

# HOW TO BREAK THE CLIMATE DEADLOCK

*By Naomi Oreskes*



## WILL NATIONS EVER COME TOGETHER TO KEEP CLIMATE OUT OF THE SEVERE DANGER ZONE?

The question looms like a cloud over United Nations negotiations in Paris this month—the 21st such attempt to forge an international agreement to curb greenhouse gas emissions. A big reason for failing to find common ground is American intransigence on the role of government. If nations are to succeed, the U.S. will have to give up on the idea that free markets alone can adequately address climate change and embrace a government-led plan of action.

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## A U.N. TREATY IS EFFECTIVE

only if signatory nations are prepared to follow suit with firm domestic policies, but American politicians have resisted action, afraid of paying a political price. The rejection of climate action is largely based on suspicion of big government, and an international treaty is government at its biggest. Yet making a substantial impact on something so fundamental as the sources of energy that drive our civilization is going to require billions (if not trillions) of dollars of investments and incentives that span diverse industries—the kinds of actions that the private sector has historically not made. If nations are ever going to put the brakes on climate change, the U.S. will have to overcome its aversion to government playing a major role.

## UNREASONABLE RELIANCE ON FREE MARKETS

IT HAS LONG BEEN a maxim in American life that the government that governs best governs least. It was expressed in the weakness of the original Articles of Confederation, in the structure of the U.S. Constitution (designed to prevent the concentration of power) and at various times throughout U.S. history. In the 20th century it was an important element in reactions against federal labor standards, rural electrification and, especially, the New Deal, the spectacular government intervention that followed the equally spectacular market failure of the Great Depression. The deal empowered the federal government with substantive oversight of business, industry, and financial and labor markets. But the opponents of

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the New Deal never denied the fact of the Depression.

Opponents of an international treaty on climate change have allowed their hostility to government not only to lead them to deny the facts of climate change but also to spill over into conspiratorial thinking. In a 1992 speech Dixy Lee Ray, a former governor of Washington State and a former head of the U.S. Atomic Energy Commission, insisted that the agenda of the United Nations Framework Convention on Climate Change was to “bring about . . . world government with central planning by the United Nations.” The flame she lit has burned brightly ever since. In his 2012 book Senator James Inhofe of Oklahoma accused climate scientists of being part of a liberal conspiracy to dismantle global capitalism and compared the Environmental Protection Agency to the Gestapo.

Inhofe’s views may be extreme, but they reflect a greater conservative mind-set. In our 2010 book, *Merchants of Doubt*, Erik M. Conway and I show how conservative and libertarian think tanks have

questioned the scientific evidence of climate change under the rubric of defending freedom, which they equate with laissez-faire capitalism: low rates of taxation, minimal regulation of business, and little or no government intervention in the marketplace. Social scientists have also shown a strong correlation between “free market ideology” and the beliefs that global climate change is not occurring, is not human-caused or will have positive effects—all positions that contradict the findings of the global scientific community.

The main claim of politicians, lobbyists and CEOs who lead the charge to minimize the government’s role in addressing climate change is that the world should rely on the marketplace to fix the problem. Greenhouse gas emissions are part of the world’s economy, so if they are a problem, markets will respond, for instance, by offering technologies to prevent climate change or allow us to adapt to it.

In truth, however, energy markets do not account for the “external,” or social, costs of using fossil fuels. These are not reflected in

## IN BRIEF

**American rejection** of climate action is based on suspicion of big government, often expressed as a threat to freedom.

**Free markets** will not solve climate change by themselves; they have failed to account for the

damage done by carbon emissions to people and the environment.

**A carbon tax**, or emissions-trading system, could slow climate change, but government is needed to create those systems.

**History shows** that government is also needed to create and fund major technological innovations of the scale required to solve climate change. For that to happen, Americans will have to stop demonizing government.

the price we pay at the pump, the wellhead or the electricity meter. For example, pollution from coal causes disease, damages buildings and contributes to climate change. When we buy electricity generated from coal, we pay for the electricity, but we do not pay for these other real, measurable costs.

In a properly functioning market, people pay the true cost of the goods and services they use. If I dump my garbage in your backyard, you are right to insist that I pay for that privilege, assuming you are willing to let me do it at all. And if you do not insist, you can be pretty sure that I will keep on dumping my garbage there. In our markets today, people are dumping carbon dioxide into the atmosphere without paying for that privilege. This is a market failure. To correct that failure, carbon emissions must have an associated cost that reflects the toll they take on people and the environment. A price on carbon would encourage individuals, innovators and investors to seek alternatives, such as solar and wind power, that do not cause carbon pollution. When Hoesung Lee became the new head of the Intergovernmental Panel on Climate Change in October, he named carbon pricing as the world's top climate change priority.

