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The Solar Hype Cycle: Don't Let The Sun Go Down On Me

Mark Modzelewski 8/4/08

The other day the *Boston Globe* had a piece on solar technology coming of age in which Caltech chemistry professor Nathan Lewis stated: "We're not in a hype cycle...If you go to Silicon Valley and around Route 128, everyone and their brother who used to make computer chips are now trying to make thin-film solar cells."

Dr. Lewis seems to ignore that he gleefully gave a textbook definition of a hype cycle. And an out-of-control hype cycle is literally what we're in when it comes to solar energy.

There are dozens of separate subsectors of research, development and production that fall under the solar energy banner. I am going to skip passive solar, solar water heaters and solar thermal (which I actually like) and cut right to the solar energy sector most encumbered with hype, technical issues, mad money, and conflicts with reality—photovoltaics.

Photovoltaics (PVs) convert sunlight directly into electricity. Basically, they are those ugly glass boxes you see over at the Porter Square Plaza in Cambridge. Production of photovoltaic cells has been doubling every two years, since 2002, making it the fastest-growing energy technology sector in the world.

PVs break down for the most part into crystalline silicon PV, inorganic thin film, multi-junction PV, and organic and Gratzel PV systems. In a nutshell, you have the old, thick, expensive ones and newer, thinner, cheaper, often flexible ones. The issues making them problematic as an energy solution are that PVs cost too much to make, install, and maintain—oh, and they also only work when the sun is out.

To the cost issue of PVs, you hear a lot about companies working toward "price parity" and "grid parity"—i.e. a cost per megawatt on a par with electricity from fossil fuels—but nearly any number you see in print is half baked. Over and over again, companies have failed to translate the efficiencies achieved in lab experiments into durable solar panels that can be mass-produced cost effectively. Miasolé, for instance, has been getting 8 to 10 percent efficiency in the lab but only 4 percent or so in a mass-production form. Once you account for installation, maintenance, and repair costs for homes and business—which often add more than 50 percent to the base cost of PV panels—it's clear that PV solar is never going to be cost-effective as a replacement baseload power source.

So if you were to go the Al Gore route of building a national, grid-replacing, mega solar farm in Nevada, we'd all go broke and die. It's an inconvenient truth (ouch!) that besides destroying 5 million acres of land (about seven times the size of Rhode Island; wait until the environmentalist hear about that!) and another 7.5 million acres of adjoining land to support the system, it would cost around $21 trillion dollars to build a solar farm large enough to meet U.S. power needs—and we'd still have to keep the current energy grid up and running and ready to go for the two-thirds of the time when the sun isn't doing its job.

In addition, though solar has this reputation of being a green technology, the reality is that PVs are full of gross pollutants, gnarly residues and nasty chemicals. Making PVs requires toxic heavy metals such as lead, mercury and cadmium—and throw in silicon tetrachloride to boot. Then there's the mining operations needed to get many of the materials. And for good measure, don't forget that PVs are made in factories. The plant at Suntech, one of the world's biggest PV makers, is powered by a coal plant. Oh, the delicious irony.

On top of all of this, the PV industry is truly dependent on subsidies. The government now pays 30 percent of the cost to businesses to invest in solar to meet their energy needs. For consumers, there's a Federal tax credit of $2000 for your renewable energy system (solar or wind) after rebates. States throw in a hearty helping of additional incentives, as in the case of California, which offers a subsidy for residential solar of as much as $2.50 per installed watt, depending on a system's expected performance.

Even with all those subsidies, and even with oil at $140 a barrel, and even when you add in the federal and state taxes on oil production, solar still doesn't reach break-even with fossil fuels, except in some start-up's PowerPoint presentation.

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Worst of all, this hype is bad for the environment. Focusing so much on PVs means that we're moving investment dollars away from other clean energy technologies that have much more potential. I often hear folks at clean energy forums state that the United States needs to emulate Germany by creating more incentives to build PV farms. What's not mentioned is that it takes six years for a German PV plant to generate the amount of power used to make the PV cell.

So PV solar costs too much, isn't exactly green, isn't as good as claimed, and depends on government support. What else can be wrong with it? Investors—and their bad habit of creating impossible expectations, stoking the fires of hype, and inflating a huge bubble that could pop at any time.

Let's start with thin film PV maker First Solar, which is up something like 900% since its IPO. The company is sporting a $20 billion market cap after $196.9 million in revenues for the first three months of the year. Think about that for a second. We aren't talking an online or software play. We are talking a company producing a physical good. This little bit of valuation lunacy has triggered a VC feeding frenzy on similar solar plays with NanoSolar and Miasolé already having valuations of well over $1 billion before selling much of anything.

All told last year, VC investments in solar power (and almost all of it in PVs) reached around $1.36 billion, up from $400 million in 2005. The bulk of those investments went into backing various thin-film technologies—55 in 2007 alone. More than 100 thin-film companies are vying for a slice of the market, according to a recent Lux Research report, which forecast that thin-film solar will occupy 28 percent of the solar market by 2012. As the report noted, "This exceptional rate of growth demonstrates that VC firms believe solar is far from its peak." Gaia help us. (Disclosure: I am a co-founder of Lux Research and a shareholder. However, I no longer have any operational or oversight role with the company.)

And with all the investment focus going to solar power, an interesting situation has developed—overcapacity. In a classic "who'd a thunk," we are entering a prolonged period in which PV supply is outpacing demand. Lower barriers to entry will contribute to lower production prices and lower margins. This turn of events won't likely last forever, but do you really want to be investing in one of the 100-plus new entrants in a market that is already producing more than the market can handle?

This is a good time to note that no VC-backed companies even IPOed in the second quarter. Furthermore, the average size of the solar IPOs that have occurred has been dropping since 2005. Solar equipment maker GT Solar, a pretty solid company that makes equipment for manufacturing PV cells, went public last week and fell 11.6 percent in its first day of trading and continued to fall over 20 percent more.

And here is the potential really bad news for investors. Some big players in private equity and on the research side have hypothesized that the price of PV solar cells is about to plummet so quickly that manufacturers will enter a netherworld where they are making enough to keep the lights on but not enough to make a formidable profit. That's going to make shareholders and potential shareholders really happy. It's also going to give birth to a whole new foreign energy "boogieman" as China becomes *the* dominant solar player in a way that dwarfs OPEC's role in oil. With its centralized manufacturing base, the Chinese can wait out any market downturns and work with small margins in a way public U.S. companies can't. They will gradually gain control of the PV market in much the same way that the Japanese took over the small battery sector a couple decades ago.

So as you can tell, PVs as an investment area really bum me out. I don't find the technology all that thrilling either. PVs will certainly be a piece of the global energy puzzle, but will have nothing like the role of coal, oil, hydroelectric, nuclear, and even other green technologies. If you're looking for a sure winner in this crowded mess of a field...good luck. One spin of the roulette wheel seems like a safer bet for cleantech investors these days.

Next up: I continue my snarky remarks on several other green energy technologies, and eventually get around to saying which ones I like.

Like 0

Mark just helped found a Somerville-based stealth cleantech start-up which recently spun out of Harvard. He is a veteran technology entrepreneur and the former managing director and co-founder of Bang Ventures, an investment firm based in New York with offices which focused on early stage technology investments.

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Document 2

#7

[redacted]

From: [redacted]
Sent: Tuesday, January 13, 2009 4:36 PM
To: [redacted]
Subject: Fw: USA Today Article on Rooftop Solar Systems

----- Original Message -----
From: [redacted]
To: [redacted]
Sent: Tue Jan 13 14:10:33 2009
Subject: RE: USA Today Article on Rooftop Solar Systems

[redacted], Thanks. It serves serves to bolster our argument for a market analysis at this time.

[redacted]

-----Original Message-----
From: [redacted]
Sent: Tuesday, January 13, 2009 1:16 PM
To: [redacted]
Cc: [redacted]
Subject: RE: USA Today Article on Rooftop Solar Systems

To All-There is an article on page 1B of today's USA Today news paper on the "Glut of roof top solar systems."

-----Original Message-----
From: [redacted]
Sent: Tuesday, January 13, 2009 12:30 PM
To: [redacted]
Cc: [redacted]
Subject: Solyndra Meeting

After canvassing the committee it was the unanimous decision not to engage in further discussions with Solyndra at this time.

[redacted]

Document 3

[redacted] #8

From: [redacted]
Sent: Monday, January 26, 2009 5:15 PM
To: [redacted]
Cc:
Subject: RE: Solyndra Analysis

[redacted]

As we are approaching the beginning of the approval process for Solyndra again, I wanted to highlight the questions below that remain outstanding. In order to move forward with the credit review of this project, I will need the responses to the questions below. Please let me know when the responses are ready. Delay in getting these responses will delay our ability to review the project and to meet the target deadline we have set.

As an additional note, I want to ensure that these concerns are addressed in the negotiations occuring Friday with Solyndra. As a practical matter, it would be ackward to finalize negotiations with the applicant and then to go back to them with additional requests for information. I want to ensure that the specific concerns Credit Policy and Credit Committee have indicated are reflected in the negotiated terms.

Please send your responses to the questions below at your earliest convenience.

Thanks.

From: [redacted]
Sent: Wednesday, January 07, 2009 5:12 PM
To: [redacted]
Subject: Solyndra Analysis
Importance: High

All,

Below is a status of information requests Credit Policy has made regarding Solyndra. Each of these three emails was intended to provide constructive feedback to move this process forward. To-date, I have not received a response to most of these requests.

Also attached is Credit Policy's presentation for OMB. This analysis was run based on information received as of January 4 and does not reflect any subsequent submissions.

We have not run the credit subsidy range pending receipt of information requested below. At this point, I believe we have two options:

1) Provide the initial estimate provided to the applicant 12/9 stating that it has not been updated to reflect the LGPO's due diligence and underwriting assumptions.
2) Run the calculation based on the amortization we received today and Credit Policy's ratings with the caveat that this is subject to change based on new/additional information as well as the new Term Sheet proposal.

I suggest we discuss as soon as possible. I have not released any information to OMB as was originally scheduled for today. I am scheduled to brief OMB tomorrow.

Thanks.

December 15, 2008 Email

The credit analysis of the Solyndra project may benefit from the following considerations. These are grouped into several categories

based on how they fit within the Program's underwriting approval and disbursement procedures.

* Credit Analysis Considerations: The credit analysis of Solyndra may benefit from the following considerations:

Evaluation of Parent Financial Health: The interdependency of the proposed project with its corporate parent, Solyndra Inc., presents challenges in the credit analysis. In one sense, Solyndra Inc. is a key counterparty to the project. However, the multiple relationships with the project make the parent and the project affiliate entities within a single business enterprise. Therefore, the financial health of the parent corporation should be evaluated over the life of the project. It may be worthwhile to simply model project and the parent as a combined integrated enterprise. This would allow for the LGPO's consideration of working capital (inventory, accounts receivable, accounts payable, etc.) requirements, SG&A expenses, ongoing capital improvements, and outstanding and planned debt issuances. This presentation could complement the project-oriented model, which provides a good indication of the contribution of the project to the parent's overall financial health. However, analyzing the project model alone would provide an incomplete picture of the overall creditworthiness of the guaranteed obligation. In short, a financial disruption at the parent level could directly affect the project's receipt of revenues on a timely basis and the ability of the project to maintain uninterrupted operations.

STATUS:

— **Discussed but not addressed.**

Calculation of Debt Service Coverage: The calculation of debt service coverage should include working capital movements and cash taxes. The specific calculation is consistent with LGPO Policy.

EBITDA

Plus/minus Changes in working capital
Plus/minus Cash taxes paid
Minus Non-discretionary capital expenditures

Divided by Debt Service

STATUS:

— **Addressed in 1/7/09 financial metrics**

Presentation of Project Plan of Finance: The current model calculates draw requirements based on EBITDA, capital expenditures and working capital movements. In this calculation, Eligible Project Costs are comingled with ineligible project costs (e.g., R&D). It would be helpful to obtain a detailed sources and uses of funds statement that sets forth the eligible project costs and corresponding sources of debt and equity.

STATUS:

— **Not received, but similar issue raised by DOE OGC**

Interest Capitalization Period: The specific terms of the guaranteed obligation need to be defined. Specifically, whether or not the applicant will utilize a 36-month interest capitalization period (versus 24) should be identified. The LGPO's analysis and credit subsidy estimate will be based on the maximum term afforded under the Loan Guarantee Agreement.

STATUS:

— **Similar issue raised by DOE OGC. Credit Policy is assuming a 30 month construction period with interest paid current based on latest amortization schedule. However, clarification is needed from the Term Sheet. Credit Policy will use the maximum term afforded under the Guarantee for it's final analysis.**

Construction Completion Commitment: The construction completion commitment from the parent organization needs to be defined.

STATUS:

— **Not clarified, but issue discussed in LGPO meeting. Impact on Credit Rating, if any, should be determined.**

Applicant Mitigation Strategies: The engineering report identifies some contingency plans that the applicant has in mind for the CIGS process. This mitigation strategy as well as others should be articulated by the applicant and the associated costs should be identified. Additionally, the results of the FAB 1 facility should be documented at this time and reviewed by the LGPO's independent engineer. The results of this facility represent an important piece of information for the LGPO and credit rating agencies to consider as they move forward in their analysis.

STATUS:

— **Not addressed.**

December 31, 2008 Email

• Project Sponsor Risk: Your risk rating indicates that the company has recently closed on a $350 million convertible issuance. Have we received an updated balance sheet that reflects the company's current cash balances? What is our expectation of cash balances as of financial close? Can you share the results of your Lexis-Nexis research with Credit Policy?

Status:

— Received updated balance sheet
— Received Lexis-Nexis research conducted to date
— Information related to timing of FAB 2 equity raise received on 1/7/09. Additional information is needed regarding parent funding requirements through completion of FAB 2 project.

• Technology Risk: Has the Applicant provided a schedule of milestones related to the FAB-1 facility? The "standby financial resources" attribute indicates that concern over completion support adequacy may be addressed through recourse to equity holder. Is this related to the completion support facility? What is the LGPO's position on this?
The concern over the CIGS scale-up has been identified as the most significant risk to the project ramp. Both the Applicant engineer's report and the existing draft of the IE's report suggest that the Applicant has a contingency plan for providing additional CIGS deposition output capability if needed. Do we have an idea of the cost associated with this plan?

Status:

— **Fab 1 status report received on 1/7/09. Specific FAB 1 milestones not received**
— **Specific documentation regarding the availability or adequacy of the standby resources not received.**
— **CIGS disposition contingency plan articulated in IE's report. Cost associated with the additional CIGS tool not received. Cost estimate should include potential delay effects.**

• Capital Structure: What is the Applicant's plan for raising the required equity investment in the project? Will the Applicant have sufficient cash on hand to fund the required project equity investment as well as funding other cash needs related to ineligible project costs and ongoing working capital needs of the parent corporation?
Status:
— **Specifics on sizing and timing of equity raise not received.**
— **Information/analysis regarding working capital needs of parent not received.**

Market Risk: The Risk Rating references a Navigant Consulting study published in April 2008. Has this study been made available to the LGPO? If so, is it in Edocs? Could you share the diligence findings of product off-takers?
Status:

— **Response regarding April 2008 Navigant study not received**
— **Off-taker diligence findings not received**

• Project Completion Risk: Have the basic terms of the Equipment Supply Agreement been defined? How does the Applicant propose to address issues related to delivery of tools and equipment?
Status:

Document 4

MEETING MEMORANDUM

To: **Secretary Chu**

From: [redacted]

Meeting with: [redacted]

Location: Secretary's Office

Meeting Date: January 30, 2009 **Time:** 10:15 am – 10:45 am

Open to Press: [ ] Yes [X] No

[redacted]

[redacted]

Document 5

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POLITICS | FEBRUARY 6, 2009

'We've Got to Do This'

Energy Secretary Chu Plans Rapid, Careful Spending

The nation's new energy secretary, Steven Chu, talked Friday with The Wall Street Journal's Stephen Power, about what he's doing to make sure the billions of dollars headed his department's way for energy efficiency and renewable power projects don't get wasted or tied up in red tape, a common problem at the Department of Energy in recent years. Below, see edited excerpts.

STEVEN CHU

The Wall Street Journal: It looks like your agency is about to get somewhere in the area of $35 billion to $40 billion under the stimulus bill making its way through Congress. Right now you're the only person at the Department of Energy in a Senate -confirmed position. How well equipped is your agency right now to wisely and quickly spend all the money it's about to get?

Steven Chu: I'm the only confirmed position but there's a chief of staff, there are advisers to me personally that are not Senate-confirmed positions that are coming on board as soon as the internal vetting process is done. So I think a number of key advisers that report directly to me are the only real way I see of getting this going in a rapid way. Just one person can't do it...

WSJ: But this is a huge amount of money -- it's bigger than your annual budget and it's for all these new areas and new programs. And we know DOE in the past has had trouble moving quickly, like with loan guarantees.

Mr. Chu: There's one key adviser we're trying to get as quickly as possible specifically on the economic recovery package. I've been speaking with the Department of Agriculture. [Secretary of Agriculture] Tom Vilsack has been very, very helpful. He's come over here. He's had some loans that have gotten out, including actually investments in bio-fuels energy companies. They seem to have at least at first blush a better track record of getting it out quickly. We're trying to find out what they did, how they did it ... We're going to be exploring the idea of detailing some of his people to come over here and put them next to our people and say, "This is the pace we expect, not three years, but five months."

We've got to do this and we've got to do it in a way that has not been done at the Department of Energy...

We're looking at what are asserted to be general counsel concerns that could slow things up. We're looking everywhere -- very, very deeply.

Essentially, a third of my attention is focused on how to get it done in months and not in years. ... If someone in the Department of Energy tells me, "Oh, you have to do this, you have to do that, there are legal impediments and things like that," you go to another agency and find they've done it more quickly. It's a matter of getting the money out quickly and making sure you do due diligence. ...

I think this is solvable. And not only solvable -- we've got to do it. Otherwise it's just going to be a bust. If we take two years to get the loans out, that's not what the country needs. We've got to get it out much more quickly than that.

WSJ: What's your metric? What percentage of money has to get out in what time frame?

Mr. Chu: To really stimulate the economy and help the U.S. recover from this dire situation we're in, my feeling is, a substantial fraction, a majority of it ... you're starting to cut checks within half a year to a year.

WSJ: So you'd like to be cutting checks within a year to half a year ... with most of the money?

Mr. Chu: Yes. Now, there are things in the pipeline now. And so we're trying to get those things out in a month. We're essentially going back to the people who have been doing this ... They gave us a scenario for an accelerated ... it's been in the pipeline literally for over a year ... These are loans to energy companies. They gave us an accelerated scenario, maybe five months. We're saying, "Tell us what you need to do in order to get them out in four weeks." Because it's in the pipeline. These are loans from the 2005 [Energy Policy Act]. Appropriated in 2006, and still no money is out the door. And here we are at the beginning of 2009.

WSJ: What are some of the bureaucratic obstacles or procedural obstacles that have slowed the department from getting those loans out?

Mr. Chu: One thing is we have a very conservative legal department. They feel that in order to be quote fair to all applicants, you have to wait and give a period of time where all applications come in and then you begin to vet the applications ... Many agencies including competitively bid science agencies ... you take these rolling applications and you have a baseline of the quality you know so if a loan guarantee program has been going on for several years ... you have a good feel for the quality. So you don't have to wait for all of them to come in before you start triaging them. "These are the ones we are look at seriously, these are the ones that are non starters... ."

I'm not convinced that the level of documentation that's been asked for is required ... It might be too much. So we're going to have to look at that. We look at best business practices in the private sector. If there's a huge difference btw practices in the private sector, you don't want to be issuing bad loans ... you figure out how is it that commercial entities can do this and import those best business practices ... .

It means you have to go into gory detail: "What is it your requiring, why do you think you need this?" ...

I have my advisers actually going down rolling up their sleeves and asking, "OK, what is it that you're requiring? Is this really necessary?"

WSJ: Is there an example of something you've discovered in your reviews of something [the] DOE was requiring that you think is excessive?

Mr. Chu: No. We've had in this office about three or four meetings. But you don't actually find out things in this office. So I now have my advisers actually going down, rolling up their sleeves and saying, "OK, let's look at every detail. ... What is it that you're requiring? Is this necessary?"

There's another thing -- helping companies really talk with a potential applicant. And what we can do that, I believe, is completely fair is that [with] every single applicant, we just say, "We are here to help you put forward the best application possible" ... instead of saying, "We can't help anybody." There are two ways to be fair: You help everybody or you help no one. So I'm looking at how we can give advice.

Let's say you're a company, and you want to come to the Department of Energy. Well, you may not know what is really required. So you might submit something, and we can look at it and say, "Nope, go back, this is not what we need. We need much more than this." Or maybe in the uncertainty, you might be generating more than we really need. I'd think we'd get a Web site up to help people. So it's all publicly disclosed. Everything. Sort of a help line, if you will. We're going to look at whether that is possible. I believe it is ...

WSJ: How many people are you going to have to hire to administer this law?

Mr. Chu: Administer the law?

WSJ: To help you just implement it to get it done. The accountants, the risk analysis people, tracking the money. How many people are we talking about that this agency is going to have to hire?

Mr. Chu: Well, we're going to probably have to get them detailed from other agencies . . . We will look for talent across all the agencies . . . Because, quite frankly, we can't hire the people fast enough because of [human resources] rules. So we need detailees. Either detailees, or we hire people from the outside. Again, detailees, consultants. But there's no way we can get money out the door by going through normal hiring processes.

WSJ: So how many people are you looking to bring into the agency?

Mr. Chu: I can't say now. Again, we're only ...

WSJ: Thousands?

Mr. Chu: No. We don't need thousands. Come on ... I don't think you need thousands. A lot of these loans, some of the loan applications I've seen are in big hunks of money. The nuclear, this is in the $5 billion range. Eighteen point five billion, and people are talking about three loans. The synopsis of the loans I've seen in innovative green energy -- they're in the hundred-million dollar range. They're in big hunks of money. Now, if we were doling them out in less than million-dollar pieces, that would require a lot more people.

WSJ: What are the areas of the bill and DOE where you're looking and thinking, "OK, that's where I've really got to zero in on"?

Mr. Chu: Loan guarantees and getting money to the states. These are green energy projects within states. I've met with a group of them, 15 or 20 of them a couple of days ago. We're trying to figure out, "OK, which ones, if we get the money to you, how can you get it out the door?" Are there [National Environmental Policy Act] requirements that will slow things up? What's shovel ready? What's good to go? We're putting the word out: Bring us back what you can personally guarantee to us is really going to be ready. We cut you a check, you cut them a check. These are things like weatherization, things of that nature...

WSJ: What percentage of the roughly $37 billion dollars do you want [to be] spent by [the] DOE within a certain amount of time?

Mr. Chu: I would say I would like, you know, round numbers, about half of it to be spent. This would be an ambitious goal, half of it to be spent in a year. That would be a good target, I think.

WSJ: And that means being spent by [the] DOE. But does that mean getting to the people who actually are going to need it?

Mr. Chu: That's why we're putting the states on notice. 'Hey, guys, tell us ... so there's no delay.'

WSJ: And what are they telling you they need you to do to do it?

Mr. Chu: They haven't gotten back to us ...

WSJ: Is there any risk that in setting such aggressive goals for spending money in a certain period of time that you're going to wind up wasting money in some areas?

Mr. Chu: There's always a risk. But the protection against that is not to require more documentation. The protection is to get really good people to ask the right questions, to do a real evaluation. There are two ways of doing this: You can ask the right questions, and you can get people who are good at this sort of economic project management, who are experienced in "how do you smell something that doesn't look like it's going to fly?" or the financial business plan or basis of the company.

WSJ: Good questions, not necessarily more questions.

Mr. Chu: Exactly.

WSJ: But where are you getting those people?

Mr. Chu: Private sector ... There are a lot of people out there who realize the condition we're in the United States, both with the energy issues and the economic stimulus issues. You can get really good people to come in for half a year or two years, and say this is your service to your country.

WSJ: Any interesting places you're recruiting from?

Mr. Chu: We're going to have announcements.

WSJ: I know you say you have advisers, but if you're the only Senate-confirmed appointee, that means that you're the only person who can testify for your agency before Congress?

Mr. Chu: That's right.

WSJ: So isn't that a bit of a challenge?

Mr. Chu: Yes and no. What happens is, there are a core of people I think at the Department of Energy who want to be led, who really want to do the right thing. There's another core who's used to the old way of doing things. But remember, there's -- well, like Rod O'Connor, my chief of staff. He has the exact same feelings I do. So those are not Senate-confirmed people. But they report directly to me. These are people I'm going to be seeing for a couple of hours every day. That's the only way we can get this thing going. It's going to take a couple of months to get through Senate confirmation. So we have to rewrite the rules.

WSJ: Sens. Feinstein and Snowe have asked you to establish a timeline for issuing loans under the Advanced Technology Vehicles Manufacturing Incentive Program. Are you prepared to do so?

Mr. Chu: We're working on it ...

WSJ: So are you ready to give a timeline?

Mr. Chu: We can probably get a timeline out in a week or two. I mean, we're trying to understand, why the heck did it take so long before? Are there examples of it taking far less? We're working very hard to find out where in the commercial sector, where else in government, can you get responsible loans, responsible investments quickly.

WSJ: The senators have also complained that [the] DOE's interim, final rule for this program erroneously defined the "base year" of this program as 2005, instead of the year a retooled factory re-opens. They say [the] DOE's "error could allow automakers to receive subsidized loans for mere compliance with [the Corporate Average Fuel Economy] regulations, which would violate Congress's intent and squander government resources." Is their concern valid, and if so, how do you plan to address it?

Mr. Chu: I can't speak to that at the moment. That's a technicality

WSJ: Do you have any concern that all these responsibilities you're about to be tasked with are going to distract [the] DOE from its focus on cutting-edge science and maintaining nuclear weapons and cleaning up former weapons facilities?

Mr. Chu: No, I'm not concerned. I have a high bandwidth ... Actually, I like it because it's a good reason to get into the heads of the folks who work in this building ... that we're going to go into a new era where you can get a level of dedication. We can bring in new people that have this real sense of urgency. It's a good thing ... It can be the example of a new DOE.

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Document 6

#9

From: [redacted]
To:
Cc:
Subject: Fw: ACTIONS: Loan Program
Date: Thursday, February 12, 2009 8:11:50 AM

Fyi

From: [redacted]
To: [redacted]
Cc: [redacted]
Sent: Thu Feb 12 08:07:20 2009
Subject: RE: ACTIONS: Loan Program

thank you for these notes. the nepa disclosure issue looks resolved. in the solyndra conversation, it is very important that the parties be able to close today on the matters at hand and move to the next stage. so, having someone in the room who can commit the department in real time is quite important to ensure the cycle time for decision-making can be short and they do not have to carry any issues over night. The team would like to be able to metaphorically lock the door and not come out until there is an agreement. This loan represents a litmus test for the loan guarantee program's ability to fund good projects quickly. Thank you for your prompt and timely support on this matter. Regards, [redacted]

[redacted]

[redacted]

02/11/2009 03:07 PM

[redacted]

Subject RE: ACTIONS: Loan Program

[redacted]

NEPA: This afternoon this office concluded that divulging the amount of loan guarantee being sought was not required in NEPA documents. This conclusion is consistent with the views expressed by the LGPO.

SOLYNDRA: (1) I understand that there will be GC participation in tomorrow's meeting with the sponsor. I will be pleased to be available on an immediate basis to this office's representative should that be necessary to address any open issues.

(2) I do not know anything about the "IP language." Perhaps [redacted] or [redacted] can enlighten me.

Thanks,

[redacted]

From: [redacted]
Sent: Wednesday, February 11, 2009 3:37 PM
To: [redacted]
Cc: [redacted]
Subject: ACTIONS: Loan Program

[redacted]

To followup my earlier email today, below are three items needing immediate GC attention for Title XVII. I might add that we invited [redacted] to todays meeting to discuss these items and no one from GC attended. It is important that if we are going to deal with these matters expeditiously, that GC is present and prepared to handle these issues. I appreciate your attention to this priority effort.

Thanks,
[redacted]

NEPA

1. GC needs to decide whether language divulging the amount of loan guarantee being requested by applicants should be included in NEPA documents. (This issue is currently delaying NEPA processing of the Solyndra, [redacted] and [redacted] projects.) LGPO is against the idea as we see this as business confidential information. Attached is LGPO memo providing our arguments which was given to GC in early December. We understand that a meeting is being held among all the GC parties today to resolve the matter.

Solyndra

1. GC must be represented at the upcoming conference call with the sponsor. A critical meeting is tomorrow (Thursday) afternoon. Whoever attends for GC must have the authority to close on issues or have immediate access to someone who can. Anything less will significantly delay negotiations.

2. GC still needs to opine on IP language.

+==========+

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+==========+

Document 7

From: [redacted]
To: [redacted]
Subject: FW: [redacted]/Solyndra Report
Date: Friday, February 27, 2009 11:36:50 AM

[redacted]

[redacted] wants you to handle this from [redacted] by forwarding it (minus numbers 1 and 8) to [redacted] and requesting their response. Say that these were questions raised by LGPO's engineer.

Thanks.

[redacted]

From: [redacted]
Sent: Thursday, February 26, 2009 11:02 AM
To: [redacted]
Cc: [redacted]
Subject: [redacted]/Solyndra Report

[redacted] -

Some points to consider after reviewing the [redacted] "Independent Engineer's Report: Solyndra FAB 2 Manufacturing Facility Final Draft" (February 2, 2009).

1. Concur that construction contracts should include recommendation of the "Geotechnical Report". Solyndra should demonstrate how the CH2M Hill PDR and Geotechnical Report recommendations are resolved or addressed. A crosswalk would be helpful.

2. A discussion of the raw material supply chain availability is desired. For example, Solyndra's propriety and unique processes to vapor deposit the copper/indium/gallium, diselenide (CIGS) may be depend on availability of materials just recently applied to PVs. CIGS is also proposed for flexible PV cells. Is Solyndra in competition for CIGS and other feed stock materials?

3. Solyndra refers to "bare glass" tubes. Are these commonly available glass or specialized glass products. How are these warranted against damage? Long-term life cycle test results from IDS production would be desirable.

4. No quality control industrial standards such as ISO 9000 are cited. Details regarding quality control as applied to the proprietary front end processes would increase confidence in meeting manufacturing goals. A robust quality control program would support warranty or life-cycle claims for PV tubes manufactured by Solyndra.

5. Of key concerns are approaches to **scale up from the IDS production rates to Fab 2 facility production rates**. Molybdenum back content and CIGS application scale up are proposed by reducing thickness. For these critical photovoltaic items, has Solyndra analyzed long-term life-cycle and performance impacts of reducing thickness? Consider also that

CIGS are sensitive to environmental conditions.

6. Three-scale up options are proposed for CIGS vapor applications. Decision points for when to adopt an option and the cost and schedule impacts are desirable.

7. Efficiency reviews should be submitted and reviewed. Achieving 44 to 48 percent increases in production rate for molybdenum back content and CIGS vapor deposition are challenging goals.

8. Further discussion and data on reliability, products, life-cycle performance and warranty would be helpful.

[redacted]

Document 8

#6

[redacted]

From: [redacted]
Sent: Tuesday, March 10, 2009 9:06 AM
To: [redacted]
Subject: Re: Update: Solyndra

Talked to them yesterday and they are excited for potus to do the event. Regards, [redacted]

[redacted]

----- Original Message -----
From: [redacted]
To: [redacted]
Sent: Tue Mar 10 08:39:24 2009
Subject: Re: Update: Solyndra

[redacted] - do we know if this is still a potus event? Last time I spoke w [redacted] he was not sure.

[redacted]

----- Original Message -----
From: [redacted]
To: [redacted]
Cc: [redacted]
Sent: Tue Mar 10 05:41:41 2009
Subject: Re: Update: Solyndra

Great result well negotiated. [redacted] and [redacted] can you also work w [redacted] this am to prepare a short memo for the whitehouse folks on what an announcement could look like on the 19th. We will want to try to get to crb on friday to make sure that we have enough time for the wh folks. Solyndra will be happy they blinked when potus arrives. Great work. Regards, [redacted]

[redacted]

----- Original Message -----
From: [redacted]
To: [redacted]
Cc: [redacted]
Sent: Tue Mar 10 00:28:36 2009
Subject: Update: Solyndra

Gang,

Just spoke with [redacted]. Solyndra blinked. Congrats !

[redacted], pls followup with [redacted] so we can expeditiously move forward to the Credit Committee and CRB.

Well done !
[redacted]

Document 9

#7

[redacted]

From: [redacted]
Sent: Tuesday, March 10, 2009 9:15 AM
To: [redacted]
Subject: RE: Loan announcement?

There is still strong interest...that is great news and great work. When does the CRB meet?

-----Original Message-----
From: [redacted]
Sent: Tuesday, March 10, 2009 8:38 AM
To: [redacted]
Cc: [redacted]
Subject: Loan announcement?

[redacted]

Is there still an interest in a loan announcement March 19th?

I ask because we successfully wrapped up intense negotiations yesterday for a conditional commitment with Solyndra. There's still much paperwork to complete and wanted to check how hard we need to press.

[redacted]

Document 10

March 2009

RESTRICTED DISTRIBUTION: PRIVILEGED BUSINESS INFORMATION
U.S. Department of Energy Loan Guarantee Program

CREDIT COMMITTEE PAPER
REQUEST FOR LOAN GUARANTEE APPROVAL

PROJECT:	**Solyndra Fab 2, LLC**
LOAN NUMBER:	**1013 (FY06 Solicitation)**
DATE:	**March 11, 2009**

Redacted Version - All exemptions fall under b5

LGPO CLEARANCE

Origination Team Members, LGPO

[redacted], Program Manager, Origination, LGPO

[redacted], Senior Investment Officer, Origination, LGPO

[redacted], Senior Investment Officer, Origination, LGPO

[redacted], Director, Origination, LGPO

PROJECT REPORT

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PROJECT AND LOAN SUMMARY SHEET

[redacted]

EXECUTIVE SUMMARY

Solyndra Inc. ("Solyndra" or "Sponsor") has developed an innovative technology involving the use of thin-film CIGS, a semiconductor material, to transform glass tubes into functional photovoltaic ("PV") modules. Forty of these modules are fabricated into a solar panel that has a number of advantages over traditional solar panels. The cylindrical tube gathers light from all directions, resulting in a higher PV conversion efficiency than competing thin film technologies. The Solyndra PV panels are lighter weight, provide a lower wind profile and are less expensive to install than other solar panels available on the market. Solyndra's proprietary design and configuration is now ready for large-scale commercial implementation -- taking the technology from the lab to the market.

Solyndra is currently in the latter stages of completing its initial 113 MW production line ("Fab1"), and is now in the ramp-up and technology optimization phase. The company intends to ultimately construct a larger facility ("Fab2") that will eventually consist of six production lines essentially identical to Fab1. Solyndra has applied for a loan guarantee from LGPO for a total of $535 million to finance the first three production lines of Fab2.

Upon completion, Fab2 PV output would reduce the emissions from traditional power sources, including: 245 million metric tons of carbon dioxide, 1 million metric tons of sulfur dioxide and 380 thousand metric tons of nitrogen oxides. [redacted]

The Sponsor is managed by a highly-experienced team of technical and financial professionals, and has engaged top-line engineering, construction, legal and financial advisors in developing its plans for the Project. The Sponsor has raised $750 million dollars in support of its operations to date, mostly from well-financed venture-capital firms, demonstrating the ability to raise the private equity needed to capitalize the Project. The Sponsor will be required to provide an additional $198 million of equity at financial close.

The market for PV solar power is growing. [redacted] The US the market is supported by the federal renewable energy investment tax credit, which was recently given an eight-year extension; in Europe the market is helped by "Feed-In-Tariffs" that give advantages to building owners who feed solar power back into the relevant power grid. [redacted]

As mitigation of the risks associated with any ramp-up of new technology to commercial scale, the Fab2 project will have the benefit of the Sponsor's experience in developing and operating its Fab1 production line which uses the same processes, tools and line-configuration. To date, over 20,000 Fab1 panels have been produced and sold, at specifications, efficiencies and throughputs nearing the steady-state production levels projected for the Fab2 production.

The LGPO recommends the approval of this Project's application and the issuance of a Conditional Commitment to execute the requested loan guarantee, subject to the Terms and Conditions accompanying this submission.

SUMMARY OF TERMS & CONDITIONS

[redacted]

PROJECT INFORMATION

Overview

Solyndra is proposing to construct and operate a thin-film, solar photovoltaic panel fabrication facility in Fremont, CA. When completed, Solyndra's Fab2 facility will produce ready-to-install PV panels capable of producing 420 Megawatts of electricity. The production capacity will be constructed, installed and financed in two phases. The company has approached the LGPO to finance Phase 1 of Fab2 (the "Project") which would comprise 210 Mw (approximately 1 million panels per year).

The Project will include the construction of a 650,000 square foot "front end" manufacturing building, the purchase and installation of the initial three production lines and the retrofitting of a 300,000 square foot "back end" assembly building (which will be leased). The first of three production lines is scheduled to begin operation in late 2010. The proposed site for the front end manufacturing building is a 30 acre parcel of land ¼ mile from Solyndra's headquarters. Solyndra has selected CH2M HILL as the engineering contractor. CH2M HILL will provide overall management for the engineering and design of the Fab2 facility.

Solyndra is negotiating the construction agreement with Rudolph and Sletten, Inc., a leader in California construction, and will complete the construction contract prior to loan closing. The contract will be on a Guaranteed Maximum Price basis, with incentives.

The Project will manufacture a thin film photovoltaic (PV) panel that provides inherently clean, greenhouse gas emission-free electrical energy production. Use of Solyndra Fab2 panels to generate electricity will avoid the air pollutants or anthropogenic emissions of greenhouse gases that are traditionally generated by fossil fuel-based electricity sources, which have been linked to human-induced global climate change.

Solyndra intends to rapidly penetrate the commercial rooftop market, with sales being driven by its differentiated and cost-effective product. The increased capacity of Fab2 will be necessary to meet its currently contracted production requirements and to provide sufficient capacity to further diversify its customer base in the US and overseas.

Solyndra is currently producing full-size PV panels utilizing its module design panels from their Fab1 Facility, and has achieved certification on these panels from both IEC and UL standards. Solyndra began installing the high-volume Fab1 production line in 2007. Fab1 is projected to have a capacity of 113 MW per year of panels and is currently undergoing commissioning and qualification. Solyndra plans to replicate its Fab1 technology, manufacturing knowledge and production infrastructure into the design of Fab2.

Project Eligibility

The Project meets all statutory requirements set forth in Title XVII of the Energy Policy Act of 2005, specifically, Section 1703 which defines an "eligible project". The project (1) avoids, reduces, or sequesters air pollutants or anthropogenic emissions of greenhouse gases. The full anticipated project (Phase 1 and Phase 2 of Fab2), if implemented at the scale proposed will avoid 245 million metric tons of carbon dioxide, 1 million metric tons of sulfur dioxide and 380 thousand metric tons of nitrogen oxides); and (2) employs new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued. Under subsection (b) Categories, the project is a "renewable energy system."

Innovative Technology

The Sponsor has developed a unique, high performance, photovoltaic panel designed to solve some of the most challenging installation problems for PV systems on commercial rooftops. Solyndra's novel cylindrical cell design enables improved collection of all available light and do not require costly tracking or tilt mounting hardware. Solyndra's PV panels greatly simplify and lower the cost of mounting, allowing tighter module packing (even over rooftop obstacles), are impervious to moisture and allow lower temperature operation. Solyndra's panels are low weight and allow wind to flow through the modules (essentially eliminating wind loading). This unique design is self-ballasting and enables the installation of PV systems on lighter duty roofs not currently suitable for PV panels.

TECHNICAL INFORMATION

Construction Plans

The Fab2 facility, when completed, will consist of a 650,000 square foot front end manufacturing building and a 300,000 square foot back end assembly building. It is anticipated that the front end building will eventually support six production lines capable of producing an aggregate of 420 megawatts per year of solar panels. This project (Phase 1 of Fab2) encompasses only three production lines.

Solyndra Fab2's Back End manufacturing activity will be housed in one or more leased buildings.

Solyndra anticipates contracting with Rudolph and Sletten to provide general contractor services for Fab2 Phase 1 construction. Final execution of this contract will be a Condition Precedent to financial closing on the loan guarantee. Studios Architecture was retained for master planning and Hathaway Dinwiddie Construction Company ("HDCC") for pre-construction services related to Solyndra Fab2's Front End facility. The Applicant, Studios Architecture and HDCC have a pre-existing relationship established for work performed on the Applicant's corporate headquarters in Fremont, CA.

The proposed project design method for Solyndra Fab2 will be a traditional "Design, Negotiate and Build" method with a design assist process for the mechanical, plumbing, process piping, electrical and controls systems.

The Sponsor will employ a bonus strategy with the General Contractor. Instead of negotiating liquidated damages, the Applicant will establish key milestone dates for the project and establish goals for savings on the Guaranteed Maximum Price budget and meeting the expectations for quality of work. If the General Contractor and their subcontractors meet all the established goals, they will be paid a bonus.

Solyndra has designed and built proprietary manufacturing process equipment for their Fab1 production line. Solyndra will duplicate this technology for Fab2, and will be responsible for manufacturing and installing a significant portion of the line equipment for Fab2. They have a dedicated equipment division to address this challenge.

Independent Engineer's Report

The DOE's independent engineer for this project is RW Beck, which submitted its final report February 27, 2009. The full report is attached in Tab 6. RW Beck's fundamental conclusions include:

[redacted]

Operations & Maintenance

The Operations and Maintenance of the Project facility will be performed by a separate corporate entity, owned and controlled by Solyndra, Inc.

Status of Environmental Review

The DOE NEPA review process [redacted]

BUSINESS PLAN

Overview

Solyndra's novel PV design offers several operational advantages including "air-flow" gaps which eliminate wind loading, low-weight and the ability for modules to be installed over roof obstructions and closer to skylights without penetration of the rooftop. In summary, Solyndra's PV panels are designed to provide more energy per rooftop and a 40% reduction in balance of system costs (mounting and installation related costs). Solyndra bundles the mounts and related accessories with its PV panels. To the knowledge of the RW Beck, no other PV panel manufacturer includes mounts in its pricing. The average delivered price of Solyndra's panels on a dollar per kWh basis is competitive to wafer silicon PV panels and First Solar's thin film CdTe PV panels.

Solyndra is focusing primarily on the large-scale commercial rooftop market (e.g., manufacturing and big-box retail). It will not target the building owners directly, but rather will sell its product to "integrators" who will install and connect the PV panels, often as a part of the installation of a new or retrofitted roof (tying-in well with increasing regulatory requirements for installation of reflective white roof membranes or other energy-efficiency equipment), and often in conjunction with other parties who are positioned to take advantage of various tax credits and accounting incentives.

Solyndra's existing customer base is diversified into US, European and (so-far-limited) Asian markets (through its multi-national integrators), mitigating the risk of regulatory, FX and economic changes. The Navigant market analysis firm has projected [redacted]

Solyndra Advantages

Solyndra uses a hollow glass tube as the substrate and hermetically seals this tube in a larger protective outer glass tube (creating the module) while adding an "Optical Coupling Agent" (OPA) between the tubes to increase the amount of light incident on the PV module. Forty modules are then fabricated into a deployable PV array or panel.

Solyndra has identified the following advantages of its technology strategy, compared to its competitors in rooftop applications:

Efficiency. Utilization of a material with a higher PV conversion efficiency than competing thin-film PV technologies (*i.e.*, a-Si and CdTe). An extremely thin "active layer" of CIGS can be deposited onto a substrate via a number of deposition technologies, allowing for reduced material usage compared to single- and multi-crystalline silicon PV technologies. CIGS cells in the laboratory have reached a higher cell efficiency (20 percent) compared to other thin film technologies (a-Si and CdTe).

Encapsulation. Novel hermetic encapsulation technology. This eliminates the chance for water diffusion into the cell, which can cause reliability problems over the lifetime of the product. It also allows for the use of the optical coupling agent, which traps additional light, resulting in higher energy output for each module.

Design. The cylindrical shape of Solyndra cells has a number of advantages. The omni-facial cylindrical cell geometry optimizes the collection of available direct, diffuse and reflected sunlight. Because the sun sees the same cell geometry throughout the day, an omni-facial cell is inherently self-tracking for collection of direct light without any additional tracking hardware; diffuse light is collected from all angles. Reflected light is also efficiently collected by the downward-facing area of the cell. This additional light collection also results in increased energy output per module.

The unique geometry of Solyndra's panels also allows for a higher energy density per rooftop, as panels can be placed with less concern for panel-to-panel shading (no need for tilt) and the panels can be placed closer to obstructions. This enables larger system sales per rooftop, resulting in potentially higher gross margins for installers. The novel PV panel design provides a combination of lighter weight, lower wind profile, and better collection of available light in rooftop applications compared to competing PV technologies.

- Balance of System Costs. The unique form factor of Solyndra's PV panel allows for a reduced installation cost compared to other PV technologies. The horizontal mounting and free air-flow, self-ballasting panel construction greatly simplify the requirements for mounting hardware. The mounting structure is lightweight, inexpensive, non-penetrating and easy to install. The simple mounts can be quickly attached and then the panels can be set down on the rooftop. No additional ballast or mounting hardware is needed to secure the panels to the rooftop. According to Solyndra, the greatly simplified mounting hardware and

reduction in required labor, along with other system-level benefits, enable a reduction in BOS cost of over 40 percent compared to mounts for standard PV modules. Solyndra PV systems are faster and less costly to install than conventional PV systems, resulting in lower design and installation, labor costs.

LGPO further notes [redacted]

Pricing and Volume – Existing Contracts

Contracted Panel Price ($/watt)	2008	2009	2010	2011	2012
Phoenix Solar	[redacted]				
SPI					
Gecko Logic					
Carlisle					
Weighted Avg Panel Price					
Fab2 Panel Price Assumption					

Volume Under Contract (MW)	2008	2009	2010	2011	2012
Phoenix Solar	[redacted]				
SPI					
Gecko Logic					
Carlisle					
Total					
Fab1 Output					
Fab2 Output					
Total Output					

Solyndra anticipates [redacted]

Market Analysis

Solyndra's market penetration and sales will continue to be driven by the regulatory landscape. [redacted]

[redacted]

In the US [redacted]

The incentives in Europe [redacted]

The Solyndra business plan for US markets is founded upon [redacted] RW Beck has concluded that (with stated caveats and in certain markets) the answer [redacted]

In European markets the deal structure is simpler, but the driving issue remains the same: [redacted] Again, RW Beck has concluded that this is possible in certain markets (and the number of markets is growing):

[redacted]

RW Beck has made individual analysis of several of Solyndra's target market jurisdictions in the US and in Europe. For detail, we refer to the attached Draft Report of the Independent Market Consultant. The fundamental analysis applies to each of these markets – [redacted]

From the Market Consultant's Report, a graphic analysis of the general concept follows:

[redacted]

US Market Mechanism: RPS

The incentives mechanism at the state level [redacted]

Solyndra's primary US marketing strategy, [redacted]

[redacted]

European Market Mechanism: FIT

The European market is primarily driven [redacted]

[redacted]

Installation Years 2010 – 2016

Prices by Installation Year ($/kWh)

State	Price/Grid Parity	2010	2011	2012	2013	2014	2015	2016
[redacted]								

Solyndra's panels at the projected panel prices could be economically marketed [redacted]

Competition

First Solar, a leading manufacturer of PV panels, has introduced thin-film CdTe PV panels which operate at greater than 9 percent efficiency, with competitive pricing and availability for commercial rooftop and large-scale utility, ground-mounted systems. The cost to make CdTe PV modules have recently reached under $1 per W_p, according to First Solar. CdTe panels are rigid products fabricated on low-cost, soda-lime glass substrates. CdTe panels will have a relatively high balance of system cost compared to the Solyndra panels, due to the mounting requirements. Rooftop installations, due to the limited amount of space, usually end up using higher efficiency panels, including those manufactured with wafer silicon and CIGS, rather than the type sold by First Solar.

Solyndra specifically reported that it does not intend to compete in land/ground applications, and consequently, [redacted] Solyndra's major competition comes, rather, from the manufacturers of wafer silicon panels, which control 90% of the roof-top market share

Retail System Cost Comparison
($/W$_p$)

	2010	2011	2012	2013	2014	2015	2016
Solyndra Technology	[redacted]						
Wafer-Silicon Technology	[redacted]						

[redacted]

RW Beck Market Analysis

RW Beck analysis of the markets that Solyndra competes in has concluded that:

[redacted]

[redacted]

FINANCING PLAN

Overview

[redacted]
The company must raise at least [redacted]

Uses Of Funds:

Facilities Capex:
- Front End
- Back End
- Contingency

Equipment Capex:
- Line 1
- Line 2
- Line 3
- Contingency

Real Estate
Interest during Cons.
Other Costs
Total Costs

Sources Of Funds:
Senior Debt (DOE):
Equity – Cash:
Total Uses

Funding Structure:
LGPO % of Sen. Debt:
Source of Funds:

[redacted]

Financial Model and Sensitivity Analysis

Solyndra's base case financial projections are included in Tab 12. The following summarizes the results of the base case projections, as well as the sensitivity analysis for three scenarios.

Base Case Analysis

The Base Case analysis uses data and projections from the Project's business model and a comprehensive compilation of inputs used for its business planning purposes.

The Base Case uses the following key assumptions:

[redacted]

Base Case Assumptions								
	2009	2010	2011	2012	2013	2014	2015	2016
# of Panels Shipped	[redacted]							
Ave Selling Price ($/watt)								
Revenue ($Million)								
Gross Margin ($Million)								
Gross Margin %								
Net Income ($Million)								

Base Case Results								
	2009	2010	2011	2012	2013	2014	2015	2016
Cash Flow ($Million)	[redacted]							
Debt Service (P+I) ($MM)								
Debt Service Coverage								

Given these production and market assumptions, the Project expects to achieve gross margins of [redacted] upon reaching full production, against revenues of [redacted] This cash flow [redacted]

Performance approaching Base Case assumptions would provide [redacted]

Downside Case – Output Decreased by 10%

Key Assumptions:

[redacted]

Downside Case Assumptions	2009	2010	2011	2012	2013	2014	2015	2016
# of Panels Shipped	[redacted]							
Ave Selling Price ($/watt)								
Revenue ($Million)								
Gross Margin ($Million)								
Gross Margin %								
Net Income ($Million)								

Downside Case Results	2009	2010	2011	2012	2013	2014	2015	2016
Cash Flow ($Million)	[redacted]							
Debt Service (P+I) ($MM)								
Debt Service Coverage								

Note that in this scenario the Project [redacted]

Stressed Case

This scenario assumes [redacted]

Stressed Case Assumptions	2009	2010	2011	2012	2013	2014	2015	2016
# of Panels Shipped	[redacted]							
Ave Selling Price ($/watt)								
Revenue ($Million)								
Gross Margin ($Million)								
Gross Margin %								
Net Income ($Million)								

Stressed Case Results	2009	2010	2011	2012	2013	2014	2015	2016
Cash Flow ($Million)	[redacted]							
Debt Service (P+I) ($MM)								
Debt Service Coverage								

Under this stress, debt service remains over [redacted]

Minimum Coverage Case

This scenario stresses the model such that the [redacted]

Minimum Coverage Case Assumptions								
	2009	2010	2011	2012	2013	2014	2015	2016
# of Panels Shipped	[redacted]							
Ave Selling Price ($/watt)								
Revenue ($Million)								
Gross Margin ($Million)								
Gross Margin %								
Net Income ($Million)								

Minimum Coverage Case Results								
	2009	2010	2011	2012	2013	2014	2015	2016
Cash Flow ($Million)	[redacted]							
Debt Service (P+I) ($MM)								
Debt Service Coverage								

Under this hypothetical, [redacted]

This artificial scenario demonstrates [redacted]

Key Risks & Mitigants

Market Risk

Solyndra faces a number of risks to its operations, however the most important risk category pertains to Market Risk. In this case, Market Risk can be broken down into several sub-categories of risk:

[redacted]

Mitigant: [redacted]

[redacted]

Mitigant: [redacted]

[redacted]

Mitigant: [redacted]

The RW Beck analysis has commented on the following specific market risks:

[redacted]

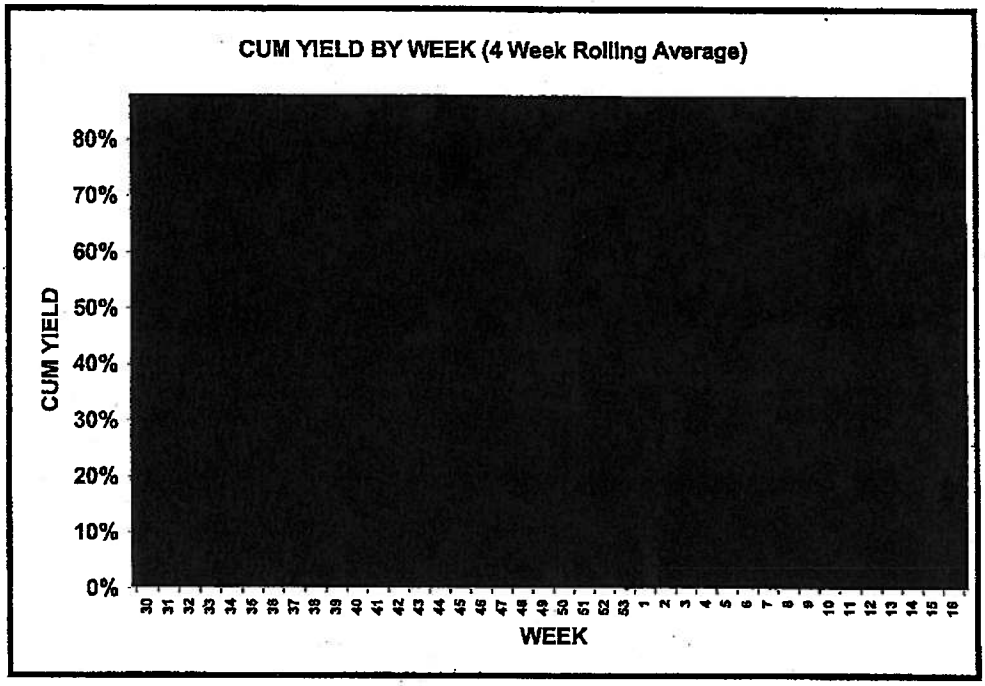
Scale Up Risk

The Project [redacted]

[redacted] RW Beck has completed a thorough review of [redacted] and has confirmed [redacted]

[redacted]

Solyndra Fab2 Manufacturing Facility
Five-month Cumulative Trend for ILDS / Fab1 Line



Completion Risk

APPLICANT INFORMATION

Management Team

Solyndra has assembled a senior management team with considerable corporate experience in designing, constructing, and ramping up large scale manufacturing facilities. The Company also has a core expertise in designing specialty tooling equipment that is utilized in its production process. Solyndra currently employs approximately 750 full time and contract individuals, most of which are engineering resources focused on the technical development of the Company's products and manufacturing process. Solyndra is led by the seasoned management team described below:

- **Dr. Chris Gronet**. Solyndra's principal inventor, Founder and Chief Executive Officer, was previously a senior executive at Applied Materials for 11 years, a leading semiconductor equipment manufacturer. Dr. Gronet is intimately involved in the day to day operations of the Company including monitoring and contributing to product design, process innovations, and manufacturing ramp. Dr. Gronet holds over 20 U.S. patents in thin film and related technologies. Dr. Gronet earned a Ph.D. in semiconductor processing and a Bachelor of Science degree in materials science, both from Stanford University.

- **Bill Stover**. Chief Financial Officer. Mr. Stover was most recently Chief Financial Officer at Micron Technology, Inc., a manufacturer of semiconductor devices. Prior to joining Micron, Mr. Stover was an audit manager with Coopers & Lybrand.

- **Ben Bierman**. Vice President of Technology in charge of day to day at Fab1 operations, has more than 20 years of semiconductor manufacturing and fabrication equipment experience at Applied Materials and LAM Research.

- **Dr. Kelly Truman**. Vice President of Marketing and Business Development, has more than 20 years experience in the semiconductor industry most recently as the Vice President of Marketing at ReVera, a provider of metrology used to monitor and control films and critical layers deployed in the semiconductor manufacturing process.

In addition to significant management resources, Solyndra is also able to draw on the technical expertise of certain Directors on its Board. **Dr. James Gibbons**, Director, was the former Dean of Engineering of Stanford University and founder of Sera Solar. **Dr. Dan Maydan**, Director, was President of Applied Materials from 1994 to 2003 and previously spent 13 years at Bell Labs. Dr. Gibbons and Dr. Maydan are actively involved in the technical oversight of the Company's technology development and manufacturing capacity expansion.

The majority of the management team and technical staff have extensive experience in process equipment design and fabrication, high-technology systems integration, CIGS thin films and high-volume hard disk manufacturing. The Applicant has assembled a Board of Directors with direct experience in both thin film materials science research and development, as well as the design and manufacture of thin film production machinery. In addition, members of the Board have outstanding records of success in guiding the development of numerous high-technology concerns, with a particular emphasis on renewable energy.

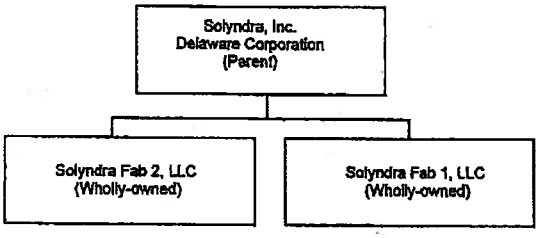
Relative to other thin film PV manufacturers, the Applicant has a substantial advantage due to its in-house equipment integration and manufacturing expertise for high-volume thin film production. The management team has developed considerable direct experience in the equipment design, manufacture and production of its unique cylindrical CIGS-based PV systems that it gained through design and development of the Applicant's original "mini" In-Line Development System (ILDS) and its full production scale Fab1.

Background and Legal Structure

Solyndra Fab2, LLC, (the "Borrower" or "Project") is a wholly-owned subsidiary of the parent, Solyndra, Inc. The Borrower is a special purpose entity that has been formed solely for the purpose of constructing, financing, owning and operating the Project. The Sponsor was incorporated in 2005 in the state of Delaware and currently owns 100% of the capital stock of the Project. Solyndra, Inc. is a privately-held company whose voting ownership is held by venture capital firms and individuals (employees and management).

Organization

Solyndra, Inc. is the Applicant to the Loan Guarantee Program and is the Sponsor for the Solyndra Fab2 project. Solyndra, Inc. has two subsidiaries including Solyndra Fab2, LLC (the legal entity representing Solyndra Fab2) and Solyndra Fab1, LLC. The Parent owns 100% of the capital stock of its subsidiaries. Solyndra Fab1, LLC currently serves no operational purpose. It was established at a time when the Applicant anticipated a corporate structure that legally separated each fabrication facility.



Government Support/Permits

The Project is not receiving any direct financial support from the US government, the State of California, County of Alameda or City of Fremont. The Sponsor will receive all necessary federal, state and local permits to begin construction of the Fab2 facility by loan closing. The Applicant has excellent relationships with administrative personnel in the City of Fremont, including permitting and inspection personnel. These relationships have allowed rapid processing of building permits and other related applications in the past.

Credit Assessment/Credit History

The initial Preliminary Credit Assessment was submitted by Fitch on August 27, 2008 and assessed the credit as a B+.

A credit history dated as of June 4, 2008 for the Applicant as prepared by Dun & Bradstreet, Inc. shows:

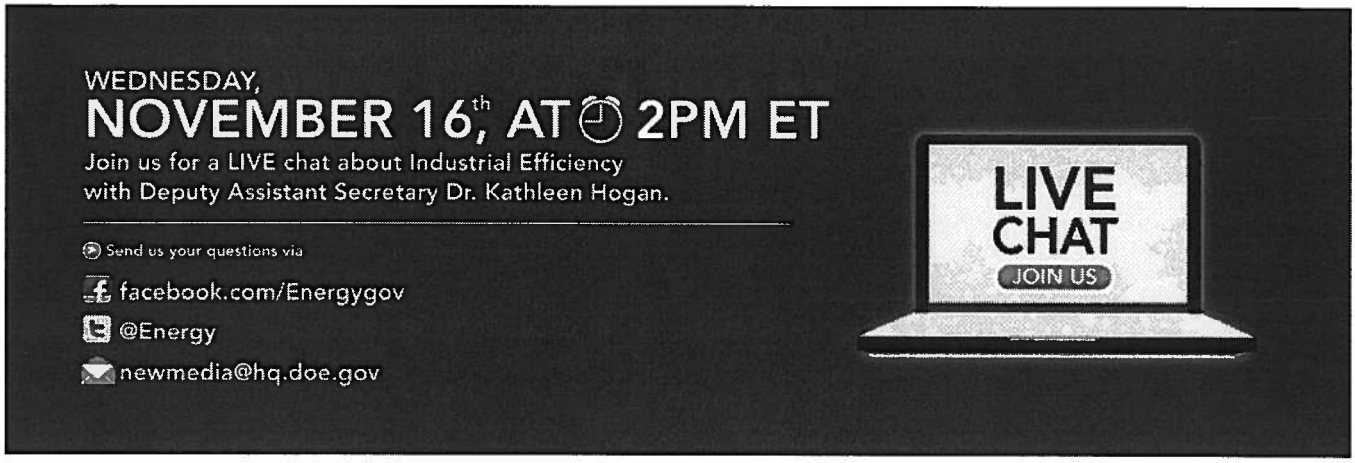
D&B Rating 1R3

This credit rating was assigned because of D&B's assessment of the company's financial ratios and its cash flow.
Rating: 1R3 (1R indicates 10 or more employees)
Composite credit appraisal: 3 is fair

Applicant Statement

The Applicant has attested that, based on the Project information provided to the LGPO for consideration of extending a loan guarantee, that there is a reasonable prospect that the Guaranteed Obligation will be paid on time and in full (including interest) from project cash flow according to the terms proposed in the Application.

Document 11



Obama Administration Offers $535 Million Loan Guarantee to Solyndra, Inc.

March 20, 2009 - 12:00am

Washington, DC - Energy Secretary Steven Chu today offered a $535 million loan guarantee for Solyndra, Inc. to support the company's construction of a commercial-scale manufacturing plant for its proprietary cylindrical solar photovoltaic panels. The company expects to create thousands of new jobs in the U.S. while deploying its solar panels across the U.S. and around the world.

"This investment is part of President Obama's aggressive strategy to put Americans back to work and reduce our dependence on foreign oil by developing clean, renewable sources of energy," Secretary Chu said. "We can create millions of new, good paying jobs that can't be outsourced. Instead of relying on imports from other countries to meet our energy needs, we'll rely on America's innovation, America's resources, and America's workers."

Secretary Chu is moving aggressively to accelerate important Department of Energy investments that can create jobs and transform the way America uses and produces energy. This allows the Department of Energy to offer its first loan guarantee within the first two months of the Obama Administration. This loan guarantee will be supported through the President's American Recovery and Reinvestment Act, which provides tens of billions of dollars in loan guarantee authority to build a new green energy economy.

Solyndra's photovoltaic systems are designed to provide the lowest installed cost and the highest solar electricity output on commercial, industrial and institutional roof tops, which are a vast, underutilized resource for the distributed generation of clean electricity. Solyndra's proprietary design transforms glass tubes into high performance photovoltaic panels which are simple and inexpensive to install. By replacing power generated from fossil fuel sources, the electricity produced from the solar panels will reduce emissions of greenhouse gases.

Based in Fremont, CA, Solyndra is currently ramping up production in its initial manufacturing facilities. Once finalized, the DOE loan guarantee will enable the company to build and operate its manufacturing processes at full commercial scale.

Solyndra estimates that:

- The construction of this complex will employ approximately 3,000 people.

RELATED ARTICLES

Vice President Biden Announces Finalized $535 Million Loan Guarantee for Solyndra

Obama Administration Offers $59 Million in Conditional Loan Guarantees to Beacon Power and Nordic Windpower, Inc.

President Obama Announces Loan Guarantees to Construct New Nuclear Power Reactors in Georgia

- The operation of the facility will create over 1,000 jobs in the United States.
- The installation of these panels will create hundreds of additional jobs in the United States.
- The commercialization of this technology is expected to then be duplicated in multiple other manufacturing facilities.

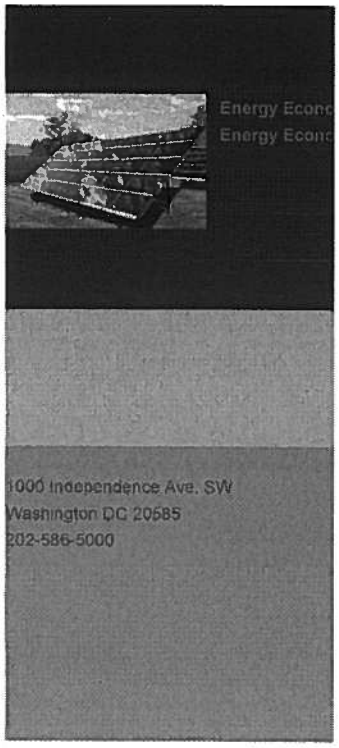
Secretary Chu is offering the loan guarantee by signing a "conditional commitment" today, following approval this week by the Department of Energy's Credit Review Board. Just as homebuyers who have been approved for a loan are required to meet certain conditions before closing, the conditional commitment will require Solyndra to meet an equity commitment as well as other conditions prior to closing. Today's action signals the Department's intent to move forward on Solyndra's application for $535 million loan guarantee provided the company meets its obligations.

Before offering a conditional commitment, DOE takes significant steps to ensure risks are properly mitigated for each project prior to approval for closing of a loan guarantee. The Department performs due diligence on all projects, including a thorough investigation and analysis of each project's financial, technical and legal strengths and weaknesses. In addition to the underwriting and due diligence process, each project is reviewed in consultation with independent consultants.

Secretary Chu initially set a target to have the first conditional commitments out by May - three months into his tenure - but today's announcement significantly outpaces that aggressive timeline. Secretary Chu credited the Department's loan team for their work accelerating the process to offer this conditional commitment in less than two months, demonstrating the power of teamwork and the speed at which the Department can operate when barriers to success are removed.

Media contact(s):

(202) 586-4940



Document 12

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Obama Administration Offers $59 Million in Conditional Loan Guarantees to Beacon Power and Nordic Windpower, Inc.

July 2, 2009 - 12:00am

WASHINGTON, DC -- Secretary Steven Chu today announced $59 million in conditional loan guarantees from the Department of Energy for Nordic Windpower, USA, and Beacon Power. Nordic Windpower has been offered $16 million to support the expansion of its assembly plant in Pocatello, Idaho, to produce its one megawatt wind turbine. Beacon Power, an energy storage company, has been offered $43 million to support the construction of its 20 megawatt flywheel energy storage plant in Stephentown, New York that will help ensure the reliable delivery of renewable energy to the electricity grid.

As stated by Secretary Chu, "These projects represent the innovative technologies that will help America reduce its dependence on fossil fuels and fight climate change," while moving the nation closer to meeting President Obama's goal of doubling renewable power.

These are the second and third conditional commitments for loan guarantees made by the Obama administration. In March, the Department made its first conditional loan guarantee for $535 million to Solyndra, Inc., which plans to construct a manufacturing plant to bring its cutting-edge solar technology to the commercial market. Secretary Chu has made it the priority of the Department to streamline the loan guarantee process by simplifying paperwork requirements and providing additional resources to process applications. The loan guarantees announced today will be supported through the 2009 American Recovery and Reinvestment Act.

Nordic Windpower, USA

Nordic Windpower, USA was offered a conditional commitment for $16 million to support the tooling and commercial-scale up of its assembly plant in Pocatello, Idaho. Nordic's proprietary one megawatt wind turbine uses two blades and a patented teeter-hub technology that dampens loads, resulting in a lightweight turbine at least 10% less costly to manufacture, install, operate and maintain than competing systems.

The Nordic wind turbine represents significantly improved technology which enables the turbine blades to flex at the hub, partially dissipating the eccentric loads, or turbulent winds, before they reach the drive train. This makes Nordic's turbines more reliable and enables them to achieve structural integrity at a lower cost than more rigid designs.

RELATED ARTICLES

President Obama Announces Loan Guarantees to Construct New Nuclear Power Reactors in Georgia

Department of Energy Offers $245 Million Conditional Loan Guarantee to Red River Environmental Products

Fact Sheet: The Department of Energy's Loan Programs

Beacon Power

Beacon Power, an energy storage company headquartered in Tyngsboro, Massachusetts, was offered a conditional commitment for $43 million. Beacon Power designs and develops advanced products and services to support more stable, reliable and efficient grid operation. The loan guarantee will support the construction of Beacon's 20 megawatt flywheel energy storage plant in Stephentown, New York that will help ensure the reliable delivery of renewable energy to the electricity grid. Beacon's innovative flywheel system, the core component of the 20 megawatt plant, is specifically optimized to perform frequency regulation on utility grids by absorbing and discharging energy to maintain the consistency and reliability of the electric grid.

Beacon's 20 megawatt power plant project will introduce a newly developed, not yet commercial technology to provide frequency regulation services to increase the nation's use of renewable energy and help reduce greenhouse gas emissions.

Media contact(s):

(202) 586-4940

1000 Independence Ave. SW
Washington DC 20585
202-586-5000

Document 13

26

From: [redacted]
To:
Subject: RE: Solyndra
Date: Thursday, August 20, 2009 12:30:18 AM

This sounds like an issue needing immediate attention. Certainly, we can't meet with OMB until this is addressed.

[redacted] called to get a status check from me. Do I need to raise this with him?

[redacted]

From: [redacted]
Sent: Wednesday, August 19, 2009 10:28 PM
To: [redacted]
Subject: Solyndra

[redacted]

Thanks for following up yesterday on Solyndra. I think we were able to close out a number of issues. I appreciate the work Solyndra did on this yesterday evening regarding the financial model and construction milestones.

I'm concerned, however, that we still have a major outstanding issue. The attached model represents the Base Case that was utilized by [redacted] and the project team. In this version, all working capital assumptions were eliminated, suggesting that Fab2 will hold no A/R; inventory or A/P balances. While debt coverage is robust under stress conditions, the project cash balance goes to $62,000.00 in September 2011. Under the assumption that a small amount of cash is tied up in working capital, the project will face a funding shortfall. Even one day of A/R results in a negative cash balance, for example.

The issue of working capital assumptions has been a major issue repeatedly raised since December. Furthermore, the assumption of no working capital at the project company is inconsistent with the model we looked at just yesterday and the project team 'due diligence update'. We are now two days away from the scheduled OMB presentation and, having received some information, we seem to have a major issue. We need to figure out how to resolve ASAP.

In addition to the critical issue above, we have a number of other modeling issues that need to be addressed. For example, as stated yesterday, property taxes don't seem to appear in the model. We should also revise the income tax assumption to match the PWC assessment.

I suggest we convene tomorrow morning to figure out how we are going to address. I have to meet with [redacted] first thing, but suggest 10:30.

Does that work for everyone?

Thanks.

From: [redacted]
To: [redacted]
Subject: FW: Solyndra: Responses to Credit Analysis Questions
Date: Thursday, August 20, 2009 3:27:59 PM

[redacted]

Thanks for requesting the additional information. I would like your analysis of the materials presented.

In order to move this forward, I think we have the following next steps:

1. I will look at the property tax information against the issue raised by RW Beck in January.

2. We can adjust the income tax assumption to 30%. The result should be de minimus, but we should use that assumption from PWC.

3. The issue of Working Capital remains unresolved. First, it seems clear that the cost overrun equity commitment would support cost overruns and ineligible project costs. However, the issue is cash balances, not cost. [redacted] seems to agree that the model runs out of cash in Sept. 2011 even in the base case without any stress. This is a liquidity issue. Secondly, given the implications above, it is difficult to assume in a default scenario that any other entity would be able to assume management of the project company without any working capital. As a practical matter, this is not feasible and leads to questions of ability to run the project company as a stand alone entity. Finally, how can we advance a project that hasn't funded working capital requirements nor seems to have any provision for funding working capital requirements and that generates a working capital shortfall of $50M when working capital assumptions are entered into the model? This is a serious issue we need to resolve as a credit matter. It also simply won't stand up to review by oversight bodies. Are there provision in the agreements that provide access to working capital provided by the parent (e.g., a liquidity facility)? I don't think the cost overrun commitment accomplishes this, but perhaps an inter-company line of credit would.

4. We still do not have a lender case. In order to move forward, I have gone ahead and built one. I will send it under separate cover. I need you to confirm it and to include it in the due diligence update. Moving forward, the deal team needs to provide this case. Notwithstanding the working captal issue above, the lender case supports the conclusions you've made and addresses the LGPO policy requirement of having a lender case.

Thanks.

-----Original Message-----
From: [redacted]
Sent: Thursday, August 20, 2009 2:24 PM
To: [redacted]
Cc: [redacted]
Subject: Solyndra: Responses to Credit Analysis Questions

[redacted]

In response to questions related to the credit analysis of the Solyndra Fab 2 project, we have prepared the responses below.

The current Solyndra Fab 2 Base Case Projections have changed since the original model was presented,

Document 14

27

From: [redacted]
To:
Subject: FW: Solyndra: Responses to Credit Analysis Questions
Date: Thursday, August 20, 2009 3:27:59 PM

[redacted]

Thanks for requesting the additional information. I would like your analysis of the materials presented.

In order to move this forward, I think we have the following next steps:

1. I will look at the property tax information against the issue raised by [redacted] in January.

2. We can adjust the income tax assumption to [redacted] The result should be de minimus, but we should use that assumption from PWC.

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Thanks.

-----Original Message-----
From: [redacted]
Sent: Thursday, August 20, 2009 2:24 PM
To: [redacted]
Cc: [redacted]
Subject: Solyndra: Responses to Credit Analysis Questions

[redacted]

In response to questions related to the credit analysis of the Solyndra Fab 2 project, we have prepared the responses below.

The current Solyndra Fab 2 Base Case Projections have changed since the original model was presented,

and the DOE Loan Origination team [redacted] and [redacted] have reviewed the updated model. The terms of the Project Sales Agreement require that Solyndra, Inc. purchase 100% of the output of the Project as it comes off the manufacturing line; hence, "Inventory" is now assumed to be zero. Consequently, working capital requirements for the project are modest, and for modeling purposes the Accounts Receivable and Accounts Payable are set at a net zero.

Solyndra is informed that testing the Base Case under stress conditions results in essentially nil cash at Fab 2 in September 2011, and any assumption of a delay in collecting Accounts Receivable from Solyndra would be an unbudgeted cash drain on the Solyndra Fab 2 Project, potentially resulting in a cost overrun. This analysis is correct assuming that the Project has not otherwise come in under budget elsewhere and that none of the Project's budgeted contingency was available to pay for this cost overrun. However, it should be noted that September 2011 falls well before Fab 2 has achieved "Project Completion," which is forecast to occur in April 2012. Project Completion as defined by the Common Agreement includes factors related to Physical Completion, Operational Completion and Financial Completion.
DOE bargained for a 100% Solyndra, Inc. guarantee to pay for any cost overruns beyond the $733 million Project Cost prior to Project Completion, and further requires Solyndra, Inc. to pre-fund a restricted cash account of $30 million to cover any potential cost overruns. The Base Case Projections show that Fab 2 will have accumulated approximately $123 million of cash at the time of Project Completion when Solyndra, Inc.'s guarantee would be released. Of the $123 million of cash at Fab 2, approximately $60 million funds the full Debt Service Reserve Account. No cash dividends can be made until certain milestones are achieved after Project Completion, which assures the liquidity of the Project. Solyndra believes that it has included all of the Project Costs that it reasonably anticipates in the $733 million budget.
Additionally, considering the magnitude of the import of Fab 2 to Solyndra, Inc.'s business and the substantial equity commitment made by Solyndra, Inc. to the Project, there exist tremendous incentives for Solyndra, Inc. to ensure a successful Project.

Solyndra has modeled a 25% income tax rate for Solyndra Fab 2 so that the Project can pay for the income tax that its activities engender.
Solyndra believes that it will pay a 25% effective income tax rate on a consolidated basis for its worldwide operations, and Solyndra assumes this rate in all of its forecasts. At the request of DOE, Solyndra's auditors, PricewaterhouseCoopers provided an opinion dated August 6,
2009 that states that a range of 24%-30% was appropriate for Solyndra, Inc., which Solyndra believes substantiates its estimate of 25%. Due to the operating losses forecast for Solyndra Fab 2 during its initial ramp of commercial production, the Base Case Projections indicate that Fab 2 will not have a tax liability until its NOL's have been exhausted in June 2012. The Base Case Projections as submitted to DOE are fully-functional, and changing the income tax rate from Solyndra's estimate of 25% to the high-end of the reasonable range (30%) as indicated by PwC reveals only a modest impact to the Project. Cash balances at Fab 2 in June 2012 are forecast to be approximately $136 million, including an approximately $60 million debt service reserve account. Any change to the income tax rate has no material impact on
the Project's liquidity. The impact of a 30% income tax rate
assumption is only seen in a minor reduction of 0.1 to the Debt Service Coverage Ratios, as noted below

At the lowest Debt Service Coverage Ratios period calculated for the year 2015, the Base Case Projections show that only $81 million of the FFB loans remain outstanding and Fab 2 will have generated in excess of $500 million of cash. A liquidation of Fab 2 at the end of 2015 would generate substantially more than $81 million (according to the analysis performed by Fitch Rating). At this low

point, Fab 2 is forecast to generate 160% of the required cash to make debt payments. Hence, Solyndra concludes that DOE enjoys a very secure position at this point in time even with a 30% income tax rate. While Solyndra believes that a 25% income tax rate is appropriate, a summary analysis of the effects of a 30% income tax rate is attached for DOE's consideration.

The Base Case Projections include all property taxes. The property tax is combined with a number of Facilities-related expenses in the worksheet named "Model Assumptions" in the Base Case Projections. A scan of Row 146 reveals episodic spikes in Facilities costs, which correlate to the underlying property tax assumptions. A copy of the detailed line item assumptions that comprise the Facilities budget is attached for DOE's consideration. Specific line items related to property tax are highlighted in green color (please see Rows 102, 105,
106 and 134 in the "Facilities Budget" file). A summary review of this Facilities Budget worksheet will review that property tax is modeled in significant detail.

Please contact me to discuss any questions you may have related to the foregoing. Thank you.

Regards,

[redacted]

****

[redacted]

SOLYNDRA, INC.

47700 Kato Road

Fremont, CA 94538

[redacted]

www.solyndra.com

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Document 15

18

[redacted]

From: [redacted]
Sent: Thursday, August 27, 2009 4:39 PM
To: [redacted]
Cc:
Subject: RE: Solyndra Update

Hello folks -

Wrapping up some loose ends from our call today:

---

1. Timing - We've made some adjustments to our schedule and it now looks like the VP's window of availability is 12:00 PM ET - 12:45 PM ET. That would put us at a 9:00 AM PT event start with VP portion around 9:15 AM PT. Does that work on the CA end?

2. OMB Approval - Can someone provide a quick rundown of what final step this is that OMB would be clearing? We just want to make sure we can be as helpful as possible in ensuring this gets done for you on timeline. We were thinking all OMB clearance was to be finished this week (?) - but perhaps there is a final step we hadn't considered?

3. Browner/WH Attendee - [redacted], can you took a look at this part?

4. Notification Timeline - Team DOE will draft up a proposal for Congressional/elected, company/investor and press notification for discussion. Noting that I'm connecting Sudafi and [redacted] with [redacted] and [redacted] re: electeds.

5. VP Side/Satellite - VP will do this from the White House - TBD whether there is a press pool in there or we just make the feed available - but no audience. We'll go back to WHCA to let them know this is a go and connect with appropriate OVP and DOE folks to begin working through the cost and logistical details.

Anything I've missed?

[redacted]

From: [redacted]
Sent: Wednesday, August 26, 2009 8:01 PM
To: [redacted]
Cc:
Subject: Re: Solyndra Update

Sure. Including DOE press.

----- Original Message -----
From: [redacted]
To: [redacted]
Cc: [redacted]
Sent: Wed Aug 26 18:49:36 2009
Subject: RE: Solyndra Update

Alright, everyone - thanks for your patience as we nailed this down here.

It looks like this will definitely be a VPOTUS event after all - and it would need to be on the 4th in that case.

I hear [redacted] had a good visit out there and things look feasible from a logistical standpoint - but much more to discuss. Shall we hop on a call tomorrow to discuss further? How about 1:00 PM? If that works, will circulate number.

From: [redacted]
Sent: Tuesday, August 25, 2009 11:54 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Solyndra Update

Sounds good. POTUS on the 8th was what we were going for, but that's looking unlikely. With POTUS unlikely, we wanted to give this to the VPOTUS, and 4th was looking best.

Glad to discuss tomorrow.

From: [redacted]
Sent: Tuesday, August 25, 2009 11:51 AM
To: [redacted]
Cc: [redacted]
Subject: RE: Solyndra Update

hey all - lets talk about this, as of last Friday the POTUS was set to satellite in and the event has been moved to the 8th.

Where did you see Solyndra was on the 4th? Worried about the dates you have [redacted], want to make sure we're all on the same page. You, [redacted] and I should probably discuss when tomorrow's event is over.

From: [redacted]
Sent: Tuesday, August 25, 2009 11:48 AM
To: [redacted]
Cc:
Subject: RE: Solyndra Update

Adi, I am looping in [redacted] Thanks.

[redacted]
Small Business Loan Guarantee Program Advisor Recovery Act Team U.S. Department of Energy
[redacted]

From: [redacted]
Sent: Tuesday, August 25, 2009 10:28 AM
To: [redacted]
Cc:
Subject: Solyndra Update

We are thinking (technical logistics allowing) that we would want the VP can satellite into the event on 9/4 (next Friday). It's the same day unemployment numbers come out, and we'd want to use this as an example where the Recovery Act is helping create new high tech jobs. Does that work for you guys? Were you guys going to send Sec. Chu or someone else to CA? We are discussing the possibility of sending someone from here (e.g. Carol) out there as well.

Let me know if 9/4 sounds ok. Let me know what DoE would be thinking of doing with the Secretary or otherwise. Don't need a formal event memo in a rush, but just want to start planning things if this sounds generally ok. Glad to do a quick call with whomever. Thanks,

[redacted]

Document 16

Steve

From: Chris Gronet [redacted]
Sent: Thursday, October 01, 2009 11:31 PM
To: Steve Mitchell
Subject: Fab 3 and NYTimes.com: Solar Panel Tariff May Further Strain U.S.-China Trade

Hi Steve,

Attached FYI.

The Bank of Washington continues to help us!

[redacted] and I talked about the following for Fab 3 in the U.S. (the "Tulsa" package):

1. State and local incentives (grants, subsidies, land, taxes, labor, training, utilities, fee and permit waivers, etc.)

2. 1705 DOE Loan (or bank guarantee)

3. DOE 30% manufacturing equipment tax credits

4. Continue to leverage ExIm for foreign projects because of high U.S.-content (this is a huge advantage for us…we will be the largest U.S.-content solar panel manufacturer in the world very soon)

We think it makes sense to do a study, put together a book, and present it as part of the 1705 application. 1705 implementation is on hold for now as they figure out some issues, but it is coming soon.

Target is to have LOI or framework documents complete by mid-2010.

[redacted] and [redacted] are visiting after the board meeting on Oct. 22 to discuss the Fab 3 option in Abu-Dhabi.

Appreciate your thoughts/feedback.

Chris Gronet

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CEO
Solyndra, Inc.
47700 Kato Road
Fremont, CA 94538 USA
[redacted]

From: emailthis@ms3.lga2.nytimes.com [mailto:emailthis@ms3.lga2.nytimes.com] On Behalf Of [redacted]
Sent: Thursday, October 01, 2009 9:12 PM
To: Chris Gronet
Subject: NYTimes.com: Solar Panel Tariff May Further Strain U.S.-China Trade

<http://www.nytimes.com/> <http://www.nytimes.com/adx/bin/adx_click.html?type=goto&opzn&page=www.nytimes.com/yr/mo/day/business&pos=TopRight-EmailThis&sn2=fbf225e8/e97c738b&sn1=7af1fc70/f9f80bb8&camp=foxsearch2009_emailtools_1011078b_nyt5&ad=amelia_b_88x31&goto=http%3A%2F%2Fwww%2Efoxsearchlight%2Ecom%2Famelia>

This page was sent to you by: [redacted]

Message from sender:
Chinese panels imported into the U.S. now need to pay a 2.5% duty... John Scott

BUSINESS / GLOBAL BUSINESS | October 01, 2009
Solar Panel Tariff May Further Strain U.S.-China Trade
<http://www.nytimes.com/2009/10/01/business/global/01tariff.html?emc=eta1>
By KEITH BRADSHER
New tariffs on solar panels imported to the United States come as panel manufacturers are losing money, in part because of fierce competition from China.

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Document 17

WEDNESDAY,
NOVEMBER 16th, AT 2PM ET
Join us for a LIVE chat about Industrial Efficiency
with Deputy Assistant Secretary Dr. Kathleen Hogan.
Send us your questions via
facebook.com/Energygov
@Energy
newmedia@hq.doe.gov
LIVE CHAT
JOIN US

Energy Department Announces New Private Sector Partnership to Accelerate Renewable Energy Projects

October 7, 2009 - 12:00am

Washington DC — U.S. Energy Secretary Steven Chu today announced the Department of Energy (DOE) will provide up to $750 million in funding from the American Recovery and Reinvestment Act to help accelerate the development of conventional renewable energy generation projects. This funding will cover the cost of loan guarantees which could support as much as $4 to 8 billion in lending to eligible projects, and the Department will invite private sector participation to accelerate the financing of these renewable energy projects.

To this end, the Department announced the creation of its new Financial Institution Partnership Program (FIPP), a streamlined set of standards designed to expedite DOE's loan guarantee underwriting process and leverage private sector expertise and capital for the efficient and prudent funding of eligible projects.

"A renewable energy economy is a true opportunity to create new jobs, reinvigorate America's competitiveness and support the president's goal of doubling renewable energy in the United States," said Secretary Chu. "American innovation can be the catalyst that jump starts a new clean energy Industrial Revolution."

The Recovery Act created a new Section 1705 under Title XVII of the Energy Policy Act of 2005 (Title XVII) for the rapid deployment of renewable energy projects and related manufacturing facilities, electric power transmission projects and leading edge biofuels projects that commence construction before September 30, 2011.

This first solicitation under the new program will seek loan guarantee applications for conventional renewable energy generation projects, such as wind, solar, biomass, geothermal and hydropower. Past solicitations for renewable energy generation projects have focused on loan guarantee applications using new or innovative technologies not in general use in the marketplace.

The goal of FIPP is to leverage the human and financial capital of private sector financial institutions by accelerating the loan application process while balancing risk between DOE and private sector partners participating in the program.

RELATED ARTICLES

Department of Energy Finalizes Partial Guarantee for $852 Million Loan to Support California Concentrating Solar Power Plant

Working with the Private Sector to Achieve a Clean Energy Economy

Secretary Chu, Senator Reid, Rep. Berkley Announce Conditional Commitment for Loan Guarantee to Fotowatio Solar Project Near Las Vegas, Nevada

Under this first FIPP solicitation, proposed borrowers and project sponsors do not apply directly to DOE but instead work with financial institutions satisfying the qualifications of an eligible lender which may apply directly to DOE to access a loan guarantee. The solicitation invites applications from eligible lenders for partial, risk-sharing loan guarantees from DOE. The guarantee percentage will be no more than 80% of the maximum aggregate principal and interest during a loan term, and the project debt must obtain a credit rating of at least 'BB' or an equivalent with a nationally recognized credit rating agency.

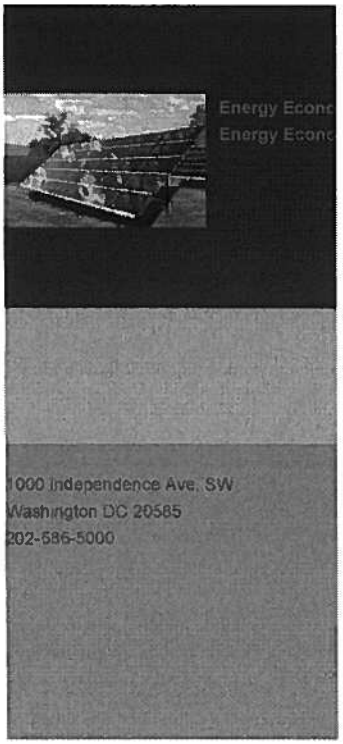
This solicitation marks the eighth round of solicitations issued by the Department's Loan Guarantee Program since its inception.

Read more information on this solicitation and the Department's Loan Guarantee Program.

Energy and Climate Stakeholders Briefing (PDF)

Media contact(s):

(202) 586-4940



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SOLYNDRA FAB 2 MANUFACTURING FACILITY

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R·W·BECK

April 27, 2009

[redacted]

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Respectfully submitted,

R. W. BECK, INC.

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SOLYNDRA FAB 2 MANUFACTURING FACILITY

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Document 19

From: Steve Mitchell [redacted]
Sent: Monday, January 18, 2010 3:02 AM
To: [redacted]
Subject: Fw: DOE meeting

Was hoping to give you some better feedback but still soft.

----- Original Message -----
From: Chris Gronet [redacted]
To: Steve Mitchell
Sent: Sun Jan 17 20:53:52 2010
Subject: RE: DOE meeting

Overall positive but nothing definite. We need to get in front of Silver again asap, and I am working on this directly.

I can provide more color tomorrow afternoon if you have time to talk. I am open 12-1 or 2-3 or later in the evening.

Gaffney accepted our offer today and will start Jan 25. More details shortly.

Chris Gronet
CEO
Solyndra, Inc.
47700 Kato Road
Fremont, CA 94538 USA
[redacted]

-----Original Message-----
From: Steve Mitchell [redacted]
Sent: Sunday, January 17, 2010 6:47 PM
To: Chris Gronet
Subject: DOE meeting

Chris,

I'm curious how the meeting with [redacted] turned out. Any update?

Steve
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