



# Fact Sheet

## Fossil Fuel Subsidies: A Closer Look at Tax Breaks and Societal Costs

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There is a long history of government intervention in energy markets. Numerous energy subsidies exist in the U.S. tax code to promote or subsidize the production of cheap and abundant fossil energy. Some of these subsidies have been around for a century, and while the United States has enjoyed unparalleled economic growth over the past 100 years—thanks in no small part to cheap energy—in many cases, the circumstances relevant at the time subsidies were implemented no longer exist. Today, the domestic fossil fuel industries (namely, coal, oil and natural gas) are mature and generally highly profitable. Additionally, numerous clean and renewable alternatives exist, which have become increasingly price-competitive with traditional fossil fuels.

The 116<sup>th</sup> Congress is weighing potential policy mechanisms to reduce the impact of climate change and cap global warming to an internationally agreed upon target of no more than 2 degrees Celsius (3.6 degrees Fahrenheit). As a result, fossil fuel tax subsidies, as well as other mechanisms of support, have received additional scrutiny from lawmakers and the public regarding their current suitability, scale and effectiveness. Indeed, the subsidies undermine policy goals of reducing greenhouse gas emissions from fossil fuels.

The United States provides a number of tax subsidies to the fossil fuel industry as a means of encouraging domestic energy production. These include both direct subsidies to corporations, as well as other tax benefits to the fossil fuel industry. Conservative estimates put U.S. direct subsidies to the fossil fuel industry at roughly \$20 billion per year; with 20 percent currently allocated to coal and 80 percent to natural gas and crude oil.<sup>1</sup> European Union subsidies are estimated to total 55 billion euros annually.<sup>2</sup>

Historically, subsidies granted to the fossil fuel industry were designed to lower the cost of fossil fuel production and incentivize new domestic energy sources.<sup>3</sup> Today, U.S. taxpayer dollars continue to fund many fossil fuel

subsidies that are outdated, but remain embedded within the tax code. At a time when renewable energy technology is increasingly cost-competitive with fossil power generation, and a coordinated strategy must be developed to mitigate climate change, the broader utility of fossil fuel subsidies is being questioned.

There are many kinds of costs associated with fossil fuel use in the form of greenhouse gas emissions and other pollution resulting from the extraction and burning of fossil fuels. These negative externalities have adverse environmental, climate, and public health impacts, and are estimated to have totaled \$5.3 trillion globally in 2015 alone.<sup>4</sup>

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A [recent analysis](#) published in *Nature Energy* found that continuing current fossil fuel subsidies would make it profitable to extract half of all domestic oil reserves. This could increase U.S. oil production by 17 billion barrels over the next few decades and emit an additional 6 billion tons of carbon dioxide.

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Subsidizing an industry with such large, negative impacts is difficult to justify. Public subsidies should be consistent with an overarching, coordinated, and coherent energy policy that not only considers the supply of affordable, reliable power, but also public health impacts, climate change, and environmental degradation. While both Democratic and Republican administrations and lawmakers have discussed repealing fossil fuel subsidies, no significant action has been taken to-date.

Several international institutions, including the G20,<sup>5</sup> the International Energy Agency,<sup>6</sup> and the Organization of Economic Cooperation and Development (OECD),<sup>7</sup> have called for the phase-out of fossil fuel subsidies. The European Union has also called for such a phase-out but has not yet taken concrete actions.

But rather than being phased out, fossil fuel subsidies are actually increasing. The latest International Monetary Fund (IMF) report estimates 6.5 percent of global GDP (\$5.2 trillion) was spent on fossil fuel subsidies in 2017, a half trillion dollar increase since 2015. The largest subsidizers are China (\$1.4 trillion in 2015), the United States (\$649 billion) and Russia (\$551 billion).<sup>8</sup> According to the IMF, "fossil fuels account for 85 percent of all global subsidies," and reducing these subsidies "would have lowered global carbon emissions by 28 percent and fossil fuel air pollution deaths by 46 percent, and increased government revenue by 3.8 percent of GDP."<sup>9</sup> An Overseas Development Institute study found that subsidies for coal-fired power increased almost three-fold, to \$47.3 billion per year, from 2014 to 2017.<sup>10</sup>

