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Policy Paper

Think Centered

The Economics of Energy

SHAPING THE MARKET TO CREATE A CLEAN ENERGY FUTURE

The Economics of Energy: Shaping the Market to Create a Clean Energy Future

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ABOUT THE NEW CENTER

American politics is broken, with the far left and far right making it increasingly impossible to govern. This will not change until a viable center emerges that can create an agenda that appeals to the vast majority of the American people. This is the mission of The New Center, which aims to establish the intellectual basis for a viable political center in today's America.

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Executive Summary

NEW CENTER SOLUTION:

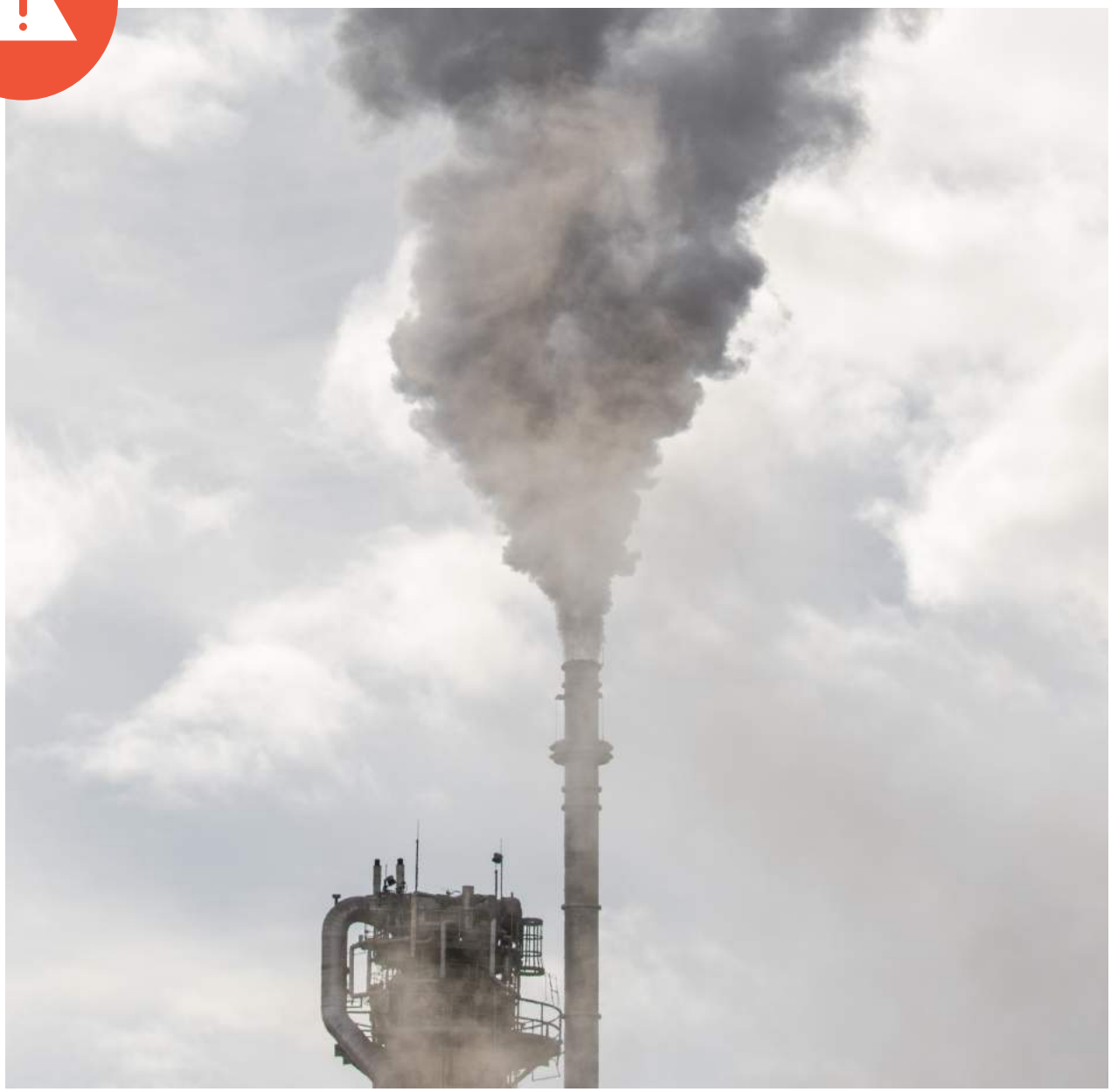
Shaping the Market to Create a Clean Energy Future

The following two things are true about burning fossil fuels:

1. It warms our planet, changes our climate, and poses a growing threat to the environment and economies around the world.
2. It is the foundation of the global economy, and over the last century has driven the most significant increase in technological innovation, prosperity, and human well-being in the history of the world.

This is the tension at the center of America and the world's inability to meaningfully confront and combat climate change.

In this paper, The New Center explores the economic forces and incentives that created our fossil-based economy, and how we can harness those same forces to unleash the potential of cleaner energy and climate change mitigation technologies.



The Problem

Overview

Each year, climate change studies grow increasingly alarming.

- According to the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA), 17 of the 18 warmest years on record have occurred since 2001.[1]
- In 2017, natural disasters cost the United States $306 billion, with a record high 16 of them surpassing one billion dollars in damage each.[2]
- On average, the equivalent of a football field's worth of land disappears from the Louisiana coast every 100 minutes.[3]
- Both the United Nations' and the United States' 2018 climate reports came to the same conclusion: climate change threatens the environment and our communities.
  - Researchers from the UN's Intergovernmental Panel on Climate Change reported with high confidence that "increasing warming amplifies the exposure of small islands, low-lying coastal areas, and deltas to the risks associated with sea-level rise for many human and ecological systems, including increasing saltwater intrusion, flooding, and damage to infrastructure."[4]
  - The Fourth National Climate Assessment (representing the consensus view of 13 U.S. federal agencies and about 300 experts) stated that "climate change creates new risks and exacerbates existing vulnerabilities in communities across the United States, presenting growing challenges to human health and safety, quality of life, and the rate of economic growth."[5]

Climate change has already exacted significant, measurable costs on societal and ecological well-being.

