RENEWABLES COMMITTEE WORKSHOP

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	
Emerging Renewables Program	)	Docket No.
Proposed Guidebook Changes	)	02-REN-1038
	)	
_____	)	

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET

HEARING ROOM A

SACRAMENTO, CALIFORNIA

MONDAY, DECEMBER 5, 2005

9:11 A.M.

Reported by:
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Contract No. 150-04-002

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Jackalyne Pfannenstiel, Associate Member

ADVISORS and STAFF PRESENT

Tim Tutt, Advisor

Suzanne Korosec, Advisor

Bill Blackburn

Gabriel Herrera

ALSO PRESENT

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Trendsetter Industries
Appropriate Energy, Inc.

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Scott Jackson
Evergreen Development

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Evergreen Development

Mark Johnson
Golden Sierra Power, Inc.

Mike Keesee
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Jonathan Hill
Sierra Solar Systems

Don Loweburg
OffLine Independent Energy Systems

ALSO PRESENT

Kimia Mizany
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Hank Zevallos
Homewind Power

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P R O C E E D I N G S

9:11 a.m.

PRESIDING MEMBER GEESMAN: This is a meeting of the California Energy Commission's Renewables Committee to consider proposed changes to the emerging renewables program guidebook.

I'm John Geesman, the Presiding Member of the Renewables Committee. To my left, the Commission's ViceChair, Jackalyne Pfannenstiel, who is the Associate Member of the Renewables Committee. To my right, Suzanne Korosec, from my staff.

We'll lead off with a staff presentation from Bill Blackburn. Bill.

MR. BLACKBURN: Thank you. Good morning; I'm Bill Blackburn, the lead for the emerging renewables program.

A couple of housekeeping issues as Commissioner Geesman stated. We will collect blue cards, so Pam in the red shirt in the back there will collect any more blue cards if you would like to speak. We'll get those in.

And then we do have people calling in on the line today, and so we will have an opportunity after people here in the room speak, then people

on the phone line, if they wish to, can add comments or ask questions, they can do that, as well.

You can also, if you're on the phone, you can follow along on the website if you go to www.energy.ca.gov/renewables02-ren-1038/documents/index.html. Good luck if you didn't get that all.

(Laughter.)

MR. BLACKBURN: It's my pleasure to be here today to navigate you through the changes, the proposed changes for the guidebook.

The emerging renewables program is a very active, dynamic program, aimed at expanding the installation of renewable energy systems under 30 kilowatts, and lowering their costs.

The changes proposed are not major today, and are intended to one, simplify certain areas; two, provide greater clarity; and three, respond to concerns raised.

I will cover briefly today for the agenda a brief status and overview of the emerging renewables program, the proposed guidebook changes, proposed rebate structure. Then we will take public comments; and then comments from phone

participants.

This graph here gives you some history of where we are today. The graph shows the proposed system capacity in blue, the blue bars. How much has been requested. And you see the red bars on the top, the changing rebate level coming down recently, the last few years. It's currently at $2.80 a watt for photovoltaic, which is about 99 percent of our activity in the program.

And if you look at the sort of aqua-colored bar on the right you can see a little more activity in the second half of 2005. So each bar represents a half year, starting in the first half of 2001. The last one would be up till about early November you see here.

This slide here you can see the total completed systems and the installed capacity, as well as the rebates that we've paid. So program really started as the emerging renewables buy-down program 1998. And you look today at 2005, which goes up to early November numbers here, and we have on the left, the number of installed systems today, which is 3443 so far in 2005. That equates to a little over 15 megawatts of capacity.

And we've paid out this year more than

$47 million. So the totals at the bottom here you see, are we have provided incentives for over 15,000 installed systems totaling 62 megawatts of capacity. And we've paid out $227 million approximately.

The next slide shows the applications received by the month. You can see some definite spikes here. So these correlate clearly with rebate drops. So this time of the year, and in June, we tend to get the most activity where you can have more than in some cases 2000 applications coming in a month. And then it settles down.

So, what you're seeing, if you look at 2005, which again goes up to November, you see starting out real slow, picking up in the summer. We did not drop the rebate this last July, although we still had a spike, but not as high, so that was probably kind of a seasonal thing. And then fairly steady activity receiving around 400, 500 applications per month the second half of 2005.

This next table, I won't go into a lot of detail, but it basically shows a breakdown of the participation by the size. So it's split into three areas of 1 to 10 kilowatt systems; 10 to 20;

and 20 to 30.

What you see here is a pattern that's been fairly consistent where the majority of the systems that are being installed continue to be in the 1 to 10 kilowatts areas.

The next slide is the average installed price, starting in 2001. And you can see the size, I believe this is the average size of the system under watts. Then you have the dollars per watts, which would be the total installed cost. And then the net cost would be the installed cost minus the rebate.

So you see some declines in the cost of the systems in dollars per watt, but the net cost has been fairly steady. There's a little bit of a dip, and then it's picked up a little bit the last two years. But you can see not a significant change there over this time period.

Now, one of the areas that we have under the emerging program is the solar schools program. It has been closed for a number of months. We still do have roughly 30 active reservations. We've paid out $476,000 to four schools so far.

This is, again, a unique program that gets half the funds from the renewables resources

trust fund, which is where we normally pay out for the rebates. And then, the AGAERA is also where the other half of the money comes from, which is the Attorney General's Alternative Energy Retrofit Account.

There is approximately 3.9 million in remaining reserved. And still we don't anticipate any new projects because there is no new funding for this.

Next slide shows a little bit of what's been happening with our performance based incentive program. This is a pilot program that started in January 2005. And we have one PV system that has been installed and has received quarterly payments.

We have received in total approximately 20 PBI applications to date. Three-quarters of them are commercial project. A couple have been residential, three actually, and two institutional.

And we have budgeted for this program $10 million. Of that we have approximately $6.5 million remaining. The total number of systems collectively is about 1 megawatt of capacity.

Our next slide shows the activity that

we've had in the wind area. I should mention, too, that we've had no fuel cell projects this year, nor have we had any solar-thermal electric projects.

Wind, you see a declining activity trend here. So the last two years or so you see really a few dozen or just over a dozen systems that have been requested, been installed. So that has been a trend that has been going on for some time.

In the emerging renewables program we have a very dedicated staff that work extremely hard. And we've made a number of improvements and changes in recent months. I wanted to mention that.

We have increased the hours and the staff of our call center, our 1-800 number. We have provided customer service training, and that will continue. And in the coming months, again to respond to some concerns voiced, we'll be working to reduce the backlog both on the front end for requesting reservation applications, or reservations, rather, and the payment claims.

So I think we've made significant progress, but we have further to go.

The next slide shows you our tentative

schedule. The draft guidebook that we have today was produced and available November 23rd. We've obviously doing the workshop today. Following today's workshop we will be meeting with our Committee to make any needed adjustments.

We anticipate that there will be another draft early part of January. We are anticipating meeting the December -- excuse me, January 18th business meeting for the Commission. That's when it'll be hopefully adopted and approved and final. And then shortly after that point we will have it available.

Now, the first proposed change that I'll discuss today is we're proposing to extend the reservation period. The reservation period right now for projects is six months. And we do not allow extensions going forward. That started back in January of this year.

We have received some complaints that six months along with no possibility of an extension was too short, from a combination of issues relating to module availability, and some of the folks in the wind industry have that concern, too.

So we're proposing to change the

reservation period from six to nine months; maintaining the 18 months for new construction, which we've had. And for the current reservation holders that have a six-month reservation, they will automatically receive a three-month extension.

Eighteen-month reservations may qualify for up to six-month extensions under the conditions specified in the guidebook version in place at the time that the reservation was issued. In other words, if you had something that went back to 2004, we'd go by whatever guidebook was in place when we approved the reservation.

Okay, next one is on affordable housing. This is an area within our program where we do provide a higher rebate. We do have a requirement that says you must meet a higher energy efficiency requirement; it's 10 percent higher.

There's been some confusion and questions that have been raised about how the inspections are done, and if the person that's doing the inspections needs to be certified. And so we're adding language that requires CABEC-certified inspectors. So that would be the California Association of Building Energy

Consultants.

And a couple of proposed changes for our performance-based incentive program. The current 30 percent capacity factor that is used to determine the reservation amount is very high. This has caused a significant gap between the reserve funds and what actually is being paid out.

So this locks up funds unnecessarily for several years and it reduces, in some cases, the potential size of the projects that can apply. So, for instance, we use typically a capacity factor around 17 percent.

If you had a large system that you were putting in you can go up to $400,000 for a PBI application. If you had an average production from that system you would actually receive around $228,000, but you'd have also $172,000 that would have been encumbered and essentially locked up for a period of years that wouldn't be available.

So what we wanted to do was really address this issue. So we're proposing to lower the capacity factor to 20 percent. So we think that still offers a little bit of head room there. And keeping 30 percent for tracking systems only.

And the next slide shows that the

current guidebook does not specify that the PBI application and the regular emerging renewables program application incentive, or what you might call capacity-based incentive, can be provided at the same site if they're separate systems.

So we are specifying that ERP rebates and PBI incentives require separate systems with separate meters.

I wanted to note, too, that our guidebook does say that this is a pilot program; it's a demonstration program. And that staff will undergo a program review after 12 months. So you should expect to hear sometime next year more about that and we anticipate working on that in early 2006.

Next slide addresses some concerns we've had about system modifications. For active reservations the guidelines often reduce the rebate with system additions below the current rebate level.

An example would be if you had a system addition and you let us know, and if it's at a lower rebate level, then we recalculate the entire system capacity at the current lower rebate level. And then give you either that number, that amount

for reservation, or the amount that you originally had reserved. So this would, in this case, give no additional rebate for a system addition.

So we're proposing to change it to applying the current rebate level for incremental portions. And this would simplify the calculation and remove that penalty.

A related area is if you go back and add to your system later. So in this case the current guidebook treats the existing systems by applying previous rebate, thereby lowering the rebate.

For example, if you had a system that you'd already had paid on and you added 1 kilowatt. Then you would get, in this case, for instance, potentially $2300, not the $2800 at the current $2.80 level.

So the current level will be provided with no adjustment or reduction in systems that receive ERP rebate months or years ago.

Okay, next slide is some minor changes. We did want to clarify a few things here. So here we have corrected a definition on a site and system change.

For projects over five high density units and separate meters, each unit can be

anything less than 30 kilowatts. And then under that we have clarified that rebate applications applying for other ratepayer programs, such as the self generation incentive program, using the same site, we've clarified that. So, basically tightened up that language.

The next slide shows that we have a slight discrepancy in the language that we use. We typically will talk about a program as being up to -- excuse me, less than 30 kilowatts in capacity.

So if you look at how we address wind, it actually says up to 30 kilowatts. We want to be consistent and make it all less than 30 kilowatts rather.

And then another fairly minor change here. The R5 form that is submitted basically is an assignment of payment. We're just striking that section from the initial reservation application, which is R1 form, because it's caused some confusion.

And then I wanted to kind of shift gears here and get into a brief discussion about the rebate levels that we have. As most of you know, the federal Energy Policy Act of 2005 did provide

some new rebates -- excuse me, new tax credits for solar systems.

So we had our contractor, Kema, do some analysis of various scenarios to consider rebate implications. I've summarized it here in the next couple of slides.

This will be available to the public at a later date, so we will release that. And I wanted to mention that we're limiting our discussion today, so I won't go into a lot of detail about it.

Now, the table you see here has a lot of information. I'm just going to walk through very quickly here. These were the assumptions that we, for the most part, provided to Kema. And we basically asked them to say what would it take under the new tax credit scenario to equal what we're providing if it was $2.60 a watt for photovoltaic.

So we have here a combination of looking at residential systems, commercial systems, institutional systems. We used an average capacity factor. You can see 15 cents a kilowatt hour for the assumed cost of electricity, plugged in some tax rates, things like that, and a

projected life of 25 years.

So, what does that mean? Well, the next slide shows that the results do show a significant gain for small residential, like 1 or 2 kilowatt systems you see here. And a pretty significant benefit for large systems that are for the corporate folks.

So, in this case, if you had a very small system, you put in, for instance, a 1 kilowatt system, you would really only need 57 cents a watt to equate to the current 2.60. If it goes up to 6 kW then you're basically still needing roughly $2.60.

On the corporate side, you see different numbers with different scenarios. And again, I won't go into that detail. But essentially what it shows is that regardless of the size, because there is no cap on the ITC like there is for residential, you could give around $1 a watt that would be equivalent to today's $2.60 a watt.

So, the folks, though, that are tax exempt are subject to the alternative minimum tax, AMT, those people would not receive any benefit. So, if you go to the next page, a brief summary showed again that the residential owner, for small

systems like under 3 kW, would greatly benefit from the income tax credit, 30 percent, that's capped at $2000.

For the commercial owners there's a sizeable reduction in rebate levels would be possible if they're again, taxable, like we talked about. But for tax exempt folks and for folks that are subject to the AMT, you would hurt those folks if you lowered the rebate further.

The next slide shows the proposed rebate level. And what I've highlighted in blue is the only proposed change, which would be to lower the photovoltaic rebate from the current $2.80 to $2.60.

So, for solar thermal electric, for fuel cells that require a renewable fuel, and for wind we're not proposing any reduction in the current rebate.

And that concludes my presentation. As I said, we welcome your comments. I wanted to mention also, as kind of a housekeeping item, that if you had letters or any material you want to submit to the docket, you can give that to me and I'll do that. Or you can contact the dockets office, and here's the information. It's also in

the notice. The deadline is Wednesday, December 7th, close of business.

So, I will stop there, and thank you very much.

PRESIDING MEMBER GEESMAN: Bill, I wonder if you could go into the logic behind the staff's recommendation to reduce the photovoltaic incentive from $2.80 to $.2.60.

MR. HERRERA: Commissioner Geesman, Gabe Herrera with the Legal Office. I'd like to make a comment for the record.

The guidebook, as adopted by the Commission now, automatically reduces the rebate level to $2.60. That's not being proposed. So, just so we're clear on that point.

PRESIDING MEMBER GEESMAN: Yeah, let me then reverse the question. And pose it as because of the indication from the Public Utilities Commission and Judge Malcolm's proposed decision, that their rebate come down to $2.80, and because of the several years of hectoring that this Commission has conducted, trying to get their rebate harmonized with our program, is there a rationale for us, in this spirit of fraternalism that we've tried to display with respect to the

Public Utilities Commission, for us to hold our rebate level at $2.80 again?

MR. BLACKBURN: I think that the $2.80 would be reasonable in the sense that I believe, as you said, the PUC is considering $2.80 in 2006 for their program. I think it would be justified, too, to drop it to 2.60.

Clearly, the income tax credits, investment tax credits that will be available in 2006 and 2007 would suggest that it would be reasonable to drop it to 2.60, or arguably lower.

And as Gabe pointed out, we have been on a path trying to basically push the industry to bring down their costs over time, and reduce that over an extended period of time.

So I would say that it's justified.

PRESIDING MEMBER GEESMAN: Okay. Why don't we go to blue cards, then.

First one up is Mike Bergey, Bergey WindPower and American Wind Energy Association. And I think Mike's got a PowerPoint presentation.

MR. BLACKBURN: Yes. And I'll just pull that up here. And I think you're ready to go.

MR. BERGEY: Commissioners, I'm Mike Bergey; I'm President of Bergey WindPower Company,

Norman, Oklahoma. And I'm Chairman of the Small Wind Turbine Committee of the American Wind Energy Association, a national trade association for wind power.

Appreciate the opportunity to be here today. Thought I was escaping to warm and sunny southern California. But my walk over from my hotel dispelled me of that.

We have two main comments. I'll throw in a third because I caught something else. We support extending the rebate reservation time to nine months, particularly with small wind. It will help with the permitting delays.

But our strongest recommendation is that we encourage the Commission to restore the small wind rebate to par with solar per the proposed 2.60 a watt, or if it stays at 2.80, as it was. And I'll spend the majority of my presentation on that.

Just, you know, we love solar. We don't want to derail the California solar initiative at all, but solar really is not a silicon bullet. For those that are in the proper wind area, and there's a significant amount of that, as we'll see, wind power for the larger homes can be a

significantly lower alternative for utility bill reduction. So, it's a worthwhile technology in that regard.

And the stock of small wind is rising. You heard at the last workshop a presentation by my competitor, Southwest Wind Power, about some new technology that they're bringing online.

Our story is that our markets are expanding and we're, for example, the icon of environmental stewardship for the new Walmart environmental SuperCenters, which have been very popular with the public. So, stock is rising.

And we know that Californians want small wind because we've actually seen critical mass hit down near San Bernardino where neighbors sell neighbors wind systems in the same way that solar has sort of taken off. So, we know that the market is there.

Potential is large. Following studies actually done, funded by the CEC. Twenty-four percent of California has sufficient wind resources for small wind. A much smaller percentage for large commercial wind. But significant for small wind.

There's a lot of acreage available with

usable wind resources. And if you do an analysis of the top 200 zip codes with the land sizes, there's 400 megawatts of potential that's been identified, again by the CEC.

The primary small wind market areas are Solano County, the Antelope Valley, and L.A. County and Hesperia area down in San Bernardino County. And I'll point out that in each of these areas the wind resources, because of the dynamic between the coast and the inner valley, the wind resources coincide with residential peak load actually better than solar. Because the wind continues on into the evening after the sun has set, when we have the high air conditioning load. So it is a peak shaver.

Of course, the policy under which the program, 1038, 1094 and SB-90, the goal is to drive up sales volume so that manufacturing costs can be reduced. And we liked that when it was written and we like it today.

But, small wind, truthfully, just hasn't felt the love from the Commission. We've had our rebates cut. When PV was cut, it was cut more than PV. They declined at a faster rate than PV. And so now it's about a 25 to 30 percent rebate.

And, of course, the performance-based incentive did not cover small wind at all.

And the result is not surprising. We've seen declining sales. Our data shows a decline. Of course, our data is based upon sales and your data, which Bill covered, is based upon rebates actually paid. So there's a little bit of difference in the accounting. But the trend is clear. The market is failing.

Our proposed turnaround on that is to give small wind the same rebate as proposed for PV up to 10 kW, and then $1.60 a watt after that.

We've done a cost-and-benefit analysis. We'd be happy to provide the details. But the results are that we project that would cost $2.6 million in 2006 and $4.2 million in 2007, a little under $7 million total.

The projected installation would be 2.6 megawatts of new systems compared to the 1.4 to 1.5 that have been installed in the last six years. So a very significant increase.

And projected installed cost reduction of about 16 percent, just within two years. And that's possible because small wind systems are produced in very low volumes. There's a lot of

overhead spread across very few units. So a relatively small increase in volume allows us to make significant cost reductions.

There is a precedent, and we believe sufficient funding. In 2001 the CEC raised the PV rebate from $3 to $4.50 a watt, due to low PV sales. And from 1999, actually 1998, to 2003, PV and small wind had the same rebate level subject to the 50 percent cap.

As of November 8th there were approximately $51 million in the under-30 kW ERP fund. And, of course, the draft investment plan allocates approximately $55 million per year for the EPR net of the repayment required, the $60 million repayment.

Additional considerations are that active sales, we found, leads to the streamlining of permitting. If there are customers banging on the zoning officials saying make it easier and cheaper and quicker to put in my wind system, we find that the supervisors move based upon that market pressure. So your stimulating the market can help with the permitting.

Small wind is subject to property taxes, unlike solar, which increases the payback. Which,

of course, affects the market. We have no product availability problems with small wind, unlike the product availability problems with solar and large wind.

And the two market leaders are Bergey Wind power and Southwest Wind Power. This year we both have new factories with substantial production growth capability. So, we're banging around in a nearly empty shop and we'd love to hire on more people and expand our production.

So, in summary, for about a 6 percent projected ERP funding over the next two years, the CEC could transform the small wind market, lower costs appreciably, drive local and state policy and regulatory advances, and give Californians more energy choices. And we believe you can do so without jeopardizing the California solar initiative.

And we think transformation is good.

PRESIDING MEMBER GEESMAN: Thanks, Mike. Commissioner Pfannenstiel.

ASSOCIATE MEMBER PFANNENSTIEL: What is the average size of your system, the system that you sell?

MR. BERGEY: Ten kilowatt is the most

popular. There's --

ASSOCIATE MEMBER PFANNENSTIEL: So that tends to be --

MR. BERGEY: -- the average will be a --

ASSOCIATE MEMBER PFANNENSTIEL: -- not residential, but rather small commercial, Walmart-sized system?

MR. BERGEY: No, that's residential. That's about, depending upon the wind resources, 1000 to 2000 kilowatt hours a month, which is a utility bill in the $200 to $300 a month range. And there are quite a few homes with that size electric bill.

ASSOCIATE MEMBER PFANNENSTIEL: In California or elsewhere?

MR. BERGEY: In California. These are, I think you'll hear from some of our dealers here about the markets that they have. But the 10 kilowatt, I think, the last time I analyzed your numbers, 70 percent of the small wind turbine sales were 10 kilowatt turbines.

ASSOCIATE MEMBER PFANNENSTIEL: Thanks.

MR. TUTT: John.

PRESIDING MEMBER GEESMAN: Tim.

MR. TUTT: Hi, Mike, nice to see you

again here. Had a couple of questions. First, can you tell us what the average installed cost of the wind systems are compared to solar? And then second, have those costs been changing over the last five years?

MR. BERGEY: Sure. With wind you have to sort of do a blend because there are different tower options that change the price. The self-supporting towers without guy wires are considerably more expensive, both for the tower, itself, and for the installation.

So a guy tower is typically about 42- to 44,000 and a self-supporting about 55,000. So we would say about $48,000 for a 10 kilowatt turbine. So, $4.80 a watt. And that has been pretty much constant. It rose about two years ago, but it has stayed the same the last two years.

PRESIDING MEMBER GEESMAN: Next blue card is Chuck Maas, Appropriate Energy Trendsetter Industries.

MR. MAAS: Hello, Commissioners. Chuck Maas is the name and there's two companies. One is Trendsetter Industries representing solar thermal; and the other is Appropriate Energy representing a burgeoning, trying-to-get-off-the-

ground small wind turbine.

My question is why wind cannot be based -- wind rebates cannot be based upon performance. And I have mentioned this before, that your performance-based initiative that you have for photovoltaic doesn't make much sense, because my own calculations, and the reason it hasn't been taken up in my opinion, is that it doesn't make much sense to wait three years to get your rebate when you can get almost the same amount of money on your initial installation.

And performance rebate is very very important for wind, because it would prove that wind can actually deliver the kilowatts that you're requiring, and at a reasonable cost.

And there's metering in, all this is available. And it would encourage two things. It would encourage people to buy systems that perform. And it would also encourage people and manufacturers to manufacture systems that give high kilowatt production.

And the machine that we're working with works in a lot more wind zones than has currently been proposed. We reckon we could handle about 80 percent of California.

PRESIDING MEMBER GEESMAN: Do you think it would help your marketing to have a program that was performance based, as opposed to a front-end rebate?

MR. MAAS: You would see the market take off like a rocket. But also the most important thing, when you're trying to install these systems, and your whole program in my knowledge, is to encourage people to produce their own type of power. And to get off into renewables.

And so why not encourage systems that do that? And help you get to your 20 percent system by 2017.

Also, to qualify some of the equipment, right now you currently have a year. Seems like if the blades are going to fly off, they're going to fly off in less than a year. And it seems like a little bit too long.

Mike Bergey mentioned the Southwest. They have an exciting new product that's going to be roughly in the $5000 retail range. It's going to have applications all over the state. They're going to try to sell it through Home Depots and things of this nature.

And they're going to be stifled in

probably one of the best wind regimes in the United States, just due to the Commission's current activity as how they're handling small wind.

The other thing that I want to talk about is solar thermal. That has nothing to do with electricity production. For some reason the solar thermal industry has been just pushed into the backwater. And right now we've got technologies that not only produce your hot water, but also heat your entire house, off your roof. And it's not being encouraged; it's not being -- there's no rebates in the state. There is a federal rebate that actually put thermal, solar thermal and solar PV on the same level playing field. And if the feds can do it, why can't the State of California do that?

I think it maybe has to do with the fact that we don't have very many lobby groups. We don't have BP, we don't have Kyocera, we don't have Sharp, we don't have some of these multibillion dollar corporations.

In fact, three of the major companies that produce solar thermal are in California. So, if this was encouraged, it's more California jobs.

Three of the majors in the whole country are California companies.

The metering is now available. I think Bill was back at the power conference. I was with him there. And there's metering. The people that can only think in kilowatts, well, we can handle that. There are meters that actually convert the thermal energy into a kilowatt equivalent.

And what this does is it allows some of your municipal utilities to actually encourage people to put in thermal systems and get the electrical equivalent.

Hawaiian Electric has installed 38,000 systems. It's an electric company. Assisted in setting up 38,000 systems. Lakeland, Florida actually buys the equipment and puts it on the people's house; and then meters it and puts it into kilowatts.

Now, these meters are available. They're $200, something along these lines. Very reliable. And it can be done. So you're missing out on one of the most major major forms of energy.

And, Commissioner Geesman, you told me how you like solar, that you're a very big solar

fan. And I agree with you, but why only one type of solar. Why not both types?

Because if you put both types in, I'll go right back to the fact that the solar thermal is five times more efficient from energy collection and distribution than PV. So why not encourage the systems that give you the most bang for the buck.

Thank you very much.

PRESIDING MEMBER GEESMAN: Thank you, Chuck. Gary Gerber, President, Sun Light and Power.

MR. GERBER: Good morning. I presented a letter which I hope you have in front of you. So, I'm not going to go through it in great detail. I want to hit the high points.

I'm Gary Gerber, Sun Light and Power Company. We're one of the oldest solar contracting firms in the state. Been around since '75. So, I've been through it all, I would say, the ups and downs.

My main point is I want to thank you for making some very constructive changes to the guidebook. The only one that I'm not happy with is the drop, or the not keeping the rebate at 2.80

a watt.

There's three major points that I want to make on that. One is that module costs have been going up; I hope you are aware of that. Our cost of doing business has gone up.

I've run my own numbers. I went back and looked at some bids I did a year and a half ago, and the bids I'm doing today, and I was astounded. The net cost to the customer is actually up a lot more than I thought it was. It's over 33 percent higher today than it was a year and a half ago. Through a combination of higher costs for product, as well as a drop in the rebates.

And I think the graphs that are showing that dropoff are an indication, the ones that we just saw presented to us.

There's also a key problem in that our inability to pay the higher prices that are being demanded, or difficulty in paying those prices, is actually reducing availability of modules in California. Modules are going to Germany, Japan, Spain, Italy. They're not coming here in any great quantities. We are desperately scrambling around in our industry to find modules.

We, some months, cannot get enough modules to satisfy the demand that we have from our customers. And this is largely due to the fact that we can't afford to pay the prices that are being paid on the world market. It's a world market for modules.

Probably what I think is the most important thing, and it shows up on this graph, I don't know if you can see this one, but this is the one that really shows the spiking and dropping in our market.

This is very meaningful to me, because this is the business I have to operate. I have to operate a business that goes through these gigantic gyrations all the time. And every time something happens here it is reverberated through our industry.

And what's going to happen this time is, because, as most people know, as you mentioned, Commissioner Geesman, that the CPUC is considering 2.80; so now there's going to be this confusion -- actually, well, there won't be confusion. The customers won't be confused at all. They'll know exactly what to do . They'll just wait; they'll just not buy.

When they think that they can get 2.80 later they're going to wait. And this is just exactly the kind of spiking, you know, up and down that goes on in my industry; and has gone on for years and years, that I would personally like to see eliminated. Because it makes my business, you know, very difficult to operate.

You know, we're out there on the frontlines implementing the solar systems that you're encouraging. And so I think that the industry's problems need to be thought about at this level.

So, those are the main issues that I had to bring up.

PRESIDING MEMBER GEESMAN: Gary, how do you feel about the whole premise, though, of a declining rebate over time? It seems to me that's been the underlying logic of the Energy Commission's program; seems to be the underlying logic of what's being discussed in the Legislature with SB-1; seems to be the underlying logic of the Public Utilities Commission's soon-to-emerge California solar initiative.

MR. GERBER: Yeah. I actually totally support that. It's actually an excellent sales

tool for us.

The problem is when it doesn't respond to the market.

PRESIDING MEMBER GEESMAN: Yeah.

MR. GERBER: Right now the market has gone back up, but the rebate just keeps dropping, dropping, dropping, not paying attention to what's going on. What's really going on is net costs to the consumers.

Well, you're trying to affect net cost to the consumer, ultimately, with the rebate. The rebate is the cushion that can make those adjustments. But if it just keeps dropping without paying attention to what's going on, then it's not doing its job.

PRESIDING MEMBER GEESMAN: So, it's the automatic pilot aspect that --

MR. GERBER: Exactly.

PRESIDING MEMBER GEESMAN: You know, I have a fairly jaundiced view as to what any of these government agencies are actually able to accomplish, how good our data is, how timely it is, how much fine tuning we can accomplish.

And I'm sensitive to the problems that an automatic pilot has caused. I wonder if we

shifted the trigger rather than a reduction every six months, if we made that trigger a volumetric trigger, that every x number of megawatts --

MR. GERBER: I wouldn't --

PRESIDING MEMBER GEESMAN: -- we would reduce it.

MR. GERBER: We've been through that. I would seriously suggest you not do that, because it raises all sorts of questions in the customer's mind because they don't know when that is going to hit.

And the certainty of the timeliness of a reconsideration every six months, what I would recommend, I haven't thought about this a lot, but what I think would be better would be say three months ahead of each timeframe that you want to consider a drop, you make a decision. So you make it in plenty of time before it actually is going to occur.

And you base it on market conditions and feedback from the contractors, and give people plenty of notice. And then I would, you know, just have it on a regular six-month cycle like that is what I would suggest.

PRESIDING MEMBER GEESMAN: Thanks very much.

MR. GERBER: Okay, thank you.

PRESIDING MEMBER GEESMAN: Tim.

MR. TUTT: Gary, I'm just curious if you have any opinion on how we would factor in the effect of the federal tax credits that go into place next year.

MR. GERBER: Yeah, that's another -- and that's a two-year, you know, it's a short-term issue, so that's not a good thing. And obviously the industry is trying to get that extended for the same reasons that these kind of cycles keep hitting us like that.

I think it should be considered. But, my own personal considering of it has shown that basically losing the state tax credit pretty much wipes it out. So, we're pretty much left neutral as far as that's concerned right at the moment.

And then we're still faced with increasing cost of modules.

MR. TUTT: Thanks.

PRESIDING MEMBER GEESMAN: Thanks, Gary.

MR. GERBER: Okay, thank you.

PRESIDING MEMBER GEESMAN: Next blue card is Scott Jackson, Evergreen Development.

MR. JACKSON: As President of Evergreen

Development, and installer, we've put in roughly about 600,000 watts wind and solar.

Several points I'd like to bring out. And the fact that by lowering the PV rebate the basic logic was that the module price was going to drop due to world demand. It's been reversed, and it will be a big spike. Most of the suppliers are aware, in the United States, of the spike of the major panels at the end of this month.

Our installations are rising, not only due to the labor costs, but permit costs, themselves. The permit costs are all over the board. We essentially install in five counties in northern California. We found prices that go from $1400 for a permit in Placer, $1600 in Monterey, all the way down to $175 in Tehama, and $355 in Butte County. So, you can see it's a vast range.

For us to put our marketing plan in effect, our marketing plan has taken five years for us to get to this point, both solar and wind.

We need some continuity of the Energy Commission to where we can base our plans on. A good example, there's been many many -- another point, aside off of this has been a lot of research done on the Cygnus wind system. It's a

30 kW wind system. For them to go through the UL 1571 it's -- or 1751, excuse me, it's taken them three years to get to that point. And now it's been an arbitrary suggestion that we go from 30,000 watts or less down to under 30,000 watts.

Well, their machine that's been in production in this research and development out of Texas, is now out of the scheme, because they're a 30,000 watt machine. They missed it by one watt.

So all of this research and development, and the certifications of the UL listings are being proposed to be run down the gutter, as it were.

We need conformity. We suggest that you upgrade the wind to be in line with the PV, as it's been shown how the decline in wind is, our marketing program is coming online with the farmers and with the ranchers in northern California.

We're proposing, and out of what you saw at 57 kw on seven systems, we are now -- we just finished the Bergey 10 in production. We're putting two Jacobs 20s. And these are offsetting pumping, large 30 horsepower pumps.

These have the potential of putting

online -- the wind has the potential of putting online to the utility essentially twice the kW for half the price. And for us to get that to the farmer, we need some allocated moneys that we would hope would not have a declining tier. There, again, we need continuity.

We realize that the logic of SB-1 was to get the state out of the program. We are a distant third in alternative energy as it relates to photovoltaics worldwide. And a very distant third, which I'm sure you're aware. And for any company selling in California they're losing the offset in the Euro. So at the Euro's current price why would they want to sell in California when they could make that difference in Europe and Japan.

So we would propose that solar stay the same, and the wind would become equitable. We've got four different manufacturers that we represent, that we install. And it's our salesperson -- now, I realize there's no, how do I say, there's no -- you can put a windmill up anywhere. You could put a solar panel anywhere. You could point the solar panel north. There's nothing in the Energy Commission says we should

point the solar panel to the sun, or that we should have at least a class 2 for our windmills.

But the technology on all four of these windmill manufacturers has come online recently; their blade systems, the high -- gears. They are now just waking up to this demand for wind. And everybody in development will show you, as Mike Bergey suggested, what he's got online, what Southwest has got online, Southwest's new blade systems, Jacobs' new gear system, Mike Bergey's new blade system, these things harvest well.

Solar, kW wind to solar photovoltaic in a class 2, all of these machines will get better production for your rebate paid.

There's not a lot reflected that you have because you just deal with grid systems. We put a lot of our systems offgrid. And that is a lessening load. As Evergreen Development, we design about 80 houses a year. And as a CABEC professional member, I qualify many of the houses as EnergyStars. We're a home ally program, and we certify the houses as an EnergyStar.

If the house is on- or offgrid, we would make the choice to whether we sign up to the grid for the rebate, or the people can do the extension

for the utility company, because we install those, as well. So we have the full potential and -- we would appreciate these changes, as we've got a lot of time and money, as does the wind energy have a lot of time and money in trying to keep up with a consistent program.

Thank you.

PRESIDING MEMBER GEESMAN: Thank you.

MR. BLACKBURN: If I could just jump in to respond to one issue that was mentioned by Mr. Jackson, that we don't intend to discourage wind. And I think we would look at anything below 30 kW. So if it was 30 kW that would still qualify.

And I think the way we've handled it is up to 50 for wind, we've allowed, but we only pay up to 30.

MR. JACKSON: I had a Cygnus -- I put in an R-1 for a confirmation of a rebate at 30,000 watts, and it was turned down. A lot of money down the drain.

PRESIDING MEMBER GEESMAN: J. Michael Madden.

MR. JACKSON: Blown away in the wind.

MR. MADDEN: Good morning; I'm Mike Madden; I'm a technical consultant. I do work

with Evergreen Development. I also do energy efficiency studies elsewhere.

First of all, I'd like to thank Mr. Blackburn. I acknowledge that, yes, in the past there's been some slowdowns on processing forms. They have made a true effort. And the nice thing about his crew is we can call in, we get personal attention. The Board should know that they have been very responsive and it's starting to turn around on the through-put on the applications.

In general, I fully agree with the changes. The one exception is I would like to request that it be considered for under 30 kW systems, wind systems, that it have parity and equal rebate with solar.

One of the farmers I deal with, I sat down and I explained to him what solar does. I explained to him what wind does. And then I had to explain the rebates. And he scratched his head and he goes, how does the meter know that it's coming from wind or if it's coming from solar. He says, it's a watt.

And that's a question, you know, I really basically have. What we're trying to do is promote an industry to provide a certain level of

off, you know, bringing grid energy and enhancing it from distributed sources. I really would like the Commission to consider, you know, wind has a real lot of impact.

I further would like to state that there is that wind map that was shown earlier, there are a lot of class 2, class 3 winds lie on the periphery of the Sacramento Valley; not the coast, but inside the Valley. And these are, we've been doing a lot of offgrid work and doing environmental enhancement, providing pumping systems, solar-based, wind-based, or combo systems.

We're also providing a lot of the agricultural watering in areas that are not possible to be reached by the grid, at least without a lot of expense.

In the places now that have had performance with wind energy, we are now going back and retrofitting solar, wind systems, combo systems. As Mr. Jackson said, we're putting in 20 kW windmills that are able to carry a big load and make a otherwise marginal agricultural operation financially a little more productive because the power costs to be able to take care of their

animals, run their shops and other things, the power costs are reduced, because they have a good class 2, class 3 wind load.

So I would really encourage the Commission, for this Committee to take back to the full Commission, please, let's get parity for wind along with the solar.

Butte County, where Evergreen is located, has one of the highest per capita ratios of solar power in the state. We run our government on it; we run municipal sewage plants with it; and we run a lot of homes. And we're not a wind area there, but we do have a market that we can cover where wind can be very effective.

Thank you very much for your attention.

PRESIDING MEMBER GEESMAN: Let me ask you, how many of your wind installations are grid connected?

MR. MADDEN: Right now about 16 full. And that's over 75 kw.

PRESIDING MEMBER GEESMAN: And how many are not grid connected?

MR. MADDEN: It runs about 60 percent offgrid right now. We even have them on houseboats on Lake Shasta and Lake Oroville.

PRESIDING MEMBER GEESMAN: I'm wondering if that may not be one of the explanations for the difference between the staff figures and the numbers Mike had for his sales. Because our program for statutory reasons is focused ongrid connected.

MR. MADDEN: Well, with the legislative constraints that you have under the laws that you operate, you're wearing blinders. You cannot see the operative industry, --

PRESIDING MEMBER GEESMAN: Yeah.

MR. MADDEN: -- and it's a big one.

PRESIDING MEMBER GEESMAN: Well, and I think that it's a good application, both for solar and for wind, in terms of offgrid applications.

MR. MADDEN: It's helping the farmers out.

PRESIDING MEMBER GEESMAN: Yeah. Thank you very much. Mark Johnson, Golden Sierra Power.

MR. JOHNSON: Good morning, Commissioners. I'm Mark Johnson with Golden Sierra Power.

We've submitted some comments; I believe you've received them. There's also some analysis of some PBI. I'm not going to get into the

details of the analysis, but I'd like to go over a couple things briefly, and then ask a couple questions based on the report today.

Golden Sierra obviously supports leaving the rebate at 2.80. I think getting the PUC and the CEC on the same level, and allowing that, 2006, to kind of stabilize.

I think with where we are on the supply side, having the same incentive will bring some stability probably, and more knowledge to where we're going for the future, whether it be through SB-1 or though the million home program that's through the PUC currently.

Additionally, we would like to see the PBI be raised to 60 cents. We've done an extensive analysis of the cost breakdown and we've found that the projects that are currently within the PBI that have been applied probably do not have the ability to produce the kilowatt hours needed, even to get to close to what is needed to produce an equation to 2.80 a watt.

Our analyses show that you need about 1865 kilowatt hours per kilowatt to equal $2.80. We're finding, you know, around the state, especially in the Valley where some of the larger

projects that have been submitted, that you're going to see 1500 to 1600 kilowatts which equates to more of a $2.25 to $2.30 a kilowatt. I think that's going to open up some real can of worms down the road as we look at doing the analysis of the current PBI.

So what I'd like to see happen is more of a PBI that's based on a production, a potential production of kilowatt hours. And then have that equate to -- or systems that are producing, say, 1600 to 1700 kilowatt hours, which would be the upper end of the spectrum in today's current market. Be matching up with that 2.80 a watt amount.

Systems that aren't producing that obviously would receive less. And then systems that would produce more would receive a little more than the 2.80 a watt. But if we raise that level between 55 and 60 cents, although that's only a nickel, it's still a 10 percent change. And that still picks up, it rolls into the kilowatt side of production.

Additionally, we'd like to see other incentives may affect your rebate amount changed from 50 percent to 5 percent. In the last year,

or the last two years, Golden Sierra Power has been trying to work with applying for USDA farm and small business grants.

For the first time, California, since the program started, has received two of those grants for solar. Actually there was a couple SMUD projects earlier, but for independent applicants.

To be penalized 50 percent seems to be gray. It equates to almost a split between the Energy Commission and the USDA funding. These packages that we're doing and the analysis that we have to provide to the USDA for these grants are very extensive, and the grants are very very competitive.

And so to penalize the company that's actually applying, or to penalize the host, I think, is, at 50 percent is a little -- I know by statute you have to do something, and so I would request that you lower it to 5 percent. I think you'll still see that the homeowner or the host would still have equity in the project, and still be able to utilize the grant, to a 25 percent or something like that, federal.

These are actually the only incentives

out there today. And so if anything were to come up that would skew the program or to make the program not work, we can certainly go back and change it, or make those adjustments.

But to meet the guidelines set by statute we can certainly lower that to 5 percent.

PRESIDING MEMBER GEESMAN: Let me ask Mr. Herrera, our lawyer, --

MR. JOHNSON: Sure.

PRESIDING MEMBER GEESMAN: -- if we, in fact, do have any discretion there in terms of offsetting other government funds.

MR. HERRERA: Yes, Commissioner. The statute requires the Energy Commission to reduce, and it says it shall reduce it. The statute does not specify the percentage of reduction.

And since the program's inception I think the Commission has kept it at 50 percent. So if an applicant like Golden Sierra Power receives a grant from the federal government, then essentially 50 percent of that is reduced from the rebate amount that their applicant or their client would otherwise get under the ERP.

PRESIDING MEMBER GEESMAN: Thank you.

MR. JOHNSON: Additionally, we would

like to encourage PIER to -- we found through our analysis that there's some real issues regarding production.

We would like to see PIER take another look at the production models that are being used to calculate percent costs and values. We found that talking with NREL that some of their models are based on data that is not accurate, or let's say, not real data.

The California Irrigation Management Information System has real data available that goes back to 1980, and even a couple years prior, that's available on the internet. There's over 200 sites. Our county, alone, we just received grants to install five more sites.

And this not only helps the irrigation side, but it also provides solar radiation data that then can equate to the available amount of sunlight that can equate to what we can produce.

And I think that if you can tie these numbers in you'll see the disparity of production to what we wish we could produce to what we are producing grow a lot more closer. And I think those numbers will become real.

And, again, we've actually asked to take

that saying again out of the R-1, that says, let's take the restrictor plates off the race cars, please.

And essentially that's all we have on our comments. I do have a couple questions regarding the comments by Mr. Blackburn.

One is regarding the schools. As I understand it, there were only four schools that have been funded at this time?

MR. BLACKBURN: Actually I'm not sure how I stated it, but what I intended to say was there was roughly 30 applications that are active; we've paid four to date. So there's a number of projects that are being finished up or at different stages.

MR. JOHNSON: My concern is I've been contacted by a couple of these schools. As you know, we have some -- I'm assuming there's still a waiting list of the schools on the program?

MR. BLACKBURN: I believe that's correct, yeah.

MR. JOHNSON: Okay. It's my understanding that --

MR. HERRERA: Hold on. If I can comment. There was no waiting list that the

Commission created. In fact, all the funds that have been allocated for that program have been reserved for applicants.

And effective July of 2005 the Commission suspended that program because of the lack of funding. So, I mean at this point there isn't, one, a waiting list; and two, there isn't any point or any contemplation that the program's going to start up again unless new funds become available.

PRESIDING MEMBER GEESMAN: I think the program is currently over-subscribed. And in July we made clear that all the money was gone.

MR. JOHNSON: My concern is not where the money's gone. My concern is projects getting completed in a timely manner.

PRESIDING MEMBER GEESMAN: Right.

MR. JOHNSON: Based by the guidelines, these projects should be completed, I believe, somewhere in June of 2006. And where we are on the supply side, and I've been contacted by two local schools up in my area, with the panel issue and some other issues, mainly them struggling getting through DSA.

I'd like to know if these time

extensions that should be granted because I think there was 18 months from the application date, and after that then we have another six months, I guess, extension that could be provided.

Now we're up to 24 months. We're probably pretty close to some of those jobs not being completed within their timelines. If that's the case, what happens to those available funds that go back into the till?

PRESIDING MEMBER GEESMAN: That's a great question.

MR. JOHNSON: Because I've got three schools that should be on, number one, two and three on the waiting list.

PRESIDING MEMBER GEESMAN: Yeah, but --

MR. HERRERA: Well, --

PRESIDING MEMBER GEESMAN: -- let me emphasize, Mr. Herrera gave you a legal explanation that there is no waiting list.

MR. JOHNSON: That's correct.

PRESIDING MEMBER GEESMAN: And I don't think we've addressed the question of what happens if someone doesn't complete their project by a certain time.

I'm not real wild about addressing

hypothetical questions in public hearings. So, I'm not going to ask Gabe to address it hypothetically. And I guess from my standpoint I'm not certain that we can say more than we'll cross that bridge when we come to it.

MR. JOHNSON: Well, then I would like the Commission at some point in time in the next three or four months to address this and come out with some sort of policy. That way, if schools are, who have already applied and did not get applications in, will have some time to react, or reapply, or how those funds would actually be distributed.

It is my believe that this will become an issue, if you have this many schools still out, with not projects completed. Knowing how the school system works and how construction projects go, and moneys become available, I still see this becoming an issue down the road.

PRESIDING MEMBER GEESMAN: Well, we'll take a look at it, Mark. And thanks for bringing it to our attention.

MR. JOHNSON: You bet. Then --

MR. HERRERA: Commissioner, if I can comment on that point quickly. I'm not going to

respond to Mark's hypothetical, but one of the things that we're doing, staff is proposing, is to clarify the extension process for schools and new construction projects where there was an extension process built in the guidebooks in place at the time they applied and were issued rebate.

This would make it clear that if the schools fell within that category, they could apply for this six-month extension.

But whether the Commission can grant a full six months or not depends, in part, on the availability of the AG money. that money came to the Energy Commission via contract. And the term of that contract will end.

So, the Commission needs to be clear that it can't allocate an additional time for those systems, if it means that it would violate the terms of the contract. So we just need to be careful there.

PRESIDING MEMBER GEESMAN: But the contract presumably can be amended, can it not?

MR. HERRERA: It could, although it's with CPA, and the CPA is no longer available. So that means it then kicks back to the AG's Office. I'm not quite sure who assumes the CPA's

responsibilities for that contract.

PRESIDING MEMBER GEESMAN: Right. That's why we have a lot of lawyers in state government, Mark.

(Laughter.)

MR. JOHNSON: -- I'm learning that.

Additionally, the Kema report, a couple comments on that. Just a quick analysis of the presentation.

The residential and some other analyses that we've done, the residential size for the $2000 cap with the federal cap really comes in at just under 2 kW, that mass that you can produce. So most homes are being put in 3 to 4 kW, they're not getting that full 2000, obviously. So I think that's one thing that needs to be taken into account when you're considering what the effects of that.

The residential credit, obviously this program has the majority of projects or residential units compared to the small business or the ag business that's projected. And those obviously get to take the 30 percent increase.

In regards to the other analysis and some of the other items that were in the Kema

report, I would caution the Commission. In our analysis from the PBI, we felt comfortable about using the federal 30 percent across the board.

Anything, whether you take into it, depreciation, the cost of a long-term PBI program, whether it's five years, ten years, those dollars or those costs seem to vary depending not just on what interest or what financial markets might be providing, but also what the income level of a certain participant might be.

And so I think one of the things we found through the state tax credit was that most people were not, at least on the business side, were not able to use that credit, although we sure gave a lot of emphasis to that credit.

So I would caution the Commission as they look at some of the Kema reports, that they keep it somewhat simple on the credit that they're providing to the host, because most of the consumers either have a -- of about how it applies, or just can't use it at all.

That's all I got.

PRESIDING MEMBER GEESMAN: Thanks very much.

MR. BLACKBURN: Commissioner Geesman,

may I make a comment. One of the points that Mr. Johnson brought up was on PBI and urging the Commission to consider raising the incentive level.

It does say currently in our guidebook that the performance-based incentive level will remain constant for the duration of the program.

PRESIDING MEMBER GEESMAN: Yeah, I took his suggestion to -- and frankly, I'm taking many of the suggestions that are made here today, to be beyond simply the scope of the existing program, or the existing guidebook. But rather to inform us, to the extent that we have any input into either SB-1 or the PUC's California solar initiative.

And I took that suggestion in particular. If you're going to design a PBI-oriented system, and this Commission, in its IEPR just a few weeks ago, strongly endorsed converting these incentives into PBI incentives.

I took Mark's comment to suggest that, at least in his opinion, the incentive level should be a little bit higher than the existing pilot PBI.

Mike Keesee from SMUD.

MR. KEESEE: Good morning; my name is Mike Keesee. I'm a Program Manager at SMUD. I run our zero energy home research and demonstration project at SMUD.

My comments today are very brief and it's maybe not central to the guidebook workshop, itself, but we understand the issue the Commission's looking at, and it's a subject of coming up with minimum standards for the PV modules. And were here to encourage the Commission to look at that.

It's our experience at SMUD that this is something that needs to happen in the industry. We would encourage the adoption of a standard based on either international standards or some sort of independent lab testing.

And we understand that effort's underway here in the United States through PowerMark or the Florida Energy Center, or the like.

And we also think these should reflect real world performance data. We were happy to share with the Commission the results of our experience with PV performance in general. We operate our own performance index, which is based primarily on true AC ratings.

At least the systems I look at, I somewhat demand the manufacturers or the installers to give me a true AC rating for the system that's installed. And then we compare that to real weather data that we have monitored here in the Sacramento data to actually show what the performance is like.

And we're starting to collect quite a body of knowledge in that regard to show you at least in the Sacramento area what you can expect out of a well designed, true rated PV system.

So, I look forward to working with you on that.

PRESIDING MEMBER GEESMAN: I think your comments are very well taken, Mike. And particularly if the state is going to scale up the size of these programs, I think that we need to move beyond the pioneer status that the program currently has enjoyed, to a little more systematic one that will, in fact, include standards.

Jonathan Hill, Sierra Solar Systems.

MR. HILL: Thank you. My name's Jonathan Hill with Sierra Solar Systems. For 25 years, since 1980, we've been involved in solar and renewable, making us one of the oldest dealers

in the state.

We were one of the first dealers to be involved in the emerging renewables program in 1998. And since the inception of the program back then we've seen our state, sunny California, go from number one in worldwide PV usage to a fairly weak position, falling below Germany, Japan, and soon to be Spain and Portugal, as well as several other United States' states, in the United States, including New York, New Jersey and several others.

Solar and renewables is once again, unfortunately, starting to get the flaky image that we've all worked so hard to overcome since the 1980s. And this is due mostly to uncertainty in supply, certainly rising pricing, and decreasing levels and possibility availability of incentives.

In 1998 photovoltaic prices were dropping and the supplies seemed to be virtually unlimited. And the future of renewables looked bright.

However, over the last 12 months we've seen increases in photovoltaic costs approximately $1 a watt, and severe shortages of supply. Residential costs were increased by about 33

percent in the last 12 months. And as a result sales have dropped proportionately and will continue to do so as costs increase.

I don't think that this was what was intended when we started the emerging renewables program in 1998. Yes, the rebate levels were scheduled to drop, however we were expecting that the costs of photovoltaics and other renewables would also be dropping. And this has not been the case. Certainly not recently, and it doesn't look like that's going to be the case for some time.

People are saying, I've heard it said here in fact, that well, yes, the rebates are dropping, but now we've got the federal income tax credit that's going to really help spur on this technology.

However, for residential applications, this 30 percent income tax credit, which sounds like a lot, winds up being $2000. There's a $2000 cap for residential uses, which really doesn't do all that much other than basically replace the state income tax credit, which is being discontinued on small systems, certainly not on large systems.

So, what I propose is certainly I'm in

favor of keeping the rebate level at $2.80. But if it's going to drop to 2.60, I propose that you only drop it to 2.60 for commercial systems and keep the 2.80 for residential systems.

Thank you very much.

PRESIDING MEMBER GEESMAN: Thank you. Don Loweburg representing OffLine.

MR. LOWEBURG: Thank you very much. OffLine is, again like John, not quite the same, but we're a contracting or installing company. We work in central California and we've been around for oh, 25 years or so. So, we've, of course, done offgrid and then, of course, currently ongrid.

I won't speak too much -- currently I would just say that we would request that the rebate level be held at 2.80. I would like to see it be held for a full year. And I would like the steps to be at least the possibility of looking at one-year increments. I think the stability there would be better.

I did, just for personal, I did my own numbers, too. And our costs are up on modules about 60 cents or more. It depends on how that's going, per watt. And also I did a little quick

analysis that our costs, our actual costs on our books, are definitely up about 5 percent. So these trends are what we're seeing. And I think many other dealers, installers are seeing this trend.

I touch a little bit on what John said, just in terms of the presumptions under the sustained orderly development concept, that whole model for module prices coming down.

Assume, and I don't think it was gone overboard, but behind that model is an assumption of some sort of cost-stable context. And, of course, that's what I don't think we have right now with production -- costs of energy going up on production side, transportation and that's being reflected on our modules; and, of course, behind the modules shortage are market conditions that weren't understood, you know, at the time when the model was made. And currently the silicon shortage, which is behind the module shortage, and certainly relates to that.

All of these factors are what I would say outside of what we understood to be the model. And I subscribe to the model, clearly that what we need are flexibility in weathering these

fluctuations in the context in which our model operates. Because I think the model definitely operates in the long term.

We're seeing the results. We've been seeing it in our personal documentation and in the Commission's documentation. And we see the spikes. So I think the information is essentially understood by all of us, and it's just our response, the appropriate response that we need to take.

I have one other small angle that hasn't been brought, but I genuinely see this. There's -- and it's not the Commission's policy necessarily of business actually to engage in social policy, but you know, to a certain extent I've been excited by PV technology and small renewable distributed generation, as a whole, as an exciting kind of new game where the average folks can invest, if you will, in procuring sort of a new energy scenario.

And I think that's beginning to develop. And I see that what I call average people, everyday people, are, indeed, participating. In fact, looking at the data you see that over 50 percent of the total megawatts installed are going

on rooftops, what we call small residential. This is kind of exciting in terms of a new class of players, the public as a co-investor, I guess, in technology.

Well, the one thing I want to say is I see central California is a little bit different market. It's developing and changing rapidly. But, we have, in a way I would characterize our customers as a little bit more regular folks, farmers, teachers, ag folks.

I tend to see our system size as typically in the 2 to 3 kilowatt system size. And I see these people are the most impacted. Clearly I think in terms of price sensitivity, at the large system level with the investment benefits and not just the federal tax credits, but the existing depreciation structure and just tax structure in general, they're more protected, I would say, than what I call the average small family customer who can get it together to buy a system in the -- at the rebate price of around $15,000. They are doing this. This is what's happening in my experience.

And I'm seeing that element definitely being challenged, whereas I suspect the larger

systems, the people who are inherently more affluent, they're not so sensitive to this issue that's at hand.

So I would interject that as just a dimension of the issues. To me it's very exciting to see this new trend, new kind of participant in the energy picture come about.

One other thing I will say about factoring in the tax credit, we don't know what it's going to -- and I think this is also say, we don't know what it's really going to do. It's a potential $2000 if you can take it, take it right off the top, after the 2.60 rebate, then the numbers show clearly that it compensates for it, and it should be a wash, and we don't have anything to worry about.

But I would say that it's untested. We don't really know how many -- what proportion of my customers are going to be able to enjoy the benefits of it, and we also clearly say that it's only for two years. And so it's somewhat of almost a disturbance in the bigger picture.

With that I think I've covered most of the points I wanted to make. I'd just like to thank the Commission, and also especially thank

the people and the government of California for having this program, which is certainly benefitting myself, our company, and the whole industry in general.

So, thank you very much.

PRESIDING MEMBER GEESMAN: Don, thank you. I do want, though, to explain why we're going to keep that six-month horizon.

MR. LOWEBURG: Right.

PRESIDING MEMBER GEESMAN: We're trying to hold together a program right now that produces about 5000 installations a year. Maybe we'll grow a bit in '06, and go up a few thousand from that. Hopefully that'll happen.

The Legislature is going to address SB-1 early in 2006, I suspect. The Public Utilities Commission is going to take up the California solar initiative early in 2006. Both of those efforts are scaled to a level of installation ultimately more like 100,000 units a year.

I don't know what's going to happen to either one. I don't know what will be successfully enacted, if anything. But I suspect something will.

And as a consequence, we're not capable

of making commitments longer than six months. And I apologize for the instability that creates, but at the same time I do think it probably creates a bit of a sales device, as well. If you don't get your order in before July 1st, well, we may take the rebate away, or we may reduce it, or who knows what.

MR. LOWEBURG: Right.

PRESIDING MEMBER GEESMAN: But I certainly appreciate your comments.

MR. LOWEBURG: Thank you very much.

PRESIDING MEMBER GEESMAN: Kimia Mizany, Solar Depot.

MS. MIZANY: Good morning, Commissioners and staff. My name is Kimia Mizany. I am with Solar Depot. Established over 26 years ago, we are one of the largest and most experienced wholesale distributors and system integrators here in the U.S. We're based in Petaluma, California, with branches in Sacramento and in southern California.

And we design and sell electric, solar electric and solar thermal systems for both residential and commercial systems. Solar Depot is also an active member of the California Solar

Energy Industry Association. And thank you for the opportunity to speak before you today on this.

Like many of the prior speakers, I'm here today to urge the Commission to maintain the rebate level at the 2.80 per watt level for a number of reasons.

The first relating to the solar PV shortage that we've experienced; the silicon supply shortage has been ongoing since 2004, and we believe will continue into 2007, has caused serious shortage in availability here in the U.S. market, worldwide actually. And as well, has increased obviously the price of solar, which has been contrary to what we had hoped in light of the increase in demand for solar.

And we, as a distributor, have worked very closely with the manufacturers, and even very recently have confirmation that module prices will be increasing at least 5 percent into next year, which basically accounts for about a 20 to 30 cent per watt increase. And that could, right there wipe out, right there account for that decrease in the rebate level, which is a bit disturbing to us.

And at this time we do -- the rebates here at the CEC have really helped to bring down

the cost to the end user consumer. And we believe that has really encouraged demand, and hope that it can continue to do so.

At this time we believe it's necessary to maintain this rebate level in order to provide a sufficient incentive level that will help to mitigate this effect to the end user consumer so that it doesn't place the burden on the consumer for this increase in price, and the temporary, what we hope will be temporary, PV module shortage, and the cost increase.

And also by -- we also believe that in addition to that shortage, the idea of the consolidating the two, the commercial and the residential program into the CSI, with the CPUC's interim decision, or imminent decision, to reduce their level to 2.80, this will help conform, also, the residential program. And allow for consistency in that regard.

And we strongly advocate for all PV projects to be offered the same incentive level regardless of their system size, upon consolidation of this program into the CSI. And with maintaining the rebate here at the CEC of the 2.80 per watt will allow for a consistent

incentive across the board, and set the stage for equitable incentives in the larger program.

And lastly, we also support the reservation period extension. We believe that this is appropriate considering some of the delays that have occurred from the product shortage supply side which have prevented many applicants from being able to complete the installed systems within the six-month reservation period.

And so we appreciate your efforts, Commissioners, as well as the staff's in this very important and valuable program for the state and citizens of California.

Thank you very much.

PRESIDING MEMBER GEESMAN: Thank you for your comments.

Joe Guasti.

MR. GUASTI: Good morning, Commissioners, thank you for having us all here. We appreciate it.

If you can remember this you'll remember everything I want you to hear. A pint is a pound the world around, and a kilowatt is a kilowatt the world around. So when it comes to the price of the rebate per watt, as far as wind and solar, I'm

here to tell you that we need you please to increase the wind to parity with solar like it was before.

This would have a minimal effect on the entire system's funds, but it would help us in the wind industry to be able to really compete on a level playing field. And that's very important.

You had asked -- someone had asked earlier the cost of the systems, and where they're placed, like residential and commercial. In our area it costs about 46,000 to 52,000 for the systems. And if I were to do solar, which we also do, if my calculations are correct, this is not specifically accurate, but somewhere it would take for our customers that have these large bills, many of them have $300, $400 even as much as $600 bills because of A/C loads, that kind of thing, they would be putting in somewhere close to $80,000 to a $100,000 system.

Why should we spend that much money on that if we can get them a wind system that works extraordinarily well, and gets the job done.

PRESIDING MEMBER GEESMAN: Are you seeing that happen? Are you losing wind sales to PV systems?

MR. GUASTI: Drastically. Well, drastically. Of course. You could see it by the chart that was presented earlier where we had 114 in 66 and 44, 18 and 7 so far this year.

PRESIDING MEMBER GEESMAN: And those people are installing solar systems instead?

MR. GUASTI: Right. Yeah, that's starting to happen because in some instances it's better for solar than wind. Whereas, what we're doing by having so much money go to solar, is we're paying the more inefficient technology. We're kind of subsidizing them even more to help bring them up.

Now, I don't mind at all doing that. I just mind that we're not at parity with the subsidies because it's skewing the market in favor of solar, which is still okay, but not at the expense of wind.

And these wind systems are just wonderful. Tonight I'm going to have over 50 people over at my home; many of them are customers or thinking about being customers. You know, they're excited.

I've got over 2000 petitions signed in our area for our county to change the codes to

make them even easier to put wind turbines up. That's a lot of public support. That's a real lot, plus we've got --

PRESIDING MEMBER GEESMAN: What county are you in?

MR. GUASTI: Pardon?

PRESIDING MEMBER GEESMAN: What county are you in?

MR. GUASTI: San Bernardino County. And then also there's many hundreds also that are also, besides these 2000, going to the state level for the Governor's Office to ask them to help on these issues concerning zoning and the other things like on solar they've got a system setup with the state where they don't have to pay property tax.

Well, on wind, even though our wind systems are only held down, if you will, literally by three bolts, you can take them apart and walk away with it, and bring it to the next house, which some of my customers are doing. But they're still saying it's real estate. And so they're being charged. It's just not fair, but that's how it is.

Another thing that's worth mentioning is

in our area the wind works literally day and night. And it really works well in the early spring it starts right in the 9:00 hour, and it just starts going. And what happens is it starts first maybe earlier, way earlier in the winter, it maybe start at 10:00 in the morning. And then ends at about 6:00.

But then this time starts to get more and more earlier in the morning until later at night, until there'll be months where I'll go by and count maybe three or four times the wind turbines stop the whole month. So, it's wonderful for balancing that night-time load, as well.

So, if you guys please help us, we need your help drastically. You can see the sales are just almost nonexistent now.

Thank you so much.

PRESIDING MEMBER GEESMAN: Thanks for your comments.

Jan McFarland, Americans For Solar Power.

MS. McFARLAND: Good morning, Commissioners and staff. Every time I make comments here at the CEC I think I have to always start with a thank you to the staff and the

Commissioners and all the work that you folks have put in in the last three years to keep our program alive in the solar industry.

One of the really strong strengths that the Commission has developed is to have an open and transparent process. We've always been able to come and talk to staff and Commissioners about nuances and issues that have come up, which is very important.

The other thing that has been very good is that you have made adjustments to the program over time. Not just make them, but you've made them in the amount of time that's more like private sector time. Because all of our companies have very short time periods. And in other places like the PUC, it's taken a much longer time to adjust rebates and those kinds of things.

So, I would rate you guys very high in terms of being nimble, as a Commission and a government agency.

Today I'm here to ask you to make another program adjustment. And that would be to maintain the current rebate of 2.80. And to not lower it to 2.60, as scheduled.

The rebates, the declining rebate

program that was proposed by the industry was based on an increase in volume and a decrease in installed costs, which included panels. And PV is a global market; we've had tremendous demand globally in Europe, as well as Asia and other places.

We have real capacity issues, panel shortages and silicon issues. And the panel costs have risen and it will be very hard for the installers over the next year in particular. I think 2006 is going to be a very tough year. I'd like to echo what Gary Gerber and Don Loweburg and Kema and others have said today.

I'm curious about the Kema study that folks are talking about, and I'd really like to be able to see it; look at the models and the assumptions and see how they work.

Clearly there is a need, a critical need to develop reasoned program adjustment and methodologies for approaching such a complex subject area as not only California's energy market, but also global implications. And so I'm hopeful -- I'm not sure when that study is supposed to be available, but I look forward to seeing that.

Another request I have is I think it would be a very good move if the Energy Commission would implement the use of PowerClerk. It's an online web-based application processing service. I think NYSERTA, Connecticut, SMUD and a few others are looking at it. I think it will go a long ways in terms of helping real-time analysis; in a transparent way, present information in terms of where the programs are actually going.

I think with some adjustments, perhaps through PIER funding, PowerClerk could also accommodate both performance-based incentives and energy efficiency audits, as well.

Americans for Solar Power, we strongly support expansion of this program to include solar thermal heating and cooling. We're also strongly supportive of the wind DG technologies.

In particular, Americans for Solar Power, we'd like to see PBI implemented, especially in the commercial program, at the beginning of the new programs starting up.

There are some issues. We'd like to see it front-loaded a bit in the beginning of the terms. I think there are some real questions; it's a significant change. So are the banks and

are the financing opportunities, are those going to prevail.

We also have some questions about multiyear commitments. I think that's something that we're going to have to look at, as well as financing.

So, in close, I'd like to make sure that you guys understand how important and how difficult it's going to be this next year in this market. I'm anxious to look at the Kema study. I'd like to see PowerClerk implemented. Support expanding the program for the solar thermal HVAC, and wind, and PBI for large commercial customers.

I'll be filing comments later today formally. And thank you for your time.

PRESIDING MEMBER GEESMAN: Thank you, Jan. Let me say with respect to PowerClerk, without specifically endorsing that software, but addressing it on a more generic question.

I think that's probably a desirable element to have included in the administration of any solar program that the state is contemplating scaling up. And I suspect that it is probably most expeditiously handled as part of an administrative contract, as opposed to going down

the path of a state software procurement process.

MS. McFARLAND: Yeah, I understand that.

PRESIDING MEMBER GEESMAN: Those of you that have followed the WREGIS software procurement process know that it now takes a couple of years before the state is willing to actually even issue an RFP for software.

But I think that looking at a radically scaled up solar effort by the state, whether it be through SB-1 or CSI, it would be reasonable, and I think highly desirable, to have that type of electronic data-gathering capability built into program administration from the very beginning.

MS. McFARLAND: Thank you.

ASSOCIATE MEMBER PFANNENSTIEL: Question.

PRESIDING MEMBER GEESMAN: Commissioner.

MS. McFARLAND: Excuse me.

ASSOCIATE MEMBER PFANNENSTIEL: Jan, you support PBI, yet you express some concern about moving there too rapidly, I think because of the stability of it. What do you have in mind?

MS. McFARLAND: Oh, I'm ready to do PBI now. But I do think that it's a big change. And so what we're proposing is at the beginning of the

new CSI program, for large commercial customers above 30 kilowatts for PBI to implemented at the beginning of the program.

Now it's not clear when is the beginning of the program going to be for CSI. Because of the proposed decision to provide this 300 million stopgap information, I don't know if that's the beginning of the PBI. Or if it's really '07.

But, at the beginning of the program is when we'd like to see it instituted.

ASSOCIATE MEMBER PFANNENSTIEL: For large commercial --

MS. McFARLAND: Correct.

ASSOCIATE MEMBER PFANNENSTIEL: -- but what about residential? Would they not be on PBI, or some later time?

MS. McFARLAND: Well, I think for residential, I think first of all let's deal with the largest customers first, and let's get some experience; make sure it works; so people are comfortable.

I do think that the Commissions need to consider design standards. I think there are other ways of insuring performance. Like Texas, for example, has an orientation. They base their

rebate based on orientation to the sun. That might be something that folks should consider.

But I think performance, although it's a difficult transition, that the success of the future program really depends on making that transition essential.

PRESIDING MEMBER GEESMAN: Thank you.

MS. McFARLAND: Thank you.

PRESIDING MEMBER GEESMAN: Scott Govenar, California Wind Energy Association.

MR. GOVENAR: Good morning, Commissioners. Scott Govenar on behalf of California Wind Energy Association.

Although small wind is not used in our windfarms, we do believe it's an effective technology with great potential. And we therefore concur with the comments by Bergey and others concerning the need for parity between small wind and PV.

Thank you.

PRESIDING MEMBER GEESMAN: Thank you. Chuck Whitaker.

MR. WHITAKER: Good morning, Commissioners. Thank you for allowing us to talk to you on this important topic. I provided a

writeup, but I arrived a little after you began, so you haven't seen this yet.

I've been involved with PV system valuation for about 25 years, and in codes and standards for PV for about the last 15, as way of background.

One thing I wanted to say, we've talked a lot about the programs going on in Europe and Japan that have dwarfed the California project by quite a bit. But one of the outcomes of the California program that far eclipses those two is the amount and type of information that we have on the systems going in.

And the staff should be, and you should be, commended on making sure that important source of information continues to be available. And I think it's -- when you try and find exactly what's going on in Germany, it's very difficult to know. So I wanted to applaud you on that.

Last year the CEC adopted standards for performance and testing requirements for PV inverters. And the purpose of that was to provide better information to the consumer on the types of equipment they were providing, or they were getting. And to levelize the playing field for

the manufacturers so that they were all being sold into an equal basis.

And what I'd like to suggest is a similar requirement for PV modules. Back in the '80s the Jet Propulsion Lab began doing qualification testing on PV modules and developed the program through the '80s. That was taken over by NREL in the late '80s and through the '90s. Projects like PV, USA continued that, implementing these qualification test procedures. And that has continued.

That was taken up in Europe in the early '90s, and now the European programs and Japanese, Germany, all of those programs have, as part of their procurement requirements, qualification test requirements.

In '87 when the PV Alliance was helping to suggest how the Energy Commission should move forward with its program, it suggested that rather than going with the qualification testing, which relates to the reliability of modules, it suggested going with safety testing through UL-1703.

And the reason for that was very practical, in that it expedited the building/

permitting process. Having a UL sticker or CSA sticker made it much simpler to get the systems approved. And so that was the important step, and I think the right step to take at the time.

But we forego the qualification testing in lieu of that. And I think we now need to relook at that step.

We have been fortunate in that the fact that Japan and Europe require these test standards. That has spilled over to the majority of the products that we install. Most of them have been tested to the relevant IEC standards. However, a lot of products that are U.S.-specific, and potentially products from other countries that come into the U.S., may not meet those qualification test standards.

So we propose that the Commission adopt a requirement that modules be certified to the specific IEC standards that are relevant for that module type. And to implement that through a program called PowerMark, which is a industry-sponsored, nonprofit program that is essentially a PV component certification organization. And they manage the process of making sure that the proper laboratories are doing the work, the proper tests

are being done; that the modules are being maintained to those standards after the initial testing and move that forward.

PowerMark has been in place for a number of years. And we've been trying to move forward to get a procurement program like the Commission buy-down program to implement and make it an official requirement.

The second proposed change that we have is with respect to how modules are rated, and the nameplate rating on the module. Currently modules have a rating and a tolerance around that rating of maybe plus or minus 5, or plus or minus 10 percent, which means that a module that says it's 150 watt module could have -- the actual module off the production line could be anywhere from 135 to 165, and still be within that 150 watt moniker.

The problem is that what we've tended to see -- and this has been a perennial problem, this is nothing new, nothing specific to any manufacturer -- but what we tend to see is everything below the STC rating, which still falls within the required plus or minus 10 percent, or the stated plus or minus 10 percent. But what you end up with is reduced unmet expectations on the

part of the consumer.

And the fact that we don't have any requirement on that makes it tough for a manufacturer who wants to essentially do the right thing and provide a module that has what it's rated at, he gets hit on the dollars-per-watt price, because his competitor doesn't necessarily have to meet that.

So, what we're suggesting -- and, in fact, in Europe they have a, typically have a plus-or-minus 3 percent tolerance in order to insure that even in a PBI program that the module rating is still within what you expected to get.

What we're going to suggest is rather than a tolerance requirement, to say that the module rating, the 150 watts nameplate rating, that all the modules that come off the factory line that meet at least that amount, so that it establishes a minimum rating rather than an average or a maximum in our case right now.

It would require no changes to testing that the manufacturer already does. Every module in almost every manufacturing line is flash tested, is given a rating, and that's how they insure right now that they're within their current

tolerance.

We're simply saying just reset the name that goes on the module to the bottom of that range.

And I think what that will do is it will have a potential impact on the dollars per kilowatt. If the same module costs the same price and you lower the kW rating of that module, the price per kW will go up a small amount. The price per kilowatt hour, the price per system shouldn't change. There shouldn't be any administrative requirements because it's basically not doing anything different other than changing the number at the end of the day.

So those are our two proposals. And I hope you would consider those for adoption in the guidebook.

PRESIDING MEMBER GEESMAN: Have you filed written comments?

MR. WHITAKER: I've submitted these upfront.

PRESIDING MEMBER GEESMAN: Okay, good. Thanks very much.

MR. WHITAKER: