could lose hundreds of billions of dollars – or, in the worst case scenario, more than 10 percent of its GDP – by the end of the century.” –Jen Christensen and Michael Nedelman, CNN

It is absolutely true that climate change will have an economic cost, but any description of this cost requires careful nuance and qualifications. First, it is important to understand the best estimates of the magnitude of the costs. The commonly cited 10 percent figure is an extreme estimate derived from a single chart in the recent [National Climate Assessment](#). The author of the referenced study, though, said that the 10 percent figure “mischaracterizes” the study, which shows that a cost of roughly 4 or 5 percent of GDP by 2100 is more probable, or about 1-2 percent of gross domestic product (GDP) per degree of Celsius temperature rise (By comparison, health care currently consumes 18 percent of GDP). In terms of budgetary impacts, the Congressional Budget Office estimated that climate change will increase taxpayer liabilities by 0.06 percent of GDP annually by 2075.

Despite the cost impositions of climate change, though, there is little in the realm of frequently discussed policy that would moderate that outlook. Climate change is fundamentally a global collective action problem, so abating the potential consequences means that other nations need to reciprocate U.S. climate policies. The United States’ share of global emissions is a (shrinking) 16 percent, being overtaken by faster-growing and energy-hungry developing nations. The answer to “will climate change impose costs?” is yes, but the answer to “will domestic climate investments abate those costs?” is no.

Considering the above information, it creates an interesting dynamic for public policy. If one assumes that the United States and other countries will not be successful in compelling other nations to act on climate, the more cost-effective policy is to favor adaptation over emissions abatement. If one believes that China and other major emitters are merely waiting for the United States to act first, then one would believe that domestic mitigation will be a successful policy—but the history of international climate agreements (the Kyoto Protocol and the Paris Agreement) have not demonstrated any evidence to that viewpoint.

Read More:

[The Paris Agreement: To Stay or Not to Stay?](#)

[The National Climate Assessment](#)

Does the Benefit of Reducing Greenhouse Gases Outweigh the Cost?

“[The Clean Power Plan] delivers nearly \$7 in public health and climate benefits for every \$1 invested in efficiency and clean energy.” –Rhea Suh, President of the Natural Resources Defense Council (Source: [NRDC](#))

Pollution is an externality, representing a market failure. If you own a tannery and dispose of chemicals in the

river, and someone gets sick or dies because of you tainting the water supply, you introduced a cost to the economy that is not represented in the cost of the product you sold. The cost of the pollution is externalized.

Climate change represents an externality, and pricing that cost is key to understanding cost-benefit analyses. Commonly this is done via the “social cost of carbon” (SCC). Thus, some contest that the health and economic benefits to the broader population of say, putting a coal power plant out of business, outweigh the economic benefit of the plant remaining open. Unfortunately, the data don’t support the idea that the SCC is high enough to justify such action.

The Obama Administration had an interagency working group develop a best estimate of the SCC, [landing at around \\$40 per metric ton](#). One could say that reducing a ton of carbon dioxide emission delivers \$40 in benefit, and the administration used that figure to justify regulatory actions. But that figure is much more complicated than it seems initially.