Several countries and regions have implemented carbon prices. In British Columbia, a carbon tax has helped cut fuel consumption and carbon emissions without harming economic growth. To prevent taxes from rising overall, the government also lowered personal and corporate income taxes; the province now has the lowest personal income tax rate and one of the lowest corporate tax rates in Canada.

Another way to remedy the market failure of pollution is to create a trading system where people can buy the right to pollute—a right that they can use, save or sell. A company that can reduce its emissions more than the law requires can sell any unused credits, whereas a company that cannot meet the standards can buy credits until it figures out how to solve its pollution problem.

The idea of being able to buy the right to pollute offends many people, but properly implemented, emissions trading can work. In 1990 Congress passed, by a wide margin, a set of amendments to the Clean Air Act that implemented trading in sulfur dioxide emissions to reduce acid rain. The program was highly successful: over the ensuing decade emissions were cut by more than 50 percent.

In 1993 California followed this example and implemented the Regional Clean Air Incentives Market to reduce air pollution in southern California. The air in Los Angeles is far cleaner today than it was 30 years ago, but hardly anyone knows that this was achieved to a substantial degree through emissions trading. China has been experimenting with regional emissions trading for several years and has announced that it will soon make the system national.

Whether one supports emissions trading or a carbon tax, the essential idea is to harness the power of market forces. Many business leaders prefer emissions trading over taxation because once the system is in place, it enables a good deal of freedom and flexibility. But the key phrase here is “once in place.” An emissions-trading system, or a tax, has to be created, and that does not happen by the “invisible hand” of the marketplace. It happens through government action. Which brings us back to the role of government and the aim of the U.N. Conference of the Parties talks, known as COP21.

#### TECHNOLOGIES WAIT FOR SCALE

SOME PEOPLE ARGUE that, despite the political failures of the past 20 COPs, the world must keep working to implement a market mechanism. There is no doubt that this is necessary.

But even if Americans could agree to and implement one, it might not be sufficient. Although a price on carbon emissions will encourage consumers to seek better alternatives, those alternatives are not quite ready for prime time.

To create the backbone of a new energy system, we need large-scale renewable power, coupled with dramatic increases in energy efficiency, demand management and storage. Solar and wind power work, but they are not at the scale needed to replace enough fossil-fuel power

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*We are dumping carbon into the atmosphere without paying for that privilege. This is a market failure. A price on carbon emissions that reflects the toll they take would correct that failure.*

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plants to stop the ongoing rise in atmospheric CO<sub>2</sub> levels. After half a century of work, nuclear power remains costly and controversial. And carbon capture and storage—which collects emissions and puts them underground—is not working. A price on carbon will push demand in the right direction, but it needs to be reinforced by the pull of public investment in innovation. The most likely way we will get the innovation we need, at the scale we need, in the time frame we need, and at a retail price that people can afford, is if the public sector plays a leading role.

It is possible that the market will bring us a technological breakthrough on climate change. But history suggests that this would be a long shot—even with a hefty price on carbon—because not one of the major technological developments of the 20th century was produced by the private sector working alone. Entrepreneurs such as Thomas Edison and George Westinghouse developed electricity, but it took the federal government to build the delivery systems that brought it to the lion's share of Americans. The same is true of telephone service. The federal government, starting with President Dwight Eisenhower, was needed to build an interstate highway system. Nuclear power was not a response to market demand: the U.S. government wanted to prove that the destructive power unleashed at Hiroshima and Nagasaki could have a constructive use. Senator Al Gore may not have invented the Internet, but the U.S. military did, as a technology under the Defense Advanced Research Projects Agency.

Gore did, however, help draft and pass the legislation that released the Internet as a civilian technology that the private sector could commercialize and sell to millions of customers. The federal government developed digital computers, satellite communications, weather forecasting and the global

positioning systems that tell mobile phones where we are. These transformative technologies were all created as public-private partnerships, more often than not with the government as lead partner. And they all took sustained effort over decades, the kind of effort for which the private sector has little stomach. A government pull is needed to develop climate solutions that, like the Internet, can be further advanced and marketed by the private sector. ARPA-E (Energy), an agency modeled after DARPA, is

carbon dioxide (or any fluid) and pump it into geologic reservoirs: the oil industry already pumps CO<sub>2</sub> underground to help push oil out. But using CO<sub>2</sub> to flush a reservoir is very different than securely locking away that carbon for centuries or millennia. If carbon capture could be made feasible and economic, even at a moderate scale, it could greatly enhance emissions reductions. So we should invest in research—in geology, geophysics, hydrology and engineering—a domain in which our

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funding research in these areas, but its budget is peanuts. Its 2016 fiscal year request is \$325 million. For comparison: in 2015 the world will spend \$5.3 trillion in fossil fuel subsidies, according to the International Monetary Fund.

Carbon capture and storage requires special attention. The emissions-reduction goals being promised by many countries for COP21 assume that these nations will be capturing carbon and storing it in the ground. The dirty secret is that a proved system does not exist, not to mention a cost-effective one.

Technology exists to capture

federal government has a long and strong track record. Many other countries have substantial expertise in these disciplines as well.

#### **RECLAIMING THE COMMON GOOD**

A HEFTY PRICE on carbon, coupled with major investment in technology, can definitely limit climate change. But both steps require government action. That suggests one other necessary step: we need to stop demonizing government and recognize its crucial role in doing the most important thing that markets do not do, which is

prioritizing and sustaining the common good.

For the past 30 years the ideology of the unfettered marketplace has so dominated our discourse that most of us can scarcely imagine an alternative way of organizing our affairs. Individuals who try are dismissed as unrealistic, romantic, polemical or (in America) communists. When environmentalist and writer Bill McKibben suggested that a zero-growth economy could provide good lives for people while greatly reducing demand for the earth's dwindling resources, he was mocked. When Pope Francis released his encyclical on climate change and inequality, in which he urged the world to take on the interdependent challenges of caring for the planet and caring for the poor, one prominent public intellectual all but accused him of being a socialist. Another suggested he was "out of touch."

The pope is very much in touch with one essential fact: markets are effective in distributing goods and services efficiently to those who have the money to pay for them, but the needs of the poor go largely unaddressed, and the external costs remain almost entirely unpaid. Our dominant discourse insists that we can solve these problems by continuing the policies and practices that created them. The pope also noted that blind faith in the marketplace leads people to believe that they are free "as long as they have the supposed freedom to consume." So if the government acts to restrict the marketplace, it is (allegedly) restricting our freedom. But as philosopher Isaiah Berlin noted many years ago, freedom for wolves can lead to the death of lambs, and surely the right to exist is more fundamental than the right to consume.

To build a better world, we first have to seek it. This requires a different vision, one that embraces priorities other than profit and places

care—for creation and for one another—at its center. We have to accept the reality that markets are not motivated by the priority of care.

### RETHINKING THE MAGIC OF THE MARKETPLACE

ECONOMIST NICHOLAS STERN and others have made the same point in more prosaic language. Investment in scientific research, public education and infrastructure is a common good, but our commitments to those activities have been weakened in recent decades. Yet history demonstrates that markets, by themselves, do not remedy market failures. Governments do.

In the aftermath of the cold war, conservatives and liberals agreed that market-based democracies had done a better job than centrally planned ones at providing goods and services, as well as protecting civil liberties and quality of life. But even Adam Smith, the champion of laissez-faire capitalism, noted that markets only function well with appropriate rules and regulations. One might have thought that the global financial crisis of 2008, the worst since the Depression, would have reminded us of the need for a reasonable set of rules. Yet decades of deregulated capitalism have led to environmental damage on a scale that threatens the very prosperity it is meant to generate.

We need a new conversation about the appropriate role of government in fostering innovation,

remediating market failure and tackling inequality. We have to abandon magical thinking and quasi-religious faith in the marketplace. We must acknowledge that we need governance to foster the technologies needed to meet our energy demands without destroying the natural world.

Government is not *the* solution, but it has to be part of the solution. Although international agreements such as the one sought by COP21 are useful in encouraging national governments to do the right thing, ultimately nations act on a national level. If the 20th century is any guide, once the government lays the foundations for new technologies, the private sector will step in to do what it does best, which is not to invent them but to sell them.

Above all, we have to reject the canard that addressing climate change threatens our liberty. Timothy Snyder—a foremost expert on the history of European fascism—reminds us that "a common American error is to believe that freedom is the absence of state authority." History shows that although state authority can be abused, its absence does not lead to liberty. On the contrary, its absence opens the door to tyranny and tragedy. Appropriate forms of authority are essential to the guarantee of liberty. As disruptive climate change unfolds, they will also be essential to the guarantee of life and the pursuit of happiness. ■

#### MORE TO EXPLORE

- Deep Economy: The Wealth of Communities and the Durable Future.** Bill McKibben. Times Books, 2007.
- The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability.** James Gustave Speth. Yale University Press, 2008.
- Encyclical on Climate Change and Inequality: On Care for Our Common Home.** Pope Francis. Introduction by Naomi Oreskes. Melville House, 2015.
- Why Are We Waiting?: The Logic, Urgency, and Promise of Tackling Climate Change.** Nicholas Stern. MIT Press, 2015.

#### FROM OUR ARCHIVES

**Making Carbon Markets Work.** David G. Victor and Danny Cullenward; December 2007.

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