

Department of Energy Loan Programs
Statement of Chris Edwards, Cato Institute
before the Subcommittees on Energy and Oversight,
House Committee on Science, Space, and Technology,
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Mr. Chairman and members of the committee, thank you for inviting me to testify. I will discuss reasons why Congress should end funding for Department of Energy (DOE) loan guarantee programs.

The federal government has subsidized the energy sector for decades. The DOE runs an array of programs in support of the conventional and renewable energy industries, and there are about 20 special breaks for energy activities under the federal income tax.

DOE projects have often suffered from poor management, and numerous federal energy projects over the years have been costly failures.¹ The failures span from the Clinch River Breeder Reactor and Synthetic Fuels Corporation projects of the 1970s and 1980s to the FutureGen and Solyndra projects of recent years.

Today's hearing looks at the section 1703 and 1705 guaranteed loan programs created in 2005 and 2009 respectively. Under the American Recovery and Reinvestment Act (ARRA), the DOE provided \$22 billion of 1703 and 1705 loan guarantees between 2009 and 2015, and it provided \$8 billion for the Advanced Technology Vehicles Manufacturing (ATVM) loan program.² The ARRA also included the Section 1603 program, which provided the Department of Treasury with \$24 billion to hand-out in energy grants.³

My testimony looks at these programs and discusses broader concerns about federal subsidies for energy businesses. It concludes that spending on applied energy technologies should be left to the private sector, and that tax reform would spur investment in both the conventional and renewable energy industries.

Four Decades Is Enough

Business subsidies are sometimes supported based on the “infant industry” idea. The theory is that new companies—such as solar and wind energy firms— need government aid so that they can build economies of scale and compete against larger firms.

However, what we often see in the U.S. economy is that new companies—without subsidies— enter markets and outcompete existing large companies. New products and technologies are

often pioneered by new companies, not existing ones, and so there is no need to subsidize new ventures since they have inherent advantages over other firms.⁴

Even if the “infant industry” idea was valid, it is not relevant for the industries subsidized by DOE loan programs. The federal government has been subsidizing the nuclear power industry since the 1950s and the renewable energy industry since the 1970s. The Energy Tax Act of 1978, for example, included tax credits for solar, wind, and other alternative energy technologies.

After decades of subsidies, policymakers should allow the conventional and renewable energy industries to stand on their own feet. We should move toward a level playing field in energy, but we should also make tax and regulatory reforms to foster a dynamic energy marketplace based on private research and innovation.

The head of DOE’s loan office testified to the House in 2016: “Today, solar projects at this scale are readily financed by private lenders.”⁵ That suggests that such projects no longer need federal subsidies. These days the solar and wind industries can raise investment funds through their net earnings and private capital markets, just as other industries do.

Most of the solar and wind projects receiving DOE loan guarantees have been backed by large corporations and have gained favorable utility purchase deals. The Government Accountability Office noted in 2016, “In DOE’s portfolio, 21 of the 30 projects had guaranteed revenue streams provided for under a long-term contract, such as a power purchase agreement.”⁶

Today, 29 states impose “renewable portfolio standards” that require such purchases.⁷ In many states, the mandated purchase amounts are increasing over time. State and local governments also provide a slew of other spending and tax code subsidies for renewables. The proliferation of state aid for renewables indicates that the layering on top of federal subsidies is overkill.

Failures and Boondoggles

The most famous recipient of DOE’s 1705 program was Solyndra, a maker of solar panels, which received a \$535 million loan guarantee in 2009. President Barack Obama visited Solyndra and called the company an “engine of economic growth.”⁸ But the company was spendthrift, and its products were uncompetitive. As a result, it went bankrupt and closed its doors in 2011. Taxpayers footed the bill for the failed loan.

There were other failures in the 1705 program. Abound Solar received a \$400 million loan guarantee in 2010. The company went bankrupt in 2012, leaving behind polluted facilities in Colorado. And Fisker Automotive received a \$192 million loan in 2010. Vice President Joe Biden championed Fisker’s facility in his home state, but the company went bankrupt and ceased operations in 2013. The DOE recovered a portion of the loan amount, but taxpayers were left with loss of \$139 million for Fisker.⁹

The DOE says that the overall rate of losses on its loan portfolio is low.¹⁰ But that is because most of the projects have been solar and wind facilities that have taken advantage of utility purchase requirements for renewables. Of course it is a low risk for the government to guarantee

loans for companies that have guaranteed revenues, but that suggests that federal subsidies were not needed in the first place. Federal aid has simply enhanced the profits for the private investors in many solar and wind projects.

