Securing America's Future Energy

Intelligence Report

October 28, 2011 – Vol. 4 Issue 12

1111 19th Street NW
Suite 406
Washington, DC 20036
tel: 202-461-2360
fax: 202-461-2379
secureenergy.org

Department of Energy Loan Guarantees in Context

SUMMARY

- Government loan guarantees were designed to bridge the gap between basic technology research and venture capital that commercializes the technology. This gap, known among technologists as the "valley of death," has been targeted twice in the past decade by policymakers from both parties, but with less than perfect results.

- Authorized by the Energy Policy Act of 2005, the DOE loan guarantee program under the Bush administration originally had the borrowers pay subsidy costs for the guarantees to reduce risks to taxpayers. Under the Recovery and Reinvestment Act of 2009, financing increased seven-fold to $47 billion, and credit subsidy costs shifted to the government.

- The expansion took place despite a 2008 Government Accountability Office assessment that the Department of Energy was not well positioned to manage the program. Solyndra was the program's first finalized recipient.

- Companies fail for numerous reasons, but a business failure does not mean the technology failed, nor does it disprove the importance of loan guarantees. Questions remain, however, on what are the best mechanisms for overcoming the "valley of death,"

INTRODUCTION

The bankruptcy of solar photovoltaic manufacture Solyndra, recipient of a $535 million stimulus-funded Department of Energy (DOE) loan guarantee issued by the Obama administration, is drawing new attention to DOE's loan guarantee program. The program got off to a shaky start six years ago and may now be at risk of termination. Most of the media attention has focused on the inside-the-Beltway questions of political influence and poor judgment. Less attention, however, has

been paid to whether loan guarantees are the optimal tool to support emerging energy technologies and whether the Solyndra failure is an indictment of the program itself, or merely an example of poor execution.

A Brief History

This brief paper will analyze why the DOE innovative technology loan guarantee program has been characterized by more problems than solutions.
Federal loan guarantees are a long-standing form of federal credit subsidy used either to address income distribution problems or market inefficiencies. When the DOE loan guarantee program was authorized in Title XVII of the Energy Policy Act of 2005, existing, mostly non-energy federally guaranteed loans had a face value of about $1.1 trillion. Most of these loans were characterized as numerous, relatively low-dollar transactions with well-established issuance methods.

For individual loan guarantee programs, the White House Office of Management and Budget (OMB) works with individual agencies to establish credit subsidy costs (the "estimated long-term cost to the government") for each guarantee. In most programs, the credit subsidy available is appropriated to the agency as part of a pool to support multiple guarantees. The DOE loan guarantee program's enabling legislation specifically authorized DOE to issue loan guarantees whether the credit subsidy cost is be paid by the borrower (in addition to any loan guarantee fees charged by the agency) or accounted for with appropriated funds. Until passage of the American Recovery and Reinvestment Act in 2009, administration policy required that project sponsors pay the subsidy cost.

Requiring project sponsors to bear the credit subsidy costs was justified on grounds that Title XVII loan guarantees were for innovative technologies and the risk of default was therefore higher than in traditional programs. In addition, for the project sponsor, there wasn't much of a choice in the matter, either the project received a loan guarantee or it received no financing at all. This is due to the so-called "valley of death." On a continuum of research and development, demonstration and commercial deployment, investment is typically available at opposite ends. There are strong levels of both public and venture capital funding for basic energy technology research and development, and there are a plethora of public subsidies and strong private-sector investment options for commercial technologies—whether for conventional fossil fuel or so-called clean energy commercial technologies like wind and solar.

In the "valley of death," however, energy technologies proved in the lab are unable to attract financing necessary to scale up to commercial size. They either fail completely or are further developed overseas. There are many causes of the "valley," starting with the higher risk of failure that drives away private capital. Also, it often is difficult to implement at scale technologies that work in the lab; regulatory uncertainty increases the risks of failure; and the start-up firms that develop the technology often lack the commercial skills to develop the technology. For example, the Energy Policy Act of 2005 included nuclear regulatory risk insurance as a policy measure to reduce regulatory risk and remove an obstacle to attracting private capital for the sector.

The Title XVII loan guarantee program was first proposed in the Senate; the House of Representatives did not include the idea in its version of the 2005 legislation. In its statement of views on the energy bill, the Bush Administration was not bullish on the proposed program, stating that it was: "concerned about the potential cost of the bill's new Department of Energy programs to provide 100 percent federally guaranteed

loans for a wide range of commercial or near commercial technologies." Debate over an amendment to strike the proposed program captured the arguments involved. On one hand, program proponents pointed to the lack of investment in deployment of advanced energy technology. Senate supporters called it "one of the most innovative" and "crucially important" provisions in the entire bill, that "costs the Government nothing" because of the ability to require project sponsors to pay both the credit subsidy cost and any fees necessary to run the program.

Conversely, opponents called the idea "a blank check for boondoggles" that would require American taxpayers to "subsidize as much as 80 percent of the cost of constructing and operating new and untried technologies." They argued "the risk of default on these projects… is between 20 percent and 60 percent." In the end, program proponents prevailed on a vote of 76 to 21 and Title XVII became law with President Bush's signature in August 2005.