- First, that \$40 is a *global* benefit. Carbon dioxide disperses evenly throughout the atmosphere, meaning China, Russia, India, and every other country get a share of that benefit. Even though the costs are localized within U.S. borders, the benefits are not. The U.S. only gets a fraction of that \$40.
- Second, discount rates affect the SCC’s value. That \$40 per ton benefit is assuming a low discount rate of 3 percent. A [discount rate](#) is how regulators measure in today’s dollars the future economic benefits of reducing pollution, since such benefits accrue over time. A low discount rate means that most of the benefits are received earlier, and a high discount rate means the initial benefit is low but accrues quickly. For the social cost of carbon, that means the benefit of reducing a ton of carbon dioxide can range from \$62 per ton at a 2.5 percent discount rate to a mere \$12 per ton at 5 percent. Government guidelines specify that cost-benefit analyses should include a 7 percent discount rate, which would put the SCC at a [mere \\$6 per ton](#)—but the Obama Administration never bothered to include that figure.
- Even assuming favorable discount rates and return, the benefits of abating climate change don’t always outweigh the burdens. [An AAF analysis](#) found that of the 55 regulations that claimed SCC benefits as part of their cost-benefit justification, only seven of them would have been net-burdensome without the SCC. In lay terms, most “climate” regulations rely on non-climate benefits, making it dubious that the regulations are beneficial or more effective than a pollution (not climate) focused regulation.
- Last, most of the cost-benefit justification for climate regulations from the Environmental Protection Agency and the Department of Energy has come from the health benefits of reducing non-greenhouse gas pollutants, what are called co-benefits. This sort of cost-benefit analysis ignores that there are other regulations which already reduce those pollutants, and an alternative regulation might be more effective at achieving those benefits.

Read More:

[The Costs and Benefits of Using Regulation to Achieve Climate Goals](#)

How Should We Think About Climate Policy?

How do we get global emissions down when we can only control U.S. policy?

A global collective action problem like climate change is among the toughest to address internationally, because each country is a stakeholder. Each country also has an incentive to do nothing and free-ride on other nations' commitments. It is a classic Prisoner's Dilemma.

Climate change is not the first Prisoner's Dilemma collective action problem that has been addressed. Nuclear, biological, and chemical weapons are perfect examples of similar dilemmas. Effective international agreements tie participation to other issues. For example, in exchange for agreeing not to pursue nuclear weapons nations are promised assistance with developing nuclear energy under the Nuclear Nonproliferation Treaty. The value of inclusion needs to exceed the value of exclusion, and broad pledges to reduce emissions do not on their own create incentives to participate.

Making progress on an effective international climate policy will certainly involve the United States making some effort to show good faith, but it also means a serious examination of climate objectives that hold other major emitters accountable and ensures reciprocity. The Paris Agreement is an effective channel for developing tools for monitoring and facilitates subsequent bilateral or multilateral agreements, but on its own is *not nearly enough* to appreciably mitigate climate change. The United States should get serious about proposing what it wants in exchange for policy change.

How do we cost-effectively mitigate emissions?

Assuming that global reciprocity can be achieved, what is the most cost-effective way of abating greenhouse gas emissions? Simply, it is to deliver a profit incentive to the market for reducing greenhouse gas emissions. If polluters (i.e. consumers who use products that require emitting greenhouse gases) are forced to pay the externalized cost of pollution as part of their purchase, there is then an immediate profit motivator to pollute less. Unlike regulations, which narrowly target some businesses and undercut market incentives, a uniform economy-wide tax on pollution leverages the power of market competition as suppliers seek ways to improve their price competitiveness by reducing emissions.

For perspective on the effectiveness of a revenue-neutral carbon tax, Marc Hafstead of Resources for the Future estimates that a \$25 per ton carbon tax, increasing by 5 percent each year, would reduce economy-wide carbon dioxide emissions *by 29 percent* after 10 years. For comparison, the Clean Power Plan—had it been implemented—would have taken 15 years to reduce annual carbon dioxide emissions by *415 million short tons*—less than 6 percent of *annual emissions*. Quite simply, a revenue-neutral carbon tax would deliver substantial climate benefits at the minimum achievable cost.

Not only is a carbon tax on its face more effective at changing behavior thanks to its broadly delivered incentives, it also creates an opportunity by raising revenue. A tax is harmful to the economy because it punishes people for engaging in an economic activity (e.g. payroll taxes punish workers), and that is still true for a carbon tax. If the revenues raised from a carbon tax, however, are then used to equally reduce other taxes—a policy known as a revenue-neutral carbon tax—then the negative economic impact from the carbon tax is offset by a positive economic impact from an accompanying tax cut. If the revenues raised from a carbon tax were used to cut payroll and corporation income taxes, then the economic impact is reduced dramatically while the market incentive to reduce emissions remains.

