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Before the
House Committee on Oversight and Government Reform

Evaluation of the DOE Loan Guarantee Programs, including support for Abound

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Brief bio of Gregory Kats:

- President Capital E (cap-e.com), a national clean energy advisory firm
- Serves on the boards of multiple U.S. energy and energy related firms, all of whom sell into international markets, and all of whom are hiring employees here in the US.
- Served as the Director of Financing for Energy Efficiency and Renewable Energy at U.S. Department of Energy
- Former Managing Director of Good Energies, a multibillion dollar global clean energy PE and VC investor.
- Partnered with JP Morgan and Citi to develop financial strategies to scale US funding for energy efficiency from $20 billion a year to $150 billion a year.
- Serves on a National Academy of Science board developing US policy recommendations to strengthen US innovation and competitiveness.
- Education: BA, UNC; MBA from Stanford University, MPA from Princeton University, Certified Energy Manager.

Thank you for the opportunity to speak with you today on this important issue.

This hearing addresses several questions:

1) The DOE Loan Guarantee Program includes loans to Abound Solar. What does Abound's filing for bankruptcy say about the DOE loan program overall?
2) Related to the Abound bankruptcy and in light of the Solyndra and Beacon failures, is the DOE Loan Guarantee Program successful in its financial objectives? In its non-financial objectives?

Brief summary:

Abound Solar, a US solar manufacturer, with broad support, including from Indiana Republican Governor Mitch Daniels, was awarded a $400 million DOE loan guarantee. DOE structured its loan guarantee in tranches to reduce Federal exposure.

Abound raised about $300 million from private investors, including from British Petroleum. Massive Chinese government subsidies drove very rapid expansion of Chinese solar panel production capacity and resulted in an unexpected collapse in global solar pricing, leading multiple solar firms globally to file for bankruptcy, including Abound Solar.

Because DOE structured its $400 million loan guarantee to Abound in tranches, only $68 million or so of the $400 million is at risk. As quoted in the Wall street Journal, a DOE spokesman recently estimated that the department could receive about $30 million back from abound, leaving a federal loss of about $40 million, or one tenth of the loan loss guarantee. This reflects prudent lending risk management practices

Executive Findings regarding overall DOE loan guarantee program:

1) The only way to judge a program's success or failure is to determine whether it met or failed to meet its objectives.

2) The DOE loan program was established with a default amount budgeted and funded at $2.47 billion. That is, $2.47 billion is the amount the Office of Management and Budget predicted and Congress budgeted to cover expected defaults in this program. If defaults exceed $2.47 billion, then the program is a failure. If the default amount is less, the program is successful. This is the only fair and rational measure of financial performance for the program.

3) The DOE loan guarantee has approved 28 loans worth $16.1 billion dollars, and has so far experienced three highly publicized defaults from Solyndra, Beacon, and Abound. These loans were for $535 million, $43 million and $68 million respectively. The Federal government can expect to receive a portion of those funds back. Defaults from Solyndra, Beacon, Abound, and other loan recipients, after some funds are recouped from each party, are likely to net out to about $400 - $800 million in losses. This is a roughly 75% lower default rate than projected and budgeted for. Given these very limited losses, the program would have to be fairly viewed as very successful. Assertions that the DOE loan program are a failure must rest on the belief that there will be an additional wave of defaults that result in total defaults exceeding the $2.47 billion loan default budgeted, planned for, and funded.

4) An additional default or defaults are possible, but is it likely that additional defaults will result in loan losses exceeding the projected/budgeted amount of $2.47 billion? Is the pessimism about future US renewable energy manufacturing and project performance warranted?

5) The likelihood of defaults totaling $2.47 billion viewed from a rational basis appears exceedingly unlikely. A minority of the loans and amount invested were in manufacturing, fuel production energy storage or transmission. The large majority - $14.1 billion of the $16.1 billion were for large scale generation projects – mainly solar – that were built on long term power purchase contracts based on technologies with strong performance track records. 10 of the 28 loans were made to manufacturing, fuel production energy storage or transmission. These are smaller loans and represent 13% of the exposure and can be viewed as higher risk. As a recent Bloomberg Government Analysis observes, if all these 8 higher risker loans fail, and no assets are recovered (highly unlikely) there would still be $466 million remaining to cover further losses. Losses by the larger, more credit-worthy project loan recipients seem increasingly unlikely and if any losses were to occur, the vast majority of loan amounts are likely to be recovered since the projects can be expected to retain substantial value.

6) 85% of the money put aside for losses in this program remains at the Treasury. This program can only be fairly judged as a success, therefore these funds should be used as intended - to backstop additional loan guarantees. Given its effectiveness in leveraging private funding and additional benefits, discussed below, the largest risk is that DOE slows its 1705 loan guarantee program. From the perspective of financial performance, the DOE should therefore expand its loan guarantees. Failure to do so would weaken the US economy and security, undermine US competitiveness and cost US jobs.

Long bipartisan history, rationale for public –private investing, including loan guarantees

There is a long bipartisan history of U.S. federal, military, state, and city level investment in clean energy. The DOE Loan program demonstrates this. The DOE Loan program has 3 parts, 2 of which were

established by the George W Bush Administration and 1 of which was established by the Obama Administration.

The first part of the DOE loan programs, Section 1703 authorizes DOE to provide loan guarantees to enable commercialization of clean energy technologies and projects. This program was part of the energy Policy Act of 2005 and was signed into existence by President George W Bush. 1703 loans guarantee a total of $10.3 billion, with two nuclear power conditional commitments.

The second part of the DOE Loan program addresses advanced technology vehicles manufacturing (ATVM) and was established in the Energy Independence and Security Act and signed into law by President George W Bush. The DOE ATVM loan program has closed 5 loans totaling $8.4 billion.

The third part of the DOE loan program, Section 1705 of the DOE loan program was established through the 2009 American Reinvestment and Recovery Act as part of a far larger program to accelerate US investment and employment in response to the 2008-2009 deep economic downturn. Section 1705 extended the Energy Policy Act of 2005 and provides DOE funds and direction to support expanded investment of US companies and projects in clean energy, including solar, wind, transmission and storage. Like loan guarantee programs in general, these were projects that were viewed as unlikely to receive commercial funding because the companies or projects were viewed as early stage, somewhat risky and/or not fully commercial proven. Like other loan guarantee programs, 1705 was established with the expectation that most funded projects would succeed commercially but that a few would not.

The only rational way to evaluate whether the DOE 1705 program is successful is to evaluate its performance against its objectives - is the default rate better or worse than projected, and is it achieving its non-financial objectives eg jobs, security, economic competitiveness?

Financial Failure?

To determine whether the DOE 1705 loan program is successful from a financial/default perspective we need to compare the expected program default rate to the current and likely total default rate. If the default rate can be expected to exceed the projected and budgeted default rate, then the 1705 program can be viewed as financially unsuccessful. However if the default rate is lower than the default rate projected and budgeted for, then the DOE 1705 loan program should be recognized as financially successful.

The 1705 loan guarantee program has provided loan guarantees to projects worth $16.1 billion. This represents about 1.7 percent of the almost one trillion dollars of existing federal loan guarantee commitments. Federal loan guarantees like 1705 are established to enable financing of projects that would probably not otherwise receive financial funding, and like other bank and government commercial lending programs, assume a default rate as normal and expected. In establishing the 1705 loan guarantee program, for example, the Office of Management and Budget predicted, and Congress budgeted for, $2.47 billion to cover expected project defaults or partial defaults. (See: http://www.whitehouse.gov/omb/budget/Supplemental)

Review of the loan portfolio suggests that total defaults are likely ultimately to be in the range $400 - $800 million dollars, or about one quarter the amount projected and budgeted for. A fair assessment of outstanding portfolio financial profile and risks proves that the DOE loan program has been prudently managed.

Lack of Diversification?

The US House of Representatives report on DOE's Loan Guarantee Program contends that the loan portfolio was not diversified and that this will therefore lead to higher losses. But is it true that the loan portfolio is undiversified? A review of the loan guarantee recipients indicates that the portfolio is actually geographically broadly diversified and includes a large mix of both direct company loan guarantees and project development recipients. That indicates diversification. What about the high concentration of solar projects – does this indicate an imprudent lack of diversification, as the House report argues? A review of the solar projects funded indicates otherwise. The Bloomberg Government report review of the solar projects receiving loan guarantees finds that recipients of the solar loan guarantees are in fact quite diversified, including "residential, commercial and utility-scale installations using three types of photovoltaic cells and two different types of concentrating power (CSP) technologies". That is a lot of diversification. See: http://about.bgov.com/2011/12/01/bgov-study-solyndra-failure-obscures-low-risk-energy-guarantees/

Indeed a dispassionate observer would recognize that the Abound failure was driven by a collapse in silicon prices and collapse in PV prices that no one predicted. Had silicon prices and PV prices not unexpectedly collapsed, Abound could well now be viewed as a very shrewd loan choice that strengthens the diversified US solar industry position globally (because it relies on cadmium telluride).

Systematic Risk?

The US House of Representatives March 20, 2012 staff report entitled "The Department of Energy's Disastrous Management of Loan Guarantee Programs" spends a lot of time documenting and criticizing the fact that the recipients of the loan guarantees had relatively poor credit risk ratings. This argument is puzzling… like investigating a bank's home loan program and then expressing outrage at the finding that home owners had to borrow money to buy their homes.

The whole point of a loan guarantee program is to finance projects that cannot otherwise get commercial financing. If the recipients of the DOE loan programs were very low risk (investment grade) they would have access to commercial funding and a DOE loan guarantee would therefore displace private funding. That is, loans to very low risk companies and projects would be a waste and a sign of failure, not a sign of success.

The DOE loan guarantee process has required very extensive and expensive due diligence – paid for by the applying companies. The extensiveness of the loan review program made it slow, resulting in widespread frustration that the loan review process was not faster. For example; "Could you please explain why DOE has been unable to obligate these funds more rapidly?" - Rep. Mike Simpson R-ID [Hearing before the House Committee on the Budget, Questions Submitted by Congressman Mike Simpson, July 14, 2010]. And, "I am writing to you today to stress the urgency of expeditiously reviewing loan guarantee applications for renewable energy projects, particularly those utilizing solar technology," said Rep. Mary Bono Mack (R., Calif.) in a letter from September 2010 to Mr. Chu, White House budget director Jack Lew and Treasury Secretary Timothy Geithner.

DOE's loan review process typically has involved hiring independent technology, legal and marketing firms to do in-depth, expensive (paid for by the applicant) independent reviews, many of which lasted more than a year.

For example, Sage Electrochromic Glass spent more than two years and several million dollars pursuing a DOE loan guarantee to support a large manufacturing facility in Minnesota. DOE ultimately turned down the funding application. As a result, a large French multinational will assume majority ownership of the

firm. While the first scale manufacturing plant will be built in Minnesota, the next scale plant is expected to be built in Europe – and ownership of this technology developed in the Unites States will pass into European ownership. This is exactly the kind of technology that the US military is interested in and is deploying on its military bases in the US and abroad to cut energy use and strengthen security.

In hindsight, the DOE loan guarantee program has made mistakes – it made several loans it should not have made and did not makes some loans it probably should have made. Many have argued that the process was too arduous, detailed and slow while others have argued it should have been even more rigorous.

While it is easy in hindsight to criticize the DOE loan program, the only fair basis for judging success or failure is whether the program achieved its financial and other objectives.

The purpose of loan guarantee programs is to fund companies and projects that have desirable benefits and that probably could not get commercial funding otherwise. The success of a portfolio of loans – like investments by a VC firm – is only fairly measured on the outcome of the portfolio of investments. As discussed above, the likely total default rate is in the range of one quarter of the level projected and budgeted for. This is clearly a successful program. From the perspective of financial performance, the DOE should therefore expand its loan guarantees. Amidst such clear success, the DOE should be pressed to continue making these loan guarantees for perhaps another $30 to $40 billion in American projects. Doing so would not only fulfill the financial objective of the program but would have large positive impacts in non-financial ways discussed further bellow.

Non-Financial Objectives

This testimony will now turn to the non-financial objectives of the DOE loan guarantee program.

Is the DOE loan guarantee program successful in its non-financial criteria (eg jobs, clean power generation, security)? Caithness Sheperds Flat received $1.3 billion in DOE 1705 loan guarantees to develop the world's largest to date wind farm here in the US. Clearly this project generates US jobs, increases production of domestic clean energy, reduces US energy imports and strengthens US competitiveness.

Recovery Act investments helped finance:

- Agua Caliente - the world's largest photovoltaic solar plant
- Caithness Shepherds Flat in Oregon
- Diamond Green Diesel in New Orleans - a biodiesel project that will nearly triple the amount of domestically produced renewable diesel

These clean power generation projects will generate enough clean electricity to power over two and a half million homes, cutting oil imports, improving trade balance, expanding distributed domestic employment, and strengthening US corporate competitiveness in the very fast growing and internationally competitive clean energy markets.

Given that our principal trading competitors are providing heavy subsidies to their domestic clean energy industries, the DOE loan guarantee program is providing a significant and timely boost to US clean energy industry, helping slow loss of US strength in the critical and fast growing international clean energy markets. Clean energy has been targeted by our major international competitors (including China and Germany) as a critical future growth and export industry. For most US citizens, businesses and policy

makers, whether the US wins or loses in this race matters because the outcome will have a large impact on future US employment and economic strength.

Positive Security Impact

One of the objectives of the DOE loan guarantee program is to expand US clean energy manufacturing and generation capacity as a way to strengthen US security. Some have wondered whether this is valid, questioning the idea that clean energy (renewables and efficiency) are in fact beneficial to strengthening security. If this view is correct - that clean energy does not help US security - then the DOE clean energy loan guarantee programs should be considered a failure in meeting its security objective.

The view of the US military are relevant to an evaluation of whether or not the DOE loan guarantee objective of expanding domestic clean energy technology and power generation has a positive impact on security, including addressing the US military objective of limiting the costs and risks of climate change.

Secretary of the Navy Ray Mabus[1] put the question this way: "Why the interest in alternative energy? The answer is pretty straightforward: We buy too much fossil fuel from potentially or actually volatile places on earth. We buy our energy from people who may not be our friends. We would never let the countries that we buy energy from build our ships or our aircraft or our ground vehicles, but we give them a say on whether those ships sail, whether those aircraft fly, whether those ground vehicles operate because we buy their energy. There are great strategic reasons for moving away from fossil fuels. It's costly. Every time the cost of a barrel of oil goes up a dollar, it costs the United States Navy $31 million in extra fuel costs. But it's costly in more ways than just money. For every 50 convoys of gasoline we bring in, we lose a Marine. We lose a Marine, killed or wounded. That is too high a price to pay for fuel."

Due to a $21.3 billion annual energy bill and because the fragility of the grid "leaves DoD vulnerable to service disruptions and places continuity of critical missions at serious and growing risk,"[2][3] the US military has set ambitious targets to reduce energy use and develop renewable energy sources.

The Army and Navy both have net zero programs, aimed at reducing energy use on bases, with the Navy targeting 50 percent of its bases to have net zero energy consumption by 2020. The Army has identified six net zero pilot installations in each of the energy, water, and waste categories and two integrated installations striving towards net zero on all fronts by 2020[4,5].

In its *Vision for Net Zero*, the Army states:

> "Today the Army faces significant threats to our energy and water supply requirements both home and abroad. Addressing energy security and sustainability is operationally necessary, financially prudent, and essential to mission accomplishment. The goal is to manage our installations not only on a net zero energy basis, but net zero water and waste as well. We are creating a culture that recognizes the value of sustainability measured not just in terms of financial benefits, but benefits to maintaining mission capability, quality of life, relationships with local communities, and the preservation".[6]

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[1] National Clean Energy Summit 4.0 Las Vegas, NV August 30, 2011

[2] Speech by Dorothy Robyn, Deputy Under Secretary of Defense for Installations and Environment Washington DC, ICF international office, 19 April 2012

[3] "Department of Defense Annual Energy Management Report Fiscal Year 2010" July 2011

[4] Westervelt, Amy, "Why the Military Hates Fossil Fuels" Forbes, February 2, 2012.

[5] http://www.forbes.com/sites/amywestervelt/2012/02/02/why-the-military-hates-fossil-fuels-and-you-should-too-part-one-inefficiency/

[6] http://army-energy.hqda.pentagon.mil/netzero/

Energy is, in the words of Admiral Mullen, about "not just defense but security, not just survival but prosperity."[7] Our national defense infrastructure and systems hold the potential to "help to stem the tide of strategic security issues related to climate change"[8] while simultaneously improving operational effectiveness.[9] As the largest energy consumer in the world, the United States Department of Defense (DoD) has realized the value and practicality of energy efficiency, officially codifying it as "a force multiplier"[10] in the 2010 Quadrennial Defense Review. Stated succinctly by Admiral Mike Mullen, Chairman of the Joint Chiefs of Staff, "Saving energy saves lives."[11]

The US military view and commitment to expanding US strength and investment in renewable energy as a critical security objective is clear. If the military's view on the relationship between clean energy and security is acknowledged as valid, then the DOE loan guarantee program objective of expanding US competiveness and production of renewable energy can also be reasonably viewed as a successful contribution to US security.

Many of America's governors also understand the security importance of clean energy generation. Yesterday Republican Governor of Iowa, Terry Branstad, wrote in the Wall Street Journal rebutting the anti-clean energy views of the Journal's editorial pages. Governor Branstad asserted that "The wind power industry is an American success story that is helping us build our manufacturing base, create jobs, lower energy costs and strengthen our energy security."

Both the wind and the solar photovoltaic innovations and industries were largely developed here in the United States. But our major competitors, including China and Germany, have, through sustained federal domestic subsidies and purchases, rapidly expanded the size and strength of their domestic wind and PV corporations. Today, of the top 10 global wind and PV manufacturers only one of each is located in the US. We should be shocked and deeply concerned about the security implications of the US losing its global competitive leadership position in these critical industries.

The reality is that there is a global hyper competitive race to see which counties will dominate clean energy. Abdication of US Federal support for US corporations and competitiveness in industries largely created here in the US would be a disaster for US competiveness and security and a big win for China. Politically, US politicians should be concerned about who gets blamed for losing the global clean energy race.

The DOE Loan guarantee program has provided a modest but important lift to US clean energy investment and growth – both strengthening job creation and supporting the growth of US clean energy industries. But our main trading competitors, including China and Germany are out-investing us. Given the strategic and security importance of clean energy industries, weakening federal support for the US

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[7] Energy Security Forum Speech as Delivered by Admiral Mike Mullen, chairman of the Joint Chiefs of Staff , Washington, D.C. Wednesday, October 13, 2010 http://www.jcs.mil/speech.aspx?id=1472

[8] Energy Security Forum Speech as Delivered by Admiral Mike Mullen, chairman of the Joint Chiefs of Staff , Washington, D.C. Wednesday, October 13, 2010 http://www.jcs.mil/speech.aspx?id=1472

[9] Energy Security Forum Speech as Delivered by Admiral Mike Mullen, chairman of the Joint Chiefs of Staff , Washington, D.C. Wednesday, October 13, 2010 http://www.jcs.mil/speech.aspx?id=1472

[10] United States Department of Defense " Quadrennial Defense Review Report" February 2010

[11] Energy Security Forum Speech as Delivered by Admiral Mike Mullen, chairman of the Joint Chiefs of Staff , Washington, D.C. Wednesday, October 13, 2010 http://www.jcs.mil/speech.aspx?id=1472

wind and PV and other clean energy industries undermines US competitiveness and security. To force the military to import the technology it needs to achieve its mission of shifting to clean energy is to weaken US security. For security - and financial reasons - the DOE should use the 85% of its 1705 funds that are still unused and still available at the Treasury to fulfill the purpose of the funding, and backstop additional US clean energy companies and projects.

Positive Employment Impact?

An important non-financial benefit attributed to the DOE loan guarantee is that it creates jobs. As part of ARRA funding, the DOE 1705 loan guarantee program was specifically intended to result in increased employment. Expansion of US manufacturing of clean energy and expansion of renewable energy projects supported by the DOE loan guarantee enables funding for new plant construction and development of large solar and other power generation projects. All of these are located in the United States.

There has been widespread questioning of the employment benefits of stimulus funding for clean energy like the 1705 program. Credible sources on this issue include the Council of Economic Advisors, the Congressional Budget Office, and the National Bureau of Economic Research. These organizations have evaluated the stimulus funding, including 1705 and come to the following conclusions:

A November 2010 report by the Council of Economic Advisors entitled "THE ECONOMIC IMPACT OF THE AMERICAN RECOVERY AND REINVESTMENT ACT OF 2009" found that[12]:

- Following implementation of the ARRA, the trajectory of the economy changed significantly. Real GDP began to grow steadily starting in the third quarter of 2009 and private payroll employment increased on net by nearly 1 million from the start of 2010 to the end of the third quarter.

- The two established CEA methods of estimating the impact of the fiscal stimulus suggest that the ARRA has raised the level of GDP as of the third quarter of 2010, relative to what it otherwise would have been, by 2.7 percent. These estimates are very similar to those of a wide range of other analysts, including the non-partisan Congressional Budget Office.

- The CEA estimates that as of the third quarter of 2010, the ARRA has raised employment relative to what it otherwise would have been by between 2.7 and 3.7 million, consistent with the initial estimate that the ARRA would save or create 3.5 million jobs as of 2010:Q4.

In February 2011 the National Bureau of Economic Research issued a report entitled "Did the Stimulus Stimulate? Real Time Estimates of the Effects of the American Recovery and Reinvestment Act." The report summary noted that job impact varied considerably but that "Support programs for low income households and infrastructure spending are found to be highly expansionary. Estimates excluding education spending suggest fiscal policy multipliers of about 2.0 with per job cost of under $100,000". The report also found that "The stimulus had a positive,

[12] http://www.whitehouse.gov/sites/default/files/cea_5th_arra_report.pdf

statistically significant effect on employment…aid to low-income people and infrastructure spending showed very positive impacts."[13]

The non-partisan US Congressional Budget Office issued a report in May 2011 entitled "Estimated Impact of the American Recovery and Reinvestment Act on Employment and Economic Output from January 2011 Through March 2011", (May 2011). In its report the Congressional Budget Office found that ARRA's policies had the following effects in the first quarter of calendar year 2011[14]:

- They raised real (inflation-adjusted) gross domestic product (GDP) by between 1.1 percent and 3.1 percent
- Lowered the unemployment rate by between 6 percentage points and 1.8 percentage points
- Increased the number of people employed by between 1.2 million and 3.3 million, and
- Increased the number of full-time-equivalent jobs by 1.6 million to 4.6 million compared with what would have occurred otherwise…"

These major non-partisan analyses all demonstrate that ARRA programs like the DOE 1705 loan guarantee program had large positive impact in slowing severe job loss, helping slow or reverse the economy's steep economic slide, increasing employment, and stimulating the economy.

The issue of timing of job creation for ARRA funding has created some confusion and some apparently deliberate misinformation. Employment occurs after investments are made, so assessment of employment impact before investments are made is neither relevant nor intellectually honest. For example an article on CNS is entitled "Obama Visits Corporation Where His Stimulus Created 'Green' Jobs at $2 Million Per Job"[15] The article later acknowledges this job creation cost estimates is based on only 150 interim jobs created as Johnson Controls builds its high performance battery plant for 3000 employees in Michigan. Based on actual plant employment of 3000, the cost per job created is $100,000 per direct job created, not $2 million per job, as widely reported. The cost effectiveness is actually better than this because the 3000 direct employees at Johnson's new plant will drive a lot of indirect employment (supplying the plant, servicing employees etc.) This kind of manipulation of data appears to be widespread and may be politically expedient, but it is dishonest and insulting to US corporations like Johnson Controls who are investing in expansion of the US economy. This kind of dishonest accounting also does a disservice to the need for a fair evaluation of the actual cost-effectiveness and impact of Federal loan support and similar funding.

Major banks have also generally become convinced that investments in energy efficiency and green buildings are cost-effective and produce good US jobs. For example, Deutsche Bank Group in October 2011 released a report entitled "Repowering America: Creating Jobs". Deutsche Bank forecasted energy supply and energy employment through 2030 based on projections of sustained US investment and growth in the areas of energy efficiency and clean energy. Deutsche Bank determined that such a strategy would result in 7.9 million cumulative net job-years of direct and indirect energy employment, of which 6.35 million jobs (80%) would come from energy efficiency or renewable energy sectors (e.g. geothermal, solar PV, solar thermal and wind).[16]

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[13] http://www.nber.org/papers/w16759.pdf

[14] http://www.cbo.gov/ftpdocs/121xx/doc12185/05-25-ARRA.pdf

[15] http://www.cnsnews.com/news/article/obama-visits-corporation-where-his-stimulus-created-green-jobs-2-million-job

[16] http://www.dbcca.com/dbcca/EN/_media/DB_Repowering_America_Creating_Jobs.pdf

Conclusion

In hindsight, the DOE loan guarantee program made mistakes – it made several loans it should not have made and it probably did not make some loans it should have made. For some, the loan application process was too demanding and time consuming, while for others it was not demanding enough. But as any PE or VC investor knows, hindsight is always 20/20, whereas at the time of investment investors make their investments, knowing that some will fail, but hoping that most will succeed. The only valid measure of success is whether the financial objectives (eg target default rate) are met and whether other objectives – eg security and expanded US employment -- are achieved as well.

Because DOE had structured its $400 million loan guarantee to Abound in tranches, total federal losses are likely to be only about $40 million, or one tenth the total loan guarantee amount. This reflects prudent risk management by the DOE loan guarantee program.

A review of loan portfolios indicates that total defaults by Solyndra, Beacon, and Abound are likely to be in the range of $400 - $800 million dollars, or about one quarter the amount projected and budgeted for. The DOE should therefore expand its loan guarantees. Given its effectiveness in leveraging private funding, the largest risk would come from DOE ending its loan guarantee program.

Questions have been raised about the impact of 1705's objectives to increase employment and strengthen security.

Regarding employment impact, analyses from multiple non-partisan organizations, including the Council of Economic Advisors, the National Bureau of Economic Research, and the US Congressional Budget Office demonstrate large and positive employment impact from ARRA programs like 1705. If the reader believes that the Council of Economic Advisors, the National Bureau of Economic Research, and the US Congressional Budget Office and large banks are credible, then ARRA programs such as 1705 has had large, positive employment benefits.

Regarding the relationship between US security and expanded US capabilities and production of clean energy, the US military, as discussed above, clearly states that it believes in and is investing heavily in this thesis. If the reader believes that the US military is an authority on security issues, then it is clear that the 1705 program strengthens US security.

The success of the 1705 program to date and the relatively large amount of unused subsidies indicate that DOE should ramp up its loan guarantee efforts and provide loan guarantee support for roughly another $30 to $40 billion of clean energy projects. A Committee on Energy and Commerce Internal Memorandum (September 12, 2011), noted that "with the additional funding provided in the stimulus for the credit subsidy costs of these guarantees, the total estimated loan guarantee authority is approximately $70 billion." The DOE Loan guarantee program therefore has considerably more room in its 1705 DOE loan guarantee program to support additional US renewable and clean energy companies and projects.

The DOE 1705 loan guarantee program provides a significant lift to US clean energy investment and growth – both strengthening job creation and supporting the strength of US clean energy industries. And if the US military is forced to import the technology it needs to achieve its mission of shifting to clean energy, it will weaken US security. Yet our main trading competitors, including China and Germany, continue to out-invest us. For financial, security, employment and competitiveness reasons - the DOE should use the 85% of its funds unused and still available at the Treasury to backstop additional US clean energy companies and projects. Not to do so would undermine US competitiveness and security.

Given the clear success of its loan guarantee program to date based on rational measures of financial performance and on other measures including security, employment and US competitiveness, the DOE should not risk halting the loan guarantee program. The investments in renewable and clean energy strengthen the US by adding jobs, increasing global competitiveness, and enhancing security. Failing to make substantial *additional* loan guarantees for renewable and clean energy projects and companies would be self-defeating and would undermine of US corporate, security and competitive interests.