DOE's touting of a low failure rate is off-base in another respect. Aside from the bankruptcies, other DOE projects have been losers because their costs likely exceed their benefits. DOE provided \$8.3 billion in loan guarantees to Southern Company and partners for the construction of the Vogtle 3 and 4 nuclear reactors in Georgia. The project has turned into somewhat of a debacle, as it is years behind schedule and the estimated total costs have risen from \$14 billion to \$21 billion.¹¹

In California, the Ivanpah solar thermal project, partly owned by Google and NRG Energy, received a \$1.6 billion DOE loan guarantee in 2011. It is generating two-thirds or less of the power that was planned, and it burns substantial natural gas to heat up each day.¹² The power it produces is expensive, running between \$135 and \$200 per megawatt-hour, which compares to power from California's natural gas plants of about \$35 per megawatt-hour.¹³ The Ivanpah project also kills thousands of birds each year.¹⁴

Corporate Welfare and Cronyism

Business subsidies generate a corrupting relationship between businesses and policymakers. During the Obama administration, politics played a key role in the awarding of energy subsidies. In an investigation, the *Washington Post* found, "Obama's green-technology program was infused with politics at every level."¹⁵ The newspaper found that "\$3.9 billion in federal [energy] grants and financing flowed to 21 companies backed by firms with connections to five Obama administration staffers and advisers."¹⁶

Solyndra was a classic example of cronyism. The *New York Times* found that the company "spent nearly \$1.8 million on Washington lobbyists, employing six firms with ties to members of Congress and officials of the Obama White House."¹⁷ And the *Washington Post* found that the "main players in the Solyndra saga were interconnected in many ways, as investors enjoyed access to the White House and the Energy Department."¹⁸ A key Solyndra investor was billionaire George Kaiser, who was also a major fundraiser for President Obama. The DOE was apparently pressured by the White House to approve the subsidy.¹⁹

The Trump administration would be wise to cut business subsidies and avoid these sorts of entanglements. Public opinion polls have shown plunging support for both politicians and big businesses over the years, and one of the reasons is the cronyism evident in Washington. The rise of populist politicians in 2016—particularly Bernie Sanders and Donald Trump—indicate that many Americans think that the "system is rigged." To most people, it is unfair that when subsidized companies earn profits they pocket them, but when they go bankrupt taxpayers foot the bill, as they did with Solyndra.

Businesses and policymakers would gain more public respect if they cut ties to each other by ending corporate welfare. In energy policy, Congress should end subsidies such as DOE loan programs and create a level playing field for energy businesses and technologies.

The Private Sector Can Fund Alternative Energy

Many DOE loan guarantees have gone to projects backed by wealthy investors and large corporations, such as Warren Buffett and General Electric.²⁰ Such individuals and companies are fully capable of pursuing energy projects with their own private financing.

The effect of DOE aid is to boost private returns at taxpayer expense. The *New York Times* described the gusher of energy spending in recent years as a “banquet of government subsidies,” and wondered whether “the Obama administration and state governments went too far in their support of solar and wind power projects, some of which would have been built anyway, according to the companies involved.”²¹

Consider, for example, that ethanol is heavily subsidized by the Renewable Fuel Standard and other federal programs. Yet, for some reason, the DOE decided to give the U.S. subsidiary of Spanish conglomerate Abengoa a \$132 million loan guarantee and a \$97 million grant for an ethanol plant in 2011.²²

The *New York Times* stressed the overkill of DOE subsidies: “The government support—which includes loan guarantees, cash grants and contracts that require electric customers to pay higher rates—largely eliminated the risk to the private investors and almost guaranteed them large profits for years to come. The beneficiaries include financial firms like Goldman Sachs and Morgan Stanley, conglomerates like General Electric, utilities like Exelon and NRG—even Google.”²³

Consider the Agua Caliente solar project in Arizona, which is owned by NRG, a large energy utility. DOE gave it a \$1 billion loan guarantee in 2011, which ended up subsidizing Warren Buffett whose Berkshire Hathaway purchased 49 percent of the project in 2012. Buffett is one of the richest people in America, with wealth of about \$60 billion in 2016.

Similarly, the Alamosa solar project in Colorado did not need federal subsidies. DOE gave it a \$91 million loan guarantee in 2011 and the Treasury gave it a \$35 million 1603 grant in 2012. Yet the project had been owned by Goldman Sachs, and is today owned by the Carlyle Group, which is one of the largest private equity firms in the world.

And there is the Shepherds Flat wind farm in Oregon. It is owned by Caithness Energy and received large investments by General Electric, Google, and other major corporations. Despite these well-heeled backers, the project received a \$1.3 billion DOE loan guarantee in 2010, as well as state subsidies.²⁴ Power from the project is being sold to Southern California Edison, taking advantage of California’s mandate for utilities to purchase renewable power. By the way, wind farms may not be so great for the environment because they kill hundreds of thousands of birds and bats each year.²⁵

Throughout American history, venture investors, entrepreneurs, and businesses have taken risks and pumped money into new products and technologies. That is true of the energy sector, and in recent years we’ve seen billions of private dollars flowing to renewable energy projects. Warren

Buffett's Berkshire Hathaway has invested \$17 billion into renewable energy since 2004.²⁶ With that kind of private cash available for renewables, we do not need the DOE handing out loan guarantees and other business subsidies.

Subsidies Distort Decisionmaking

Federal energy subsidies create counterproductive incentives in the economy.²⁷ One problem is that subsidized firms tend to become slow and spendthrift. Solyndra neglected cost control and did not adjust quickly enough as the solar industry was changing. In technology based industries, the leanest and quickest firms usually succeed.

Another problem is that subsidies are not driven by consumer demands, so they can induce firms to invest in activities that will not succeed in the marketplace in the long term. No one can accurately predict the future of the energy economy, but subsidies distort the best judgement of businesses based on market indicators and consumer feedback.

When private investors are induced by subsidies to put their money into dubious projects, the harm comes both from the wasting of tax dollars and the wasting of private resources. The more that green energy is subsidized by multiple federal and state sources, the more that green businesses will be divorced from markets and consumers.

Subsidies can distort the structure of businesses. As one example, governments always focus on the number of jobs created by subsidized projects, but to succeed in competitive markets businesses need to minimize labor costs and be as lean as possible. Also, subsidies many induce businesses to set up facilities in more costly locations than otherwise, which works against them in the long run. One solar executive testifying to Congress noted, "giving companies money to set up manufacturing in the U.S. may doom them to failure by financing them into a strategically uncompetitive position."²⁸

Finally, a widely noted effect is that businesses with weak ideas are often the ones that get in line for government handouts because the businesses with good ideas can get private funding and often do not want the bureaucratic hassles of subsidies. One economist quipped, "I don't know whether the government is better at picking winners rather than losers, but I do know that losers are good at picking governments."

Reform Taxes to Spur Energy Investment

In the private sector, business investments are financed with earnings, debt, and equity. The DOE says that on its loan and loan guarantee projects, there is \$18 billion in private investor financing and \$30 billion in outstanding guaranteed debt.²⁹ Federal loan guarantees subsidize the debt financing portion of chosen projects.

But rather than subsidizing debt for specific projects, the government would spur more economic growth by reducing taxes on equity for all investments. Debt is already favored under the federal income tax compared to equity, so reforms should aim to reduce the taxation of equity. That

would increase returns on investment, including in technology industries such as renewable energy.

Capital gains taxes are particularly important for technology industries. Technology investors take risks on unproven ventures in the hopes that their bets pay off years down the road. Their reward for putting up “patient capital” is a possible capital gain on some of their investments. Thus the capital gains tax rate directly affects the willingness of investors to back renewable energy and other risky projects instead of safer investments.

Reducing the capital gains tax rate would spur more investment in start-ups and growth companies by angel investors, venture capitalists, and wealthy entrepreneurs. Lower capital gains tax rates would also encourage more people to become entrepreneurs because the payoff from a successful start-up would be improved compared to a wage job. Historically, Silicon Valley roared to life after reductions in the top federal capital gains tax rate from 40 percent in 1978 to 20 percent in 1981.

Looking ahead, cutting the top federal capital gains tax rate from 23.8 percent to 16.5 percent, as proposed by House Republicans, would be a favorable reform. Nearly all other high-income nations have capital gains tax rates below their ordinary rates, partly because they recognize the importance of capital gains to growth and technology firms. The average top capital gains tax rate across the Organization for Economic Cooperation and Development is about 16 percent.³⁰

House Republicans are also proposing a sharp cut to the corporate income tax rate. As noted, many large-scale solar and wind projects have been backed by major corporations, and so such projects would benefit from a corporate tax rate cut.

Republicans are also proposing to allow businesses to expense investment, which would encourage investment in capital intensive industries such as energy and utilities. One study found that current depreciation rules create a hurdle to investment in some green assets, such as pollution control equipment and electricity smart meters.³¹ Expensing would solve that problem. And, in general, expensing would promote the replacement of all types of older capital assets in the economy with newer capital assets, which are usually more energy efficient.

Conclusions

U.S. energy markets have changed dramatically over the past decade. Technological advances in the oil and natural gas industries—particularly hydraulic fracturing and horizontal drilling—have led to large increases in domestic production. U.S. imports of oil and gas have plunged, while exports have increased. U.S. businesses and consumers have benefited as gasoline and natural gas prices have fallen in recent years.

This energy revolution was driven by private innovation and competitive markets, and it has created environmental as well as economic benefits. Cleaner natural gas is replacing coal as a fuel source in U.S. electricity production.³² Over the past decade, coal fell from 49 percent of electricity production to 33 percent, while natural gas rose from 20 percent to 33 percent.³³

The share of renewables in U.S. energy production has also increased, and industries such as solar and wind have become large players. Indeed, solar and wind have become such large industries that it is time to cut off the federal umbilical cord. That would incentivize renewable energy businesses to become leaner and focus on the most efficient products and technologies.

All areas of federal spending—including the DOE budget—will need to be scrutinized for savings in coming years. Federal deficits and debt are reaching critical levels, which risks pushing America into a financial and economic crisis down the road. Policymakers should be looking at all areas of the budget to find savings, and business subsidies such as DOE loan programs are ripe for cuts.

Republicans are in a unique position to cut business subsidies, including DOE programs, because they plan to cut business taxes and regulations. Businesses would lose handouts, but their tax and regulatory burdens would also fall. The U.S. energy sector, including conventional and renewable energy, is large, dynamic, and entrepreneurial, and it does not need federal subsidies to thrive.

Thank you for holding these important hearings.

Chris Edwards
Director, Tax Policy Studies
Editor, www.DownsizingGovernment.org
Cato Institute
202-789-5252
cedwards@cato.org

¹ Chris Edwards, “Energy Subsidies,” DownsizingGovernment.org, Cato Institute, December 15, 2016.

² Congressional Budget Office, “Federal Support for the Development, Production, and Use of Fuels and Energy Technologies,” November 2015, Table 3. In addition to the items in the CBO table, the Vogtle project received another \$1.8 billion loan guarantee in 2015.

³ Department of the Treasury, “Overview and Status Update of the Section 1603 Program,” July 31, 2016.

⁴ Nathan Rosenberg and L.E. Birdzell found that “new enterprises, specializing in new technologies, were instrumental in the introduction of electricity, the internal-combustion engine, automobiles, aircraft, electronics, aluminum, petroleum, plastic materials, and many other advances.” Nathan Rosenberg and L.E. Birdzell, Jr., *How the West Grew Rich* (New York: Basic Books, 1986), p. 277. We can update that list to include cellphones, smartphones, personal computers, biotechnology, and many Internet businesses. This idea has also been explored by economist Clayton Christensen.

⁵ Mark A. McCall, Department of Energy, Testimony to the Subcommittees on Energy and Oversight, House Committee on Science, Space, and Technology, March 3, 2016.

⁶ Frank Rusco, Government Accountability Office, Testimony to the Subcommittees on Energy and Oversight, House Committee on Science, Space, and Technology, March 3, 2016.

⁷ National Conference of State Legislatures, “State Renewable Portfolio Standards and Goals,” December 28, 2016.

⁸ Carol D. Leonnig and Joe Stephens, “Obama Was Advised against Visiting Solyndra after Financial Warnings,” *Washington Post*, October 3, 2011.

⁹ Bill Canis and Brent D. Yacobucci, “The Advanced Technology Vehicles Manufacturing (ATVM) Loan Program: Status and Issues,” Congressional Research Service, January 15, 2015, p. 13.

¹⁰ Mark A. McCall, Department of Energy, Testimony to the Subcommittees on Energy and Oversight, House Committee on Science, Space, and Technology, March 3, 2016.

¹¹ Jasper Scherer, “Another Chance for Nuclear Power?” *U.S. News and World Report*, March 3, 2016.

¹² Cassandra Sweet, “High-Tech Solar Projects Fail to Deliver,” *Wall Street Journal*, June 12, 2015.

¹³ Cassandra Sweet, “Ivanpah Solar Plant May Be Forced to Shut Down,” *Wall Street Journal*, March 16, 2016.

¹⁴ Cassandra Sweet, “High-Tech Solar Projects Fail to Deliver,” *Wall Street Journal*, June 12, 2015.

¹⁵ Joe Stephens and Carol D. Leonnig, “Solyndra: Politics Infused Obama Energy Programs,” *Washington Post*, December 25, 2011. And see www.washingtonpost.com/politics/specialreports/solyndra-scandal.

¹⁶ Carol D. Leonnig and Joe Stephens, “Federal Funds Flow to Clean-Energy Firms with Obama Administration Ties,” *Washington Post*, February 14, 2012.