Read More:

Comparing Effectiveness of Climate Regulations and a Carbon Tax

Tax Reform Initiative Group: Briefing Book

How do we get everyone to use clean energy worldwide, and finally end the climate change problem?

Henry Ford famously said, “If I had asked people what they wanted, they would have said faster horses.” The idea behind this quote is that people are bad at identifying the value of things that are not yet available to them. Climate policy is similar, as many believe that existing clean energy sources are sufficient to combat climate change.

A carbon tax and international agreement could realistically only get part of the way to ending the climate change problem. They would effectively buy time, but energy demand globally is rising, and so long as there is a demand for energy, and carbon-intensive hydrocarbon fuels are available, people should assume they will be used. A perverse effect of strong climate policy in one nation is “carbon leakage,” as their reduced fossil fuel demand causes a fall in prices and increases fossil fuel consumption elsewhere. Fundamentally, there needs to be an energy source available that is both low-carbon, and cheaper than fossil fuels (and dispatchable, unlike most renewable energy), and that requires innovation.

A scientific breakthrough that finally delivers a means to protect the environment without sacrificing energy production would end the climate change problem once and for all. This could be zero-pollution energy sources, technology that pulls greenhouse gases directly from the atmosphere, streamlined electricity transmission, better storage technology, or anything a scientific mind could imagine. The beauty of innovation is that it does not discriminate, or narrowly constrain polluters to a single means of abating pollution.

Research is already underway. As an example, many believe that nuclear fusion (far safer than nuclear fission) will be that breakthrough technology. Fusion has been achieved in lab environments but does not yet have a net-positive energy output in its reaction. NetPower, a new type of natural gas power plant, is powered by natural gas but uses a closed-cycle system that produces no pollution while still managing to use cheap and abundant natural gas. New ways of storing energy, such as liquid batteries, may revolutionize the economics surrounding renewable energy and the expansion of electric vehicles. There are many ways that innovation in energy can occur, and indeed nuclear power or directional drilling technology are examples of innovation that already has occurred.

Innovation, though, is not something that the market always has an incentive to pursue. A carbon tax could help shift those incentives, but energy innovations are capital intensive, face regulatory hurdles, and must overcome a regime of subsidies that benefit incumbent energy providers while disadvantaging innovators. The benefits of innovation are often decades away, and has difficulty competing with investors that can get earlier returns. Sometimes the profits of innovation are not even accrued by the innovator, as “spill-over” benefits occur for competitors as well.

Getting to a future where solutions to greenhouse gas are cheap, abundant, and deployable globally requires

innovation, and the United States can be better about its innovation strategy. It can more effectively [deploy research and development](#) funds that it already uses. It can [reform its commercialization efforts](#). The administration could finally [lay out its energy policy](#) objectives for innovation and commercialization.

Bill Gates perhaps explained it most aptly: “[We need an energy miracle](#).” But miracles do happen. For climate change, innovation must be a central pillar of policy—anything else is a half-measure.

Read More:

[To Get Most Out of Publicly Funded Research, Evaluate Technology Transfer Programs](#)

[How to Get the Most out of the Government’s Research Spending](#)

[Publicly Funded National Labs Important to U.S. innovation](#)

[The Energy Loan Guarantee Program is Worth Reforming](#)

Conclusion

Beware grandiose policy ideas that promise simplicity to climate change. Promises of benefits are often exaggerated, and assumptions of reciprocity abroad are unproven. Addressing climate change adequately requires concerted foreign policy efforts, robust policies that shift incentives away from pollution, and clear roadblocks to innovation. The United States alone will never be able to regulate or subsidize greenhouse gas emissions enough to effectively address climate change, and policymakers should heed environmental economists who have extensively researched to find optimal policy solutions.