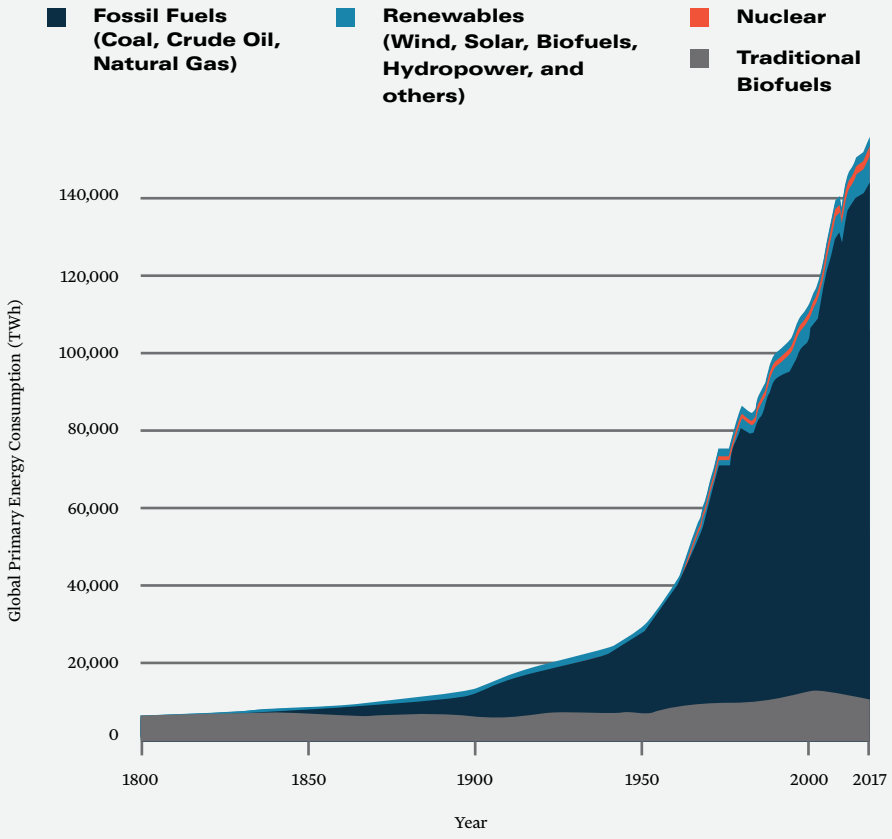
So why can't we move quickly to solve it?

Energy Use

The world uses 25 times more energy today than in 1800, and this energy consumption will continue to increase as economies develop, particularly in the Asia-Pacific region. Moreover, despite the growing popularity of renewables, fossil fuels still occupied 87.15% of global primary energy consumption sources in 2017.[6]

Global Primary Energy Consumption

Global primary energy consumption, measured in terawatt-hours (TWh) per year.



Source: Vaclav Smil (2017) and BP Statistical Review of World Energy[7]

Fossil Fuel Infrastructure

Reducing fossil fuel use is not just a matter of pulling less oil, gas, and coal out of the ground. It is a matter of redesigning and reorienting a global economy dependent on affordable, portable, and globally available fossil fuels. Everything—from our roads, factories, homes and buildings, and electric grids—has been built around them.

The fossil fuel industry employed 3.64 million Americans in 2015.[8] In that same year, fossil fuels accounted for 81.5% of total U.S. energy consumption.[9] This large share translates to hundreds of billions of dollars worth of fossil fuel dependent infrastructure in the U.S., including 135 petroleum refineries, 72,000 miles of crude oil pipelines, about 400 natural gas storage facilities, and over 100,000 gas stations.[10]

The Incentives Don't Add Up

The ten largest gas and oil companies in the world amassed $2.46 trillion in revenue in 2019.[11] And the International Monetary Fund estimated that the world spent $5.3 trillion on post-tax fossil fuel energy subsidies in 2015.[12]

As we explore later in the paper, fossil fuels have, and in many cases still do, enjoy significantly more tax credits and subsidies than renewables.

The way we use energy won't change unless the market incentives change. But in their present form, markets don't adequately reward those who invest in clean energy, nor do they sufficiently penalize those who impose negative externalities on communities and the environment.

The New Center believes there are two levers Washington could pull to reshape markets, incentivize clean energy investment, and create costs for climate-altering activities:

1. Carbon Tax and Dividend

Washington could implement a revenue-neutral carbon tax that would signal to polluters that their emissions come with a price tag. To achieve revenue neutrality, Congress could distribute a dividend to American households and communities dependent on fossil fuels to offset rising prices associated with the tax. Alternatively, Congress could employ a tax shift and reduce certain federal taxes (i.e., income taxes, payroll taxes, etc.).

2. Next Generation Clean Energy Tax Credits

Rather than prolonging or increasing tax credits that benefit only specific clean energy technologies like solar and wind, next-generation tax credits should be designed to favor promising, emerging technologies over maturing ones. By developing a system that awards tax credits based on whether they achieve a low-carbon power system, any clean energy technology that meets specific performance standards would be eligible to receive the credit.