## U.S. Tax Subsidies to the Fossil Fuel Industry

*The federal government provides numerous subsidies, both direct and indirect, to the fossil fuel industry. Special provisions in the U.S. tax code designed to specifically support and reward domestic fossil fuel-related production are direct subsidies. Other provisions in the tax code aimed at businesses in general create indirect subsidies that are not exclusive to the fossil fuels industry. In certain cases, quantifying these subsidies is fairly simple. In the case of indirect subsidies, establishing an amount associated with these subsidies is more challenging. While not covered in this fact sheet, another source of federal aid to the fossil fuel industry is the discounted cost of leasing federal lands for fossil fuel extraction. Some fossil fuel subsidies provide public assistance, such as the Low Income Home Energy Assistance Program (LIHEAP), which assists low-income households with heating costs.*

*In May 2019, the UN Environment Programme (UNEP) published a report detailing an internationally accepted methodology that will help countries make their fossil fuel subsidies more transparent.<sup>11</sup>*

### Direct Subsidies

**Intangible Drilling Costs Deduction** (26 U.S. Code § 263. Active). This provision allows companies to deduct a majority of the costs incurred from drilling new wells domestically. In its analysis of President Trump's Fiscal Year 2017 Budget Proposal, the Joint Committee on Taxation (JCT) estimated that eliminating tax breaks for intangible drilling costs would generate \$1.59 billion in revenue in 2017, or \$13 billion in the next ten years.<sup>12</sup>

**Percentage Depletion** (26 U.S. Code § 613. Active). Depletion is an accounting method that works much like depreciation, allowing businesses to deduct a certain amount from their taxable income as a reflection of declining production from a reserve over time. However, with standard cost depletion, if a firm were to extract 10 percent of recoverable oil from a property, the depletion expense would be ten percent of capital costs. In contrast, percentage depletion allows firms to deduct a set percentage from their taxable income. Because percentage depletion is not based on capital costs, total deductions can exceed capital costs. This provision is limited to

independent producers and royalty owners. In its analysis of the President's Fiscal Year 2017 Budget Proposal, the JCT estimated that eliminating percentage depletion for coal, oil and natural gas would generate \$12.9 billion in the next ten years.<sup>12</sup>

**Credit for Clean Coal Investment** Internal Revenue Code § 48A (Active) and 48B (Inactive). These subsidies create a series of tax credits for energy investments, particularly for coal. In 2005, Congress authorized \$1.5 billion in credits for integrated gasification combined cycle properties, with \$800 million of this amount reserved specifically for coal projects. In 2008, additional incentives for carbon sequestration were added to IRC § 48B and 48A. These included 30 percent investment credits, which were made available for gasification projects that sequester 75 percent of carbon emissions, as well as advanced coal projects that sequester 65 percent of carbon emissions.<sup>13</sup> Eliminating credits for investment in these projects would save \$1 billion between 2017 and 2026.<sup>14</sup>

**Nonconventional Fuels Tax Credit** (Internal Revenue Code § 45. Inactive). Sunsetting in 2014, this tax credit was created by the *Crude Oil Windfall Profit Tax Act* of 1980 to promote domestic energy production and reduce dependence on foreign oil. Although amendments to the act limited the list of qualifying fuel sources, this credit provided \$12.2 billion to the coal industry from 2002-2010.<sup>13</sup>

## Indirect Subsidies

**Last In, First Out Accounting** (26 U.S. Code § 472. Active). The Last In, First Out accounting method (LIFO) allows oil and gas companies to sell the fuel most recently added to their reserves first, as opposed to selling older reserves first under the traditional First In, First Out (FIFO) method. This allows the most expensive reserves to be sold first, reducing the value of their inventory for taxation purposes.

**Foreign Tax Credit** (26 U.S. Code § 901. Active). Typically, when firms operating in foreign countries pay royalties abroad they can deduct these expenses from their taxable income. Instead of claiming royalty payments as deductions, oil and gas companies are able to treat them as fully deductible foreign income tax. In 2016, the JCT estimated that closing this loophole for all American businesses operating in countries that do not tax corporate income would generate \$12.7 billion in tax revenue over the course of the following decade.<sup>12</sup>

**Master Limited Partnerships** (Internal Revenue Code § 7704. Indirect. Active). Many oil and gas companies are structured as Master Limited Partnerships (MLPs). This structure combines the investment advantages of publicly traded corporations with the tax benefits of partnerships. While shareholders still pay personal income tax, the MLP itself is exempt from corporate income taxes. More than three-quarters of MLPs are fossil fuel companies.<sup>15</sup> This provision is not available to renewable energy companies.