A Shaky Start

The Bush Administration did not make the program a high priority, and a July 2008 Government Accountability Office (GAO) report found DOE still "not well positioned to manage the LGP effectively because it has not completed a number of management and internal control activities key to carrying out the program." GAO's additional criticisms made clear the immature state of the program three years after its enactment.

"(DOE) has not developed detailed policies and procedures, including roles and responsibilities and criteria that demonstrate how DOE plans to evaluate the applications. In addition, it has not completed policies and procedures to identify eligible lenders, monitor loans and lenders, estimate the costs of the program, or account for the program," the report said.

The GAO concluded its assessment by "suggesting that Congress may wish to consider limiting the amount of loan guarantee commitments that DOE can make under Title XVII until DOE has put into place adequate management and internal controls."

But in fact, less than a year later, Congress did just the opposite.

In 2009, in the face of the worst economic landscape since the Great Depression, Congress provided a dramatic increase in loan guarantee authority while adding a new mission for the program. Through the stimulus, DOE received authority to issue $47 billion in loan guarantees to innovative clean energy projects, nearly seven times the size of the previous appropriation, despite the fact DOE had yet to issue a single guarantee.

Separately, the stimulus bill created a new section 1705 program to provide loan guarantees for commercial ("shovel-ready") clean energy technology projects that could start construction by September 30, 2011, but had been unable to secure commercial financing because markets froze after the subprime implosion. Unlike in the 1703 program, 1705 applicants would not pay credit subsidy costs. Congress appropriated $6 billion to cover the credit subsidy costs of an estimated $60 billion in loan guarantees.

Given such a windfall and political support, DOE ramped up quickly to exercise this new authority. They increased staff from 16 at the start of 2009 to roughly 80 full-time

federal employees a year later. By September 2010, they had issued 14 conditional commitments for loan guarantees and had gone final on four of them. By the time the 1705 program expired on September 30, 2011, the DOE had issued guarantees totaling $35.9 billion. The DOE finalized 12 guarantees in the month of September alone, almost half of the total issued throughout the life of the program.

Despite the rush, most criticisms of the program from congressional overseers since the law passed have been focused on the program's slow pace and, in the 1703 program, high credit subsidy costs charged to project sponsors. Senate Energy Committee Chairman Jeff Bingaman spoke for many of his colleagues when he lauded the loan guarantee program as a "remedy to a fundamental market failure that is acting as a barrier to domestic technology development" and criticized "some in the Administration" for holding the view that "financing is merely another benefit, like tax credits, to be cut when other needs dictate…"

That hearing was held one year after the Solyndra loan guarantee became the first guarantee finalized, and one year before the company went bankrupt. Despite the fact that Title XVII was designed for innovative technology projects—and protected taxpayers by requiring project sponsors to pay credit subsidy costs—the poster child for the program's failure is a commercial project that received a credit subsidy appropriated in the stimulus bill.

Drawing the Right Conclusions

Thirty years ago, there was another visible DOE loan guarantee "failure." The Great Plains Synfuels Plant in North Dakota secured a $1.5 billion loan guarantee to build a coal to synthetic natural gas conversion plant. The plant operated for a year then defaulted on its loan. The DOE repaid the lender and operated the facility itself from 1985 through 1988. This experience became "exhibit A" in the case against DOE-sponsored loan guarantee program because of the perception of a massive loss in government capital. Yet today the plant is still operating in the hands of the private sector, produces synthetic natural gas and is the only plant in the U.S. that captures and sequesters its own CO2 through its sale for use in enhanced oil recovery. It's worth noting that the Synfuels plant was worth three times the amount of the Solyndra loan, and even more when accounting for inflation.

Even if Synfuels is considered a Solyndra-like failure, failures are an essential feature of loan guarantee programs. Without failures, it would be clear that guarantees were being issued only to projects that should be able to receive private financing. Yet the total fees and credit subsidy costs charged to recipients should, when calculated correctly under a well-executed program, more than compensate for the failures.

Nevertheless, there remains a question as to whether loan guarantees are the best policy instrument to help technologies across the "valley of death." While failures may indicate that loan guarantees support some non-commercial projects, they do not confirm that loan guarantees are the best instrument with which to support these projects.

Although loan guarantees are designed to support technologies, they actually support companies that seek to commercialize those technologies. In the real world, companies fail, whether due to weak strategy or management, inauspicious market conditions, or a combination of factors. But the Synfuels experience shows that failure of a particular company does not mean failure of the technology itself. Companies that develop new technologies may lack the skill to commercialize them

effectively. Other types of support may be needed. In fact, this support may enable them to attract commercial financing without the need for a loan guarantee.

It would be premature to judge the efficacy of an innovative technology loan guarantee program based on a single failure. However, it is important these programs exist as part of a broader U.S. strategy. These elements include academic research, strong linkages between academia and industry and the sophisticated use of demonstration projects, like the DOE loan guarantee program, that support individual companies.