Pricing Carbon

Proof of Concept: Price Pollution to Get Less of It

Cap-and-Trade Systems

THE ACID RAIN EXAMPLE

In 1989, President George H. W. Bush—a Republican—signed amendments to the Clean Air Act into law, codifying the first cap-and-trade system in the United States designed to combat acid rain and other pollutants derived from sulfur dioxide and nitrogen oxide emissions. Acid rain had widespread effects; it induced and exacerbated respiratory diseases, damaged buildings, and harmed forests and lake ecosystems. Through this national operating permits program, companies were required to cut their sulfur emissions but had autonomy over how to do so.[13]

WHAT IS CAP-AND-TRADE?

A cap-and-trade system works to reduce pollution by setting a cap on the amount of emissions that a polluter can emit. At the same time, it establishes a "market" where polluters can buy and sell unused emissions allowances.

As a market-based climate change solution, it incentivizes polluters to reduce their emissions but does not overly prescribe how they do so.

Industry groups and some in Bush's government were skeptical about his lofty goal of a 10-million-ton annual reduction in sulfur emissions. In fact, Richard G. Darman, then-director of the Office of Management and Budget, "reportedly warned that stringent anti-pollution controls would be very expensive and contended that the benefits to public health were questionable," according to a 1989 story in The New York Times.[14]

But after years of implementation, the benefits of the program clearly outweigh the costs. According to data from the Environmental Protection Agency, between 1990 and 2017, the national concentrations for air pollutants had improved drastically: 88% in the case of sulfur dioxide.[15] And, in a 2011 peer-reviewed EPA study, researchers found that the "central benefits estimate of $2 trillion in 2020 exceeds costs by a factor of 30-to-1."[16]

These economic and social benefits stemmed from lower premature mortality rates, reductions in rates of respiratory and heart diseases, as well as fewer emergency room visits and lost school or work days.

It is still difficult to compare the sulfur dioxide cap-and-trade model of the 1990s to a future federal carbon trading scheme. While sulfur dioxide is a gas released from sulfur-based fossil fuels, every fossil fuel energy source emits carbon. It's a problem on a much bigger scale, yet the success of the sulfur dioxide cap-and-trade system provides strong evidence that the concept of pricing pollution works.

The success of any cap-and-trade system depends on its design, including:

- How high the emissions cap is
- Prices for permits
- What kinds of offsets are allowed
- Whether there are ways for polluters to take advantage of the system

Variation among these factors affects system outcomes, which explains why carbon cap-and-trade systems have had a mixed level of success in the U.S.

CASE STUDIES ON STATE-LEVEL CAP-AND-TRADE IN THE UNITED STATES

THE REGIONAL GREENHOUSE GAS INITIATIVE (RGGI)

The Regional Greenhouse Gas Initiative (RGGI) was the first cap-and-trade program of its kind to take effect in the United States in 2009. The initiative—which covers emissions from the power sector produced by fossil fuel power generators—includes nine states: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont. These states work to comply with the RGGI Model rule by implementing their own internal regulations as well as issuing CO2 allowances and participating in regional CO2 allowance auctions.[17]

Studies conducted on RGGI's efficacy in reducing greenhouse gas emissions (GHG) are mixed.

Organizations like RGGI, Inc., The Acadia Center, and Abt Associates claim that RGGI implementation led to significant emissions reductions, a drop in retail electricity prices, a decrease in fuel and coal use, and increased health benefits.[18]

But other researchers dispute whether many of these positive benefits are attributable to RGGI.

A review of RGGI by the Cato Institute asserted that, compared to other states, electricity prices rose, real economic growth was slower, and RGGI states had a lower improvement in energy intensity (the ratio of energy consumption per unit of gross domestic product).[19] The Duke University Energy Initiative and Nicholas Institute for Environmental Policy conceded that RGGI was one of many factors that led to emissions reduction in the state, but noted that pinpointing specific causality requires more research.[20] And a study conducted by The Institute for Energy Research found that emissions began falling in RGGI states *well before* program implementation.[21]

CALIFORNIA'S CAP-AND-TRADE PROGRAM

California instituted its cap-and-trade program alongside a series of emissions-reducing policies included in the Global Warming Solutions Act of 2006 (A.B. 32). Under the Global Warming Solutions Act, the California Air Resources Board is responsible for updating a scoping plan every five years, meant to meet the goal of reducing California's emissions to 1990 levels by 2020 by reducing the emissions cap 3% each year until 2020. Since 2007, California has also been a member of the Western Climate Initiative, which releases policy recommendations and provides technical support for states looking to institute emissions trading programs.[22]

According to data from the Environmental Defense Fund, California's emissions have declined by over 13% since 2006.[23] But how accurate is the emissions reduction rate? Is the cap-and-trade program responsible for these reductions? And are the supposed benefits of these reductions applied equally to California's communities?

A report from the UCB Center for Environmental Public Policy found that the "lenient" leakage accounting methods of the California ARB U.S. Forest offset protocol might have resulted in inaccurate emissions reduction claims. The U.S. Forest protocol allows polluters to invest in offsets that help landowners engage in more sustainable forest management practices that retain more carbon per acre. But this allowance might be too generous and as a result, the crediting program approved 80 million tons of CO2, "one-third of the total expected effect of California's cap-and-trade program during 2020 to 2030."[24]

WHAT IS LEAKAGE?

Carbon leakage occurs when a reduction in emissions in one area spurs an increase in emissions in another. Leakage can occur because of the cost of climate-related policies or to meet energy demands.