¹⁷ Eric Lipton and John M. Broder, “In Rush to Assist a Solar Company, U.S. Missed Signs,” *New York Times*, September 22, 2011.

¹⁸ *Washington Post*, “Greenlighting Solyndra,” December 22, 2011, www.washingtonpost.com/wp-srv/special/politics/solyndra-key-players.

¹⁹ Joe Stephens and Carol D. Leonnig, “Solyndra Loan: White House Pressed on Review of Solar Company Now Under Investigation,” *Washington Post*, September 13, 2011.

²⁰ Nicolas Loris provides summaries of 1703 and 1705 projects in Nicolas Loris, “Examining the Department of Energy’s Loan Portfolio,” Heritage Foundation, March 3, 2016. See also Veronique de Rugy, “Assessing the Department of Energy Loan Guarantee Program,” Mercatus Center, June 19, 2012.

²¹ Eric Lipton and Clifford Krauss, “A Gold Rush of Subsidies in Clean Energy Search,” *New York Times*, November 11, 2011.

²² Nicolas Loris, “Examining the Department of Energy’s Loan Portfolio,” Heritage Foundation, March 3, 2016. Despite all the subsidies, Abengoa Bioenergy filed for bankruptcy protection in 2016, and its U.S. ethanol business was sold.

²³ Eric Lipton and Clifford Krauss, “A Gold Rush of Subsidies in Clean Energy Search,” *New York Times*, November 11, 2011.

²⁴ Controversy surrounds the multiple subsidies the project received from the state government. See Ted Sickinger, “Shepherd’s Flat Wind Farm’s \$30 Million in Tax Credits Will be Reviewed by Oregon Energy Department,” *The Oregonian*, February 23, 2013.

²⁵ Cassandra Sweet, “Ivanpah Solar Plant May Be Forced to Shut Down,” *Wall Street Journal*, March 16, 2016. And see Brady Dennis, “Study: Wind Turbines Kill More Bats than Estimated,” *Washington Post*, November 8, 2016.

²⁶ Stephen Gandel and Katie Fehrenbacher, “Will Donald Trump Blow Warren Buffett’s Clean-Energy Bet Off Course?” *Fortune*, December 7, 2016.

²⁷ These ideas are discussed in Veronique de Rugy, “Assessing the Department of Energy Loan Guarantee Program,” Mercatus Center, June 19, 2012. See also James Nelson, Solar3D, Testimony to the House Committee on Oversight and Government Reform, Subcommittee on Regulatory Affairs, Stimulus Oversight, and Government Spending, May 16, 2012.

²⁸ James Nelson, Solar3D, testimony to the House Committee on Oversight and Government Reform, Subcommittee on Regulatory Affairs, Stimulus Oversight, and Government Spending, May 16, 2012.

²⁹ Mark A. McCall, Department of Energy, Testimony to the Subcommittees on Energy and Oversight, House Committee on Science, Space, and Technology, March 3, 2016.

³⁰ Chris Edwards, “Advantages of Low Capital Gains Tax Rates,” Cato Institute Tax and Budget Bulletin no. 66, December 2012. A more recent study found the OECD average to be 18 percent. See Kyle Pomerleau, “The High Burden of Federal and State Capital Gains Tax Rates in the United States,” Tax Foundation, March 24, 2015.

³¹ Ernst & Young for the American Council for Capital Formation, “International Comparison of Depreciation Rules and Tax Rates for Selected Energy Investments,” May 2, 2007.

³² Natural gas emits about half the CO₂ that coal does in electricity production. *Wall Street Journal*, “Energy: Squaring Off,” November 14, 2016, p. R1.

³³ *Wall Street Journal*, “Energy: Squaring Off,” November 14, 2016, p. R1.



Chris Edwards

Director of Tax Policy Studies

Editor of [DownsizingGovernment.Org](http://www.DownsizingGovernment.Org)

Chris Edwards is the director of tax policy studies at Cato and editor of www.DownsizingGovernment.org. He is a top expert on federal and state tax and budget issues. Before joining Cato, Edwards was a senior economist on the congressional Joint Economic Committee, a manager with PricewaterhouseCoopers, and an economist with the Tax Foundation. Edwards has testified to Congress on fiscal issues many times, and his articles on tax and budget policies have appeared in the *Washington Post*, the *Wall Street Journal*, and other major newspapers. He is the author of *Downsizing the Federal Government* and coauthor of *Global Tax Revolution*.

Edwards holds a BA and an MA in economics, and he was a member of the [Fiscal Future Commission](#) of the National Academy of Sciences.