**Domestic Manufacturing Deduction** (IRC §199. Indirect. Inactive). Put in place in 2004, this subsidy supported a range of companies by decreasing their effective corporate tax rate. While this deduction was available to domestic manufacturers, it nevertheless benefitted fossil fuel companies by allowing "oil producers to claim a tax break intended for U.S. manufacturers to prevent job outsourcing".<sup>16</sup> The Office of Management and Budget estimated that repealing this deduction for coal and other hard mineral fossil fuels would have saved \$173 million between 2012 and 2016. This subsidy was repealed by the *Tax Cuts and Jobs Act* (P.L. 115 – 97) starting fiscal year 2018.<sup>17</sup>

## Recent Efforts to Reform and Repeal Fossil Fuel Subsidies in Congress

**Clean Energy for America Act (S. 1288):** Introduced in May 2019 and sponsored by Senator Wyden (D-OR), S.1288 amends the Internal Revenue Code to replace the 44 existing energy tax credits with three technology neutral tax provisions that would incentivize the use of low and zero-emissions technologies, including clean electricity, clean transportation and energy efficiency. The bill is cosponsored by 25 Democrats.

*“Let’s look at the oil and gas subsidies, let’s take them away. Let’s let them compete just like everyone else at the same level. We can do that with the tax code to take those special provisions away.”*

**Rep. Fred Upton (R-MI)**

**Financing Our Energy Future Act (S. 1841): Formerly the MLP Parity Act,** S.1841 has been reintroduced in the 116th Congress and allows renewable energy firms to benefit from the MLP structure by expanding the types of energy generation that qualify. The bill, sponsored by Sen. Christopher Coons (D-DE) and cosponsored by six Republicans, four Democrats and an Independent, has broad appeal and does not prevent fossil fuel companies from continuing to structure as MLPs.

**Off Fossil Fuels for a Better Future Act (H.R. 3671):** Introduced by Rep. Tulsi Gabbard (D-HI) in the 115th Congress, H.R. 3671 amends several sections of the Internal Revenue Code of 1986 to eliminate subsidies aimed specifically at the fossil fuel industry. The bill had 45 Democratic cosponsors.

## Fossil Fuel Research, Development, and Deployment

*The fossil fuel industry receives substantial government funding for research and development. Federal funding for fossil fuels is largely administered by the Department of Energy (DOE) through three initiatives: the Office of Advanced Fossil Energy R&D, the Loan Guarantee Program, and the National Energy Technology Lab. Annual appropriations and grants directed toward the fossil fuel industry can also be considered direct subsidies, as they are directly related to maintaining the competitiveness of the industry. Efforts to make coal more economical and cleaner—despite declining natural gas and renewable energy prices—have been a particular focus of the federal government’s funding, as has Carbon Capture and Storage (CCS). CCS technologies capture carbon dioxide from power and industrial sectors and store it deep underground in geological formations, or turn it into useable products, such as fuels or chemicals.*

**The American Recovery and Reinvestment Act (Inactive).** The *American Recovery and Reinvestment Act of 2009* was an economic stimulus package of \$787 billion. As part of this package, the Office of Fossil Energy received \$3.4 billion toward fossil fuel research and development between 2009 and 2011. The funds primarily supported R&D of carbon capture and storage technologies.<sup>18</sup>

**DOE Advanced Fossil Loan Programs Office (Active).** The Department of Energy’s Loan Programs Office (DOE LPO) was created in 2005 to provide loans to innovative energy, tribal energy, and advanced auto manufacturing projects. While the DOE LPO is primarily focused on financing first-of-kind renewable and efficiency technologies, it has also designated \$8 billion for loans to advanced fossil fuel projects that aim to avoid or sequester greenhouse gases. Originally, the program was aimed solely at coal technologies and was later expanded to include any fossil fuel. The first two loan solicitations did not result in any loan guarantees, largely because falling natural gas prices have made new coal projects uneconomical.

In December 2016, the LPO made its first fossil award to the Lake Charles Methanol Project, which received an initial commitment of \$2 billion. The project would have produced methanol from the gasification of petcoke, a product of petroleum refining. However, projected costs increased following tariffs on Chinese imports, and the project has stalled. As of September 2018, construction had not begun.<sup>19,20</sup>

**DOE Fossil Energy Research & Development Office (Active).** Historically, DOE’s advanced fossil energy R&D focused on reducing harmful emissions from coal-fired power plants, such as those responsible for acid rain. Today, the office is focused on advanced power generation, power plant efficiency, water management, and carbon capture and storage technologies (CCS), as well as the development of unconventional oil and gas resources.<sup>19</sup>

DOE Office of Fossil Energy R&D FY2019 Funding Select Examples	
<b>Coal Carbon Capture and Storage (CCS) and Power Systems</b>	\$25 million
<b>Carbon Storage (CCS retrofits at coal and natural gas facilities)</b>	\$30 million
<b>Advanced Energy Systems: efficiency, reliability &amp; flexible operations</b>	\$37 million
<b>National Energy Technology Laboratory Coal Research and Development</b>	\$18 million
<b>Unconventional Fossil Energy Technologies (unconventional gas &amp; oil)</b>	\$13.5 million

In examining DOE’s fossil energy portfolio, the dollars directed towards preserving coal as a viable power source warrant closer examination. Between 2010 and 2017, the Department of Energy provided \$2.66 billion to support 794 advanced fossil energy research and development projects: 785 of these were R&D projects, and the remaining nine were demonstration projects to evaluate the commercial readiness of carbon capture and storage technologies, mostly for coal. These projects received between \$13 million and \$284 million. Of the 785 remaining projects, 89 percent focused on coal research and development, including for coal gasification, where coal is converted to synthesis gas (“syngas”) that may be used for generating electricity and other purposes.<sup>19</sup> During this same seven-year period, **91 percent of total fossil R&D money (\$1.4 billion) was spent on coal-related research. For fiscal year 2019, Congress appropriated \$740 million for Fossil Energy Research and Development,** with continued emphasis on the continued use of coal-fired power.

### Coal-Fired Power & Carbon Dioxide Removal

There is a scientific consensus that carbon dioxide removal technologies, such as Carbon Capture and Storage (CCS) and Direct Air Capture (DAC), will be required to stabilize atmospheric concentrations of CO2 over the coming decades. The majority of 1.5°C and even 2°C warming scenarios, as reported by the Intergovernmental Panel on Climate Change (IPCC), rely heavily on such carbon dioxide utilization and storage (CCUS) strategies to manage atmospheric concentrations of CO2.

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*Despite significant federal investment, Carbon Capture and Storage technology is unlikely to sustain the domestic use of coal power.*

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However, CCS technologies are still not widely commercialized. In the United States, there are only 10 carbon capture facilities, and only one of these is at a coal plant.<sup>21</sup> Given both the current negative economics of coal for power generation, and the energy intensity of carbon capture and storage, CCS is very unlikely to sustain the domestic use of coal power. Instead, the most promising avenues for CCS applications include energy-intensive industrial sectors, direct air capture of CO2, carbon utilization, and carbon capture in natural gas power plants. To reach ambitious climate targets as quickly and cost-effectively as possible, phasing out coal’s use as a source of energy will remain necessary.<sup>22</sup>

## Financing Fossil Fuel Projects Abroad

*In addition to research and development projects funded through Department of Energy programs, the fossil fuel industry receives federal funding in the form of project loans, grants, and guarantees from the Overseas Private Investment Corporation (OPIC) and the United States Export-Import Bank (EXIM). These sources of funding are meant to provide capital and fiscal security for investments in emerging markets overseas, but in many cases serve to subsidize the expansion of the mature and highly profitable fossil fuel industry. This can result in increased greenhouse gas emissions from projects in countries with weaker environmental regulations.*

**Overseas Private Investment Corporation (OPIC).** OPIC is the U.S. Government's development finance institution, which supports American businesses in emerging markets abroad. OPIC provides "investors with financing, political risk insurance, and support for private equity funds."<sup>23</sup> Between 2010 and 2015, OPIC committed more than \$6 billion in financing to renewable energy projects, and in 2008 set a target to reduce greenhouse gas emissions from new projects by 50 percent by 2023.<sup>24</sup> While OPIC has dramatically increased its funding for renewable energy projects, it continues to support fossil energy, as well. Some examples of OPIC funded projects include:

- The revitalization of the aging Palagua oil field in Colombia. In 2004, OPIC gave a \$3.8 million loan to Joshi Technologies to support this project, which enabled the company to extract more than 4,000 barrels of oil per day for over a decade.<sup>25</sup>
- In 2017, OPIC committed \$250 million for a natural gas project in Jordan, which is expected to emit the equivalent of 617,000 tons of carbon dioxide per year.<sup>26</sup>
- In 2018, Kosovo government officials sought out OPIC to help them finance a new coal-fired power plant that had lost its loan guarantee from the World Bank, after the Bank chose to halt financing for new coal projects.<sup>27</sup>

**United States Export-Import Bank (EXIM).** EXIM is the credit agency of the United States government, providing credit to facilitate the export of American goods and services. While President Obama's 2013 Climate Action Plan called for an end to government funding for overseas coal-fired power plants (with limited exceptions where no viable alternatives exist or where CCS technology is utilized),<sup>28</sup> EXIM continues to fund fossil energy development overseas. Over the past 15 years, EXIM has lent or issued billions in grants to fossil fuel projects. They include:

- \$14.8 billion dollars in grants and loans for 78 projects in the petroleum sector (2001 – 2018).
- Financing \$900 million in U.S. mining exports (2010).
- Lending \$4.5 billion to the power sector in 2009, much of which went to the coal and petroleum sectors.<sup>29</sup> This included the construction of a liquefied natural gas (LNG) project in Mozambique in 2016. The project is estimated to produce 5.2 million tons of carbon dioxide per year.<sup>30</sup>

## Externalities and Social Costs of Fossil Fuels

*Ultimately, the true price of carbon and other pollutants are not reflected in the actual cost of fossil fuels and fossil-derived products. Economists refer to such discrepancies as externalities. Fossil fuel externalities, including societal costs, environmental costs, and health costs, are largely overlooked in the process of incentivizing fossil fuel production through policy mechanisms. The undervaluation of fossil fuel externalities disproportionately affects communities that are the most vulnerable to the health and environmental impacts of fossil fuel combustion and*

extraction, namely minority and low-income populations that are more likely to live near facilities that produce high amounts of pollutants, such as ports, airports, highways, and petrochemical refineries. Addressing fossil fuel externalities could save taxpayers billions of dollars in societal costs and improve the health and quality of life for many people. Below is an outline of some major costs to consider.

### Social Cost of Carbon (SCC)

The Social Cost of Carbon reflects the negative societal impacts of climate change (including the spread of diseases, decreased food security, coastal vulnerabilities, and public health costs), which is caused by manmade carbon emissions. The SCC is used as a metric to inform federal decision-making on environmental policies, as well as a factor to consider in cost-benefit analyses of such policies.<sup>31</sup> A federal Interagency Working Group created an estimate for the SCC in 2010 which considered the costs of carbon on a global scale. The Trump administration is seeking to revalue the SCC by shifting from a global valuation to a national valuation, in which only the effects on the lower 48 states are considered, and by altering the discount rate (used to convert future outcomes into present dollars).<sup>32</sup> Increasing the discount rate discounts the impacts on future generations.

Under the original framework, the SCC in 2015 was \$36 per metric ton of CO2 at a 3 percent discount rate.<sup>33</sup> This is still viewed as a conservative estimate, since there is insufficient data to fully quantify all the externalities resulting from global CO2 emissions. With the Trump administration's proposed changes, that valuation falls to \$6 per metric ton (at a 3 percent discount rate) and \$1 at a 7 percent discount rate.<sup>34</sup>

### Health Externalities

Burning fossil fuels creates air pollutants such as particulate matter, carbon monoxide, sulfur dioxide, ozone, and mercury. These pollutants lead to health impacts including asthma, lung disease, bronchitis, and other chronic respiratory diseases that may lead to premature death. Air pollutants from fossil fuels also contribute to the development of lung and other cancers; lung cancer accounts for 30 percent of cancer-related deaths each year.<sup>35</sup> Air pollutants, such as those released from vehicles and power plants that rely on the combustion of fossil fuels, cause 200,000 premature deaths each year.<sup>36</sup>

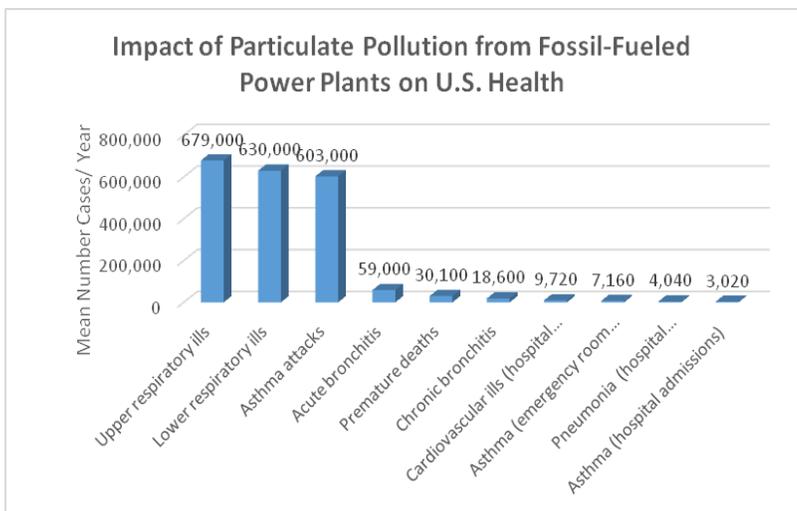


Figure 1: Data from "The Health Costs of Inaction with Respect to Air Pollution," by Pascale Scapecchi, Organization for Economic Cooperation and Development, Environmental Working Papers, No. 2.

Taking into account the coal power sector alone, it is estimated that fine particulate matter from U.S. coal plants resulted in 13,200 deaths, 9,700 hospitalizations, and 20,000 heart attacks in 2010.<sup>37</sup> Coal-fired power plants are also the largest source of airborne mercury emissions in the United States. Mercury can move through the food chain and accumulate in the flesh of fish, posing the greatest risk to pregnant women.<sup>38</sup>

## Environmental Externalities

Extraction and refining of fossil fuel may result in a host of negative outcomes including landscape degradation, risk for spills, and other unintentional environmental damage. Coal mining operations have the potential to cause pollution across the supply chain, from extraction to burning. In the United States, coal is often extracted using mountaintop removal and strip mining, which involves clearing the vegetation, soil, and rock above coal deposits. This leads to permanent damage of landscapes and the creation of massive amounts of mine wastes. Strip mining is used in roughly 65 percent of American coal production.<sup>39</sup>

After coal is burned, it leaves behind coal ash, a combustion byproduct containing heavy metals like arsenic, mercury, and chromium, which are considered toxic. Coal ash is one of the largest sources of industrial waste in the United States, and a 2018 analysis of industry data found that 95 percent of coal ash storage sites have contaminated groundwater at levels deemed unsafe by the EPA.<sup>40</sup> In the flooding that followed Hurricane Florence, several coal ash storage sites in North Carolina overflowed or were damaged, spilling contaminated water into surrounding areas.<sup>41</sup>

Oil spills are perhaps the best known fossil fuel-related environmental dangers. The 1989 Exxon Valdez oil spill polluted 1,300 miles of shore and cost about \$2 billion to clean up. The 2010 Deepwater Horizon oil spill, the largest ever, released 3.19 million barrels of crude oil into the Gulf of Mexico and cost BP (the company responsible) \$61.6 billion.<sup>42</sup> That same year, the 2010 Enbridge spill in southwest Michigan released more than 20,100 barrels of tar sands oil into the Kalamazoo River, creating one of the largest inland oil spills in U.S. history.<sup>43</sup> The ongoing Taylor oil spill is on track to become the largest in American history, having released tens of thousands of gallons every day into the Gulf of Mexico for more than 14 years.<sup>44</sup>

## Conclusion

In seeking fiscal reforms that have the potential to save taxpayer dollars while simultaneously addressing greenhouse gas emissions, phasing out subsidies for the fossil fuel industry should be a priority for federal policymakers. These subsidies aid an industry that is mature, well-established, and with an abundant private financing stream. Reducing the subsidies fossil fuel stakeholders receive can help correct inefficient economic interventions into energy markets, save billions of taxpayer dollars, and reduce negative social and environmental impacts.

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This fact sheet is available electronically (with hyperlinks and endnotes) at [www.eesi.org/papers](http://www.eesi.org/papers).

*The Environmental and Energy Study Institute (EESI) is a non-profit organization founded in 1984 by a bipartisan Congressional caucus dedicated to finding innovative environmental and energy solutions. EESI works to protect the climate and ensure a healthy, secure, and sustainable future for America through policymaker education, coalition building, and policy development in the areas of energy efficiency, renewable energy, agriculture, forestry, transportation, buildings, and urban planning.*

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