In addition to questionable leakage rate calculations, Californians don't get to benefit from offsets purchased through forestry or agriculture protocols. In fact, between 2013 and 2015, 75% of offsets purchased by polluters were for projects outside of California.[25]

One of the most significant issues facing California's cap-and-trade program is that the emissions covered by the plan have, so far, been significantly lower than the imposed cap. When the cap is too high, polluters can accumulate allowances—known as banking—which allows them to hoard for future dates, effectively keeping emissions high.[26] A report by the California Legislative Analyst's Office, a nonpartisan fiscal and policy advisor, warned that because of the high number of banked allowances, "2030 annual emissions from covered entities would be 30 percent higher than the levels likely needed to meet the state's target."[27]

HAVE WE EVER COME CLOSE TO IMPLEMENTING CAP-AND-TRADE FEDERALLY?

THE CLIMATE STEWARDSHIP ACT (S.139) OF 2003:

In 2003, Senators John McCain (R-AZ) and Joseph Lieberman (D-CT) introduced the bipartisan Climate Stewardship Act, which would have established a cap-and-trade system to reduce greenhouse gas emissions in the United States. It failed in the Senate by a vote of 55 to 43. The act was reintroduced in 2005 as well as in 2007 (with the addition of a gradually-reducing emissions cap added to the bill's language) but failed to pass the Senate again.[28]

AMERICAN CLEAN ENERGY SECURITY ACT (H.R. 2454) OF 2009:

Much like the Climate Stewardship Act of 2003, the American Clean Energy Security Act would have directed the EPA Administrator to create a cap-and-trade system to regulate emissions. The bill passed in the House of Representatives by a vote of 219-212, and was "the first time either house of Congress had approved a bill meant to curb the heat-trapping gases scientists linked to climate change."[29] However, the bill was never brought to the Senate floor for a vote.

PUBLIC OPINION ON CAP-AND-TRADE

Between 2008 and 2017, the University of Michigan and Muhlenberg College partnered to conduct biannual surveys on energy and the environment.

The study shows that out of the eight times respondents were polled about cap-and-trade, only three times did it garner majority support. In recent years, however, those who are "unsure" about cap-and-trade has increased to 30%, which the writers of the report suggest to mean that "a wide body of Americans could potentially be persuaded to support cap-and-trade."[30]

It is important to note that this same study found that respondents were less inclined to support cap-and-trade in their own state and that opposition to the model also increased once a price point was attached (e.g. a $15 per month increase to an electricity bill).[31]

Carbon Tax and Dividend

If companies have to pay for emitting carbon, they are more likely to invest in new technologies that reduce carbon emissions or emit none at all. It is the government's way of encouraging more clean energy investment without being too prescriptive to innovators on how to do it. A carbon tax is similar to cap-and-trade in that it puts a price on pollution. But the mechanism to price carbon and collect the revenue is typically more straightforward.

One way to have a carbon tax without the politically toxic blowback could be to place a steadily rising fee on fossil fuels but rebate the dividends from this fee directly back to U.S. households each month. Seeing that check each month could go a long way toward assuring voters they aren't on the losing end of any carbon tax policy.

There are many ways to design such a program, and the politics will always be hard. America and the world will be more likely to undertake energy innovation if the market sends a signal that cleaner investments will be more appealing and carbon-intensive investments less appealing over time.

WHAT IS A CARBON TAX?

A carbon tax imposes a fee on polluters for emissions produced. Preferably, the burden is levied as far "upstream" as possible (i.e., extraction points, import locations). A carbon tax can be implemented with a variety of modifications thereafter; for example, the carbon tax can steadily rise to provide increased pressure on polluters.

A dividend can also accompany the tax so that the revenue from the administered tax can go directly to consumers to offset any associated price increases.

BRITISH COLUMBIA'S CARBON TAX

In 2008, Canadian province British Columbia introduced North America's first revenue-neutral carbon tax program, which covers 70% of B.C.'s emissions.[32]

According to the government of B.C., real GDP grew by 19% between 2007 and 2016 under the carbon tax, and net emissions declined by 3.7% in the same period. But a study by the Carbon Tax Center notes that while net emissions have declined since B.C.'s carbon tax was inaugurated, emissions rose in 2012 and 2013. This is because annual increases of the tax had been halted during this time, which signifies that if the carbon tax is to be successful in reducing emissions, it needs to keep rising.[33]

At a rate of $40 per metric ton of carbon (as of April 2019), B.C.'s carbon tax is expected to generate about $1.5 billion in the 2018-2019 period. To keep the carbon tax revenue-neutral, the profits from the carbon tax go back to individuals and businesses, softening the blow of rising energy costs. A presentation by the B.C. Ministry of Finance for the state of Connecticut noted that for the 2016-2017 period, 35% of the tax revenue was returned to individuals and 65% was returned to businesses.[34]

When designing the carbon tax, B.C. also took into consideration how a carbon tax would impact low-income households. They took measures to provide low-income families with tax credits, lowered income tax rates, provided business tax breaks, and even doled out a climate action dividend during the first year of the carbon tax.[35]

These lowered income tax rates and business tax rates have since been reversed, according to a January 2019 report by the Fraser Institute, a conservative-leaning Canadian think tank. B.C. has both increased current tax rates and introduced new taxes over the past year and a half, with an expected cost of over $3.6 billion in 2019-2020. Programs for low-income families, like the Climate Action Tax credit, are still in place.[36]

CAN A FOSSIL FUEL DIVIDEND WORK IN THE UNITED STATES? IT DOES IN ALASKA.

When the revenue from the Prudhoe Bay Oil and Gas lease sale of 1969 amounted to $900 million, Alaskans began to wonder how this vast wealth could be managed and saved. This concern was heightened as the Trans-Alaska Pipeline System was poised to begin construction in 1974, pulling Alaska's natural resources out of the state.[37]

The result? A constitutional amendment that established the Permanent Fund in 1976. The Alaska Permanent Fund mandated that 25% of "all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue-sharing payments and bonuses received by the State shall be placed in a permanent fund."[38] In 1980, the residents of Alaska began to receive dividends from the Permanent Fund, which are calculated based on the fund's performance on an annual basis.

Although residents have to apply to receive the dividend, the majority of Alaska's citizens do, and the amount has ranged on average from $1,000 to $2,000 per year, per person.

A 2016 study by the University of Alaska Anchorage found that the Alaska Permanent Dividend Fund has "lifted 15,000 to 25,000 Alaskans out of poverty annually, depending on the size of the dividend and the state of the economy that year."[39] A more recent study from 2018 also found that "a universal and permanent cash transfer does not significantly decrease aggregate employment."[40]

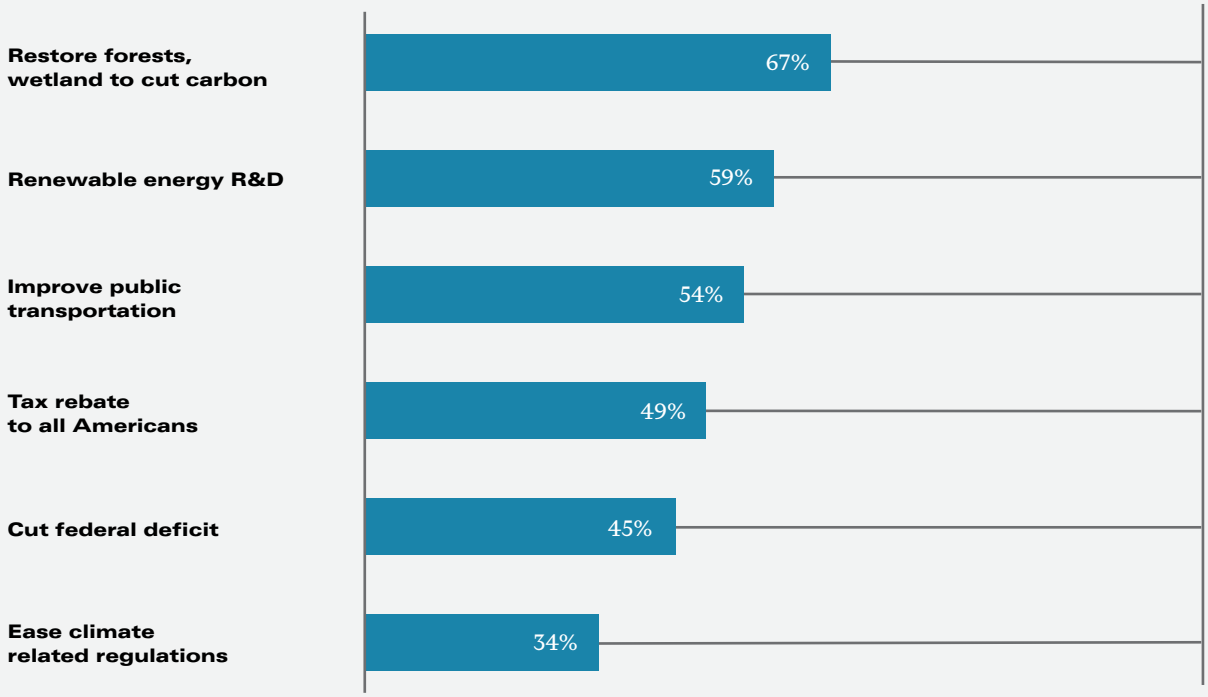
PUBLIC OPINION ON TAXING CARBON

A November 2018 poll conducted by the Energy Policy Institute at the University of Chicago (EPIC) and The Associated Press-NORC Center for Public Affairs Research found that 44% of those polled supported a carbon tax compared to 29% who were opposed and 25% who answered "neither."[41] These results reflect people's attitudes before they were told how the carbon tax revenue would be used.

When surveyors revealed to respondents how the funds would be used, 67% supported a carbon tax if the funds were used for environmental restoration.[42]

Support for Carbon Tax

Support for a carbon tax is highest when it funds eco-restoration

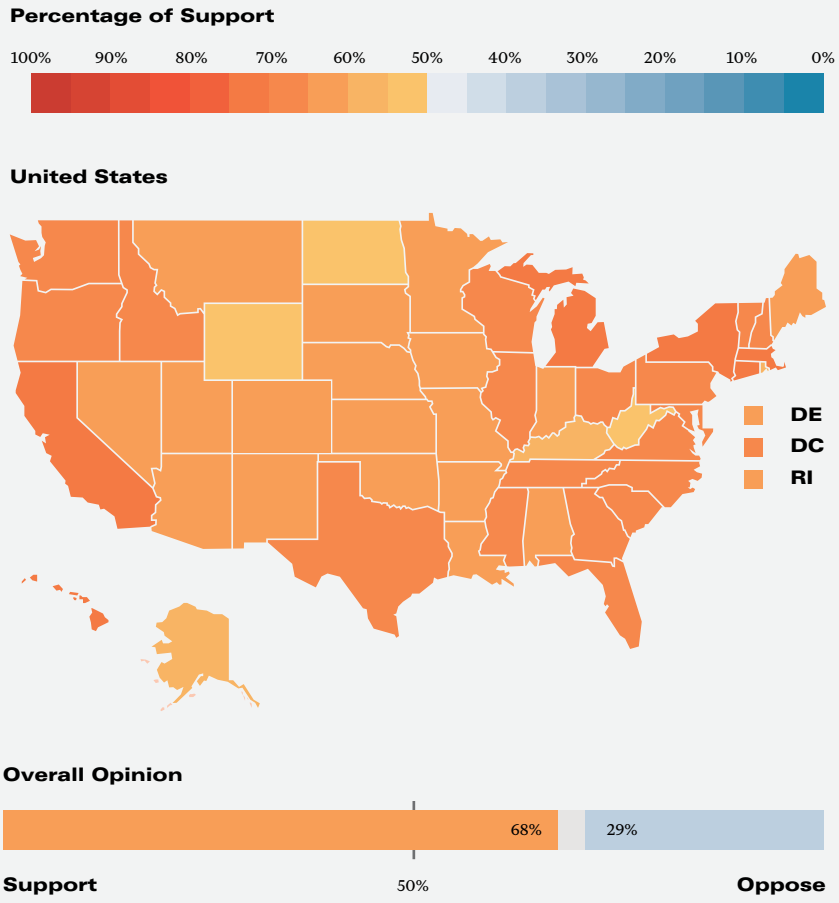


Source: The Associated Press and NORC Center for Public Affairs Research[43]

The Yale Program on Climate Change Communication published its "Climate Opinion Maps" project in 2018, which illustrates American public opinion on issues related to climate change and its impacts.

Support for Fossil Fuel Tax

Estimated % of adults who support taxing fossil fuel companies while equally reducing other taxes, 2018



The map shows that nationally, 68% of those polled support taxing fossil fuel companies while equally reducing other taxes, such as an income tax. Support rises in places like California (72%), New York (74%), and the District of Columbia (73%).[44]

Source: Yale Program on Climate Change Communication[45]

Alongside an openness to a carbon tax, it has broad support from the corporate sector, energy companies, and a wide variety of NGOs. The Climate Leadership Council, which advocates for a carbon fee and dividend plan, features Johnson & Johnson, Pepsico, Exxon Mobil, Shell, Conservation International, and The Nature Conservancy as some of their many founding members.[46]

A Way Forward

CAP-AND-TRADE SYSTEM OR A CARBON TAX?

A cap-and-trade system and carbon tax both have their merits, and both work toward the goal of incentivizing polluters to reduce their emissions. But when choosing a way forward toward a lower-carbon future, it is essential to consider political and economic factors that may favor one system:

EASE OF APPLICATION:

A cap-and-trade system would require a new framework to be built out at the federal level, while a carbon tax can be integrated into the United States' existing tax infrastructure.

PUBLIC OPINION:

Both a cap-and-trade system and a carbon tax have struggled to gain majority support in many public opinion polls. Cap-and-trade especially struggles when Americans know that an electricity price hike is involved, or when the systems are implemented close to home. A carbon tax fares better when those surveyed are given options for where tax revenue would be funneled, particularly if the carbon tax funds conservation, R&D, improvement in public transportation, or a tax rebate.

Considering these factors, a carbon tax could stand a higher chance of winning over American voters and would be easier to implement should a bill make its way to the President's desk for signing.

As of April 2019, more than 40 governments around the world, including the European Union and U.S. states like California, have implemented some form of carbon pricing.[47] Given strong support from corporations, energy companies, NGOs, and the American people, there is no reason why the United States shouldn't join this global coalition towards a cleaner energy future.

Clean Energy Tax Credits and Incentives

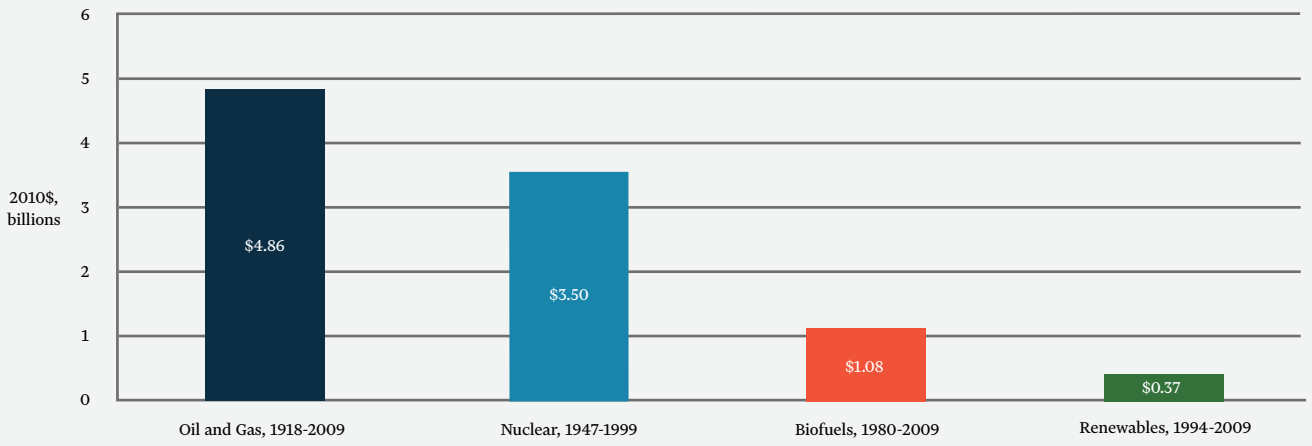
A Long History of Government Support

Limited-government advocates will cite subsidies for renewable energy as disruptions to the market that artificially keep consumer costs low at the future expense of energy industry sectors. What many forget, however, is that the fossil fuel industry enjoyed (and continues to enjoy) significant government assistance.

A study by DBL Investors entitled "What Would Jefferson Do? The Historical Role of Federal Subsidies in Shaping America's Energy Future" compares the amount of government assistance received by renewable energy sources versus fossil fuels.

Historical Average of Annual Energy Subsidies

A Century of Federal Support



Source: DBL Investors[48]

The report revealed that oil and gas received more in annual government subsidies over time than nuclear, biofuels, and renewables.

These subsidies for oil and gas came in the form of:

- Deductions for intangible drilling costs (IDCs)
- Percentage depletion reduction
- Low corporate tax rates
- Low marginal effective tax rates

The report also considered subsidies in the first 15 years of a technology's use, which are "critical to developing new technologies."[49]

REPORT ON FEDERAL SUBSIDIES

It found that "the federal commitment to oil and gas was

five times greater

than the federal commitment to renewables during the first 15 years of each subsidies' life, and it was more than

ten times greater

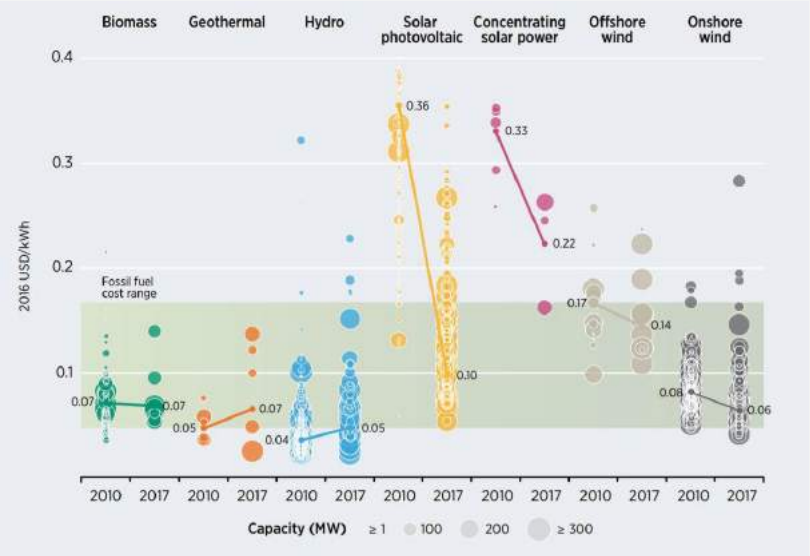
for nuclear."[50]

HAVE GOVERNMENT SUBSIDIES HELPED THE RENEWABLE ENERGY INDUSTRY?

According to the Database of State Incentives for Renewables & Efficiency (DSIRE), a partner agency of the U.S. Department of Energy, there are currently over 3,500 policies and incentives for clean energy across all 50 states and the federal government.[51] These policies and incentives have played a role in making renewables more accessible and affordable for consumers and companies, to the point where some can be cheaper than fossil fuels depending on the market.

A 2018 report from the International Renewable Energy Agency (IREA) analyzed energy trends and price points from 2010 to 2017 and found that, in 2017, not only did renewable power generation technologies fall within the fossil fuel cost range, but technologies such as geothermal energy, hydropower, and onshore wind proved cheaper.[52]

Global Levelised Cost of Electricity from Utility-Scale Renewable Power Generation Technologies, 2010-2017



Note: The diameter of the circle represents the size of the project, with its centre the value for the cost of each project on the Y axis. The thick lines are the global weighted average LCOE value for plants commissioned in each year. Real weighted average cost of capital is 7.5% for OECD countries and China and 10% for the rest of the world. The band represents the fossil fuel-fired power generation cost range.

Source: IRENA Renewable Cost Database.[53]

Deloitte and McKinsey & Company, two of the world's largest management consulting firms, have provided research and insights that echo the IRENA's data. A 2018 report from Deloitte on global renewable energy trends concluded that onshore wind and solar photovoltaic have reached "grid price parity," but have yet to achieve "performance parity" when matched with more conventional energy sources.[54] This means that there are certain conditions under which renewables are cheaper, depending upon the region, weather conditions, and performance and capabilities of the electric grid. Similarly, a 2019 report from Mckinsey Energy Insights concluded that not only will new-build renewable energy sources be cost-competitive with existing conventional ones within the next five years, but that the use of carbon will peak by the mid-2020s and decline after that.[55]

IS INCREASED USE OF RENEWABLES MAKING ELECTRICITY PRICES RISE?

In 2018, environmental policy writer Michael Shellenberger attempted to establish a causal relationship between states and countries that have a renewable-heavy energy mix and their rising energy prices. In an article for Forbes, he wrote that between 2006 and 2016, electricity prices in Germany rose by 51%. Germany's Renewable Energy Act (EEG) and Energy Industry Act (EnWG)—part of the country's "Energiewende" (energy transition) initiative—provide feed-in tariffs for renewable energy producers and require electricity labeling according to the type of energy source used.[56]

Similarly, between 2011 and 2017, energy prices rose by 24% in California. Schellenberger points to the unreliability of solar and wind power as being responsible for these rising prices, as utilities need to build and maintain expensive infrastructure for fossil fuel energy to accommodate demand when the sun isn't shining nor the wind blowing.[57]

Could this reasoning be too simplistic? Some energy experts, like Joshua Rhodes from the Energy Institute at the University of Texas at Austin, think so. Rhodes notes that citing Germany as an example of a country where energy prices have skyrocketed due to renewables doesn't tell the whole story. In reality, Germany began to adopt renewables before their prices began to fall, "provided energy incentive programs with no spending caps," and was closing nuclear power plants (which provided a significant source of energy) while building up renewables.[58]

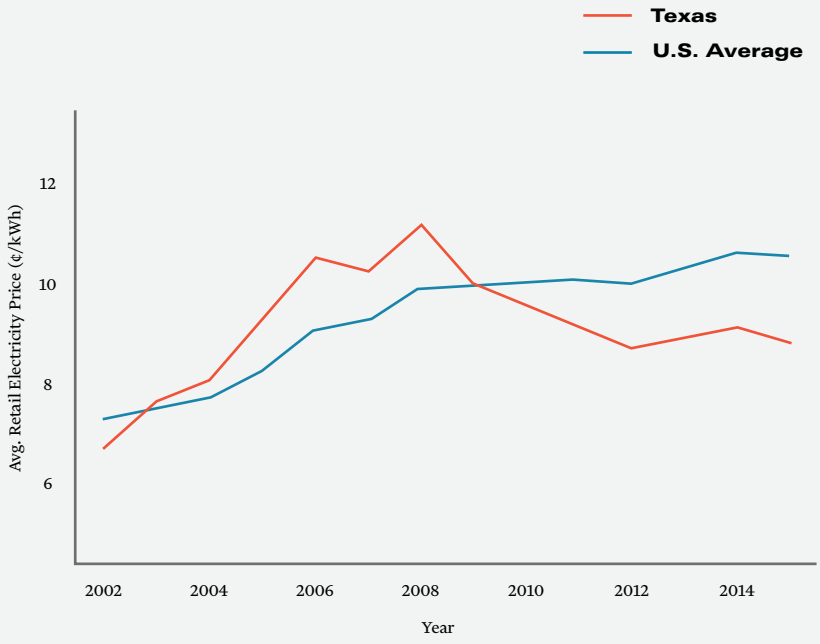
Alexander Gilbert, the co-founder of SparkLibrary, also rebutted Schellenberger's reasoning by arguing that T&D (transmission and distribution) is not higher because of renewable energy, but rather because "spending on infrastructure [by utilities] to deliver power to homes and businesses has increased steadily over the past 10 years as utilities build, upgrade, and replace station equipment, poles, fixtures, and overhead lines and devices."[59]

Texas: A Case Study of Successful Wind Capacity Integration

In 2008, approval was given to commence the Competitive Renewable Energy Zone (CREZ) initiative across Texas, designed to increase wind energy use across the state in urban and rural areas.[60] As of 2018, Texas had the highest installed wind capacity of any other state. When combined with solar, this amounts to 18% of its energy generation. While many assumed that prices would rise in Texas because of this, the state enjoys electricity prices that fall below the national average.[61]

Texas's success contradicts the claim that increasing the share of renewables must necessarily increase electricity prices as well. As with much of energy policy, the success or failure of any policy depends on the specific program design.

Note: Average Texas electricity prices have come in consistently below the national average since 2009. Futhermore, Texas electricity prices are roughly flat or declining, while the national average is rising slightly.



Source: EIA[62]

ARE CLEAN ENERGY INCENTIVES AND POLICIES STILL NEEDED?

In May 2019, Senator Lisa Murkowski posed a question to a group of panelists during an Energy Committee hearing: "Are we beyond the time when wind and solar—that have enjoyed the benefits of these tax credits for these many years—no longer need them?"[63]

In question are the two most important clean energy tax credits at the federal level: the Solar Investment Tax Credit (ITC) and the Wind Production Tax Credit (PTC). These federal tax credits are already decreasing in value, and are set to phase out in late 2019 and 2020, respectively. Both tax credits have been instrumental in increasing solar and wind deployment while making these technologies competitive with traditional energy sources.

But now that solar and wind have achieved a competitive edge, are these subsidies still necessary? Or can something more effective take their place?

Currently, tax incentives are tailored to favor specific technologies like wind, solar, and nuclear power. But this technology-specific approach leaves other low-carbon technologies behind. Instead, researchers at the Columbia University Center on Global Energy Policy recommend a different approach: creating tax incentives that focus on the "functions" of a decarbonized power system. This way, any clean energy technology that meets performance thresholds and works towards achieving these set functions would be eligible to claim the tax incentive.[64]

The Solutions

Meeting in the Middle

Blending Market-Based Incentives with Next-Generation Clean Energy Tax Credits

1. Carbon Tax and Dividend

Currently, polluters do not face any consequences at the federal level for imposing negative externalities on society and the environment. To show fossil-fuel emitters that their emissions come with a price tag, Congress could implement a nationwide carbon tax that is revenue-neutral. Revenue neutrality could be achieved in two different ways: either all revenue from the carbon tax goes to the American people and businesses in the form of a monthly dividend, or a tax shift reduces certain federal taxes.

On January 24th, 2019, Representative Ted Deutch (D-FL) introduced the Energy Innovation and Carbon Dividend Act (H.R. 763) in the House. A previous version of the bill had already been put forward in 2018, where it garnered bipartisan support from six Democrats and three Republicans.[65] A companion bill even emerged in the Senate with co-sponsorship from former Senator Jeff Flake (R-AZ) and Senator Chris Coons (D-DE).[66] The current bill, like its predecessors, features rising carbon fees, the creation of a Carbon Dividend Trust, border fee adjustments, and EPA regulatory adjustments.[67]

2. Next-Generation Clean Energy Tax Credits

Rather than prolonging or increasing tax credits that benefit only specific clean energy technologies like solar and wind, next-generation tax credits should be designed to favor promising, emerging technologies over maturing ones. By developing a system where tax credits are awarded based on whether they work towards the goal of achieving a low-carbon power system, any clean energy technology that meets specific performance standards would be eligible to receive the credit.

On May 2nd, 2019, Senator Ron Wyden (D-OR) introduced the Clean Energy for America Act (S. 1228) in the Senate. The bill has 25 cosponsors, 24 of which are Democrats and one of which is an independent. A Republican senator has yet to cosponsor the legislation. The bill addresses incentives for clean electricity, transportation fuel, and energy conservation, and advocates for an overhaul of the current energy incentive structure. Specifically, it "proposes a dramatically simpler set of long-term, performance-based energy tax incentives that are technology-neutral and promote clean energy in the United States."[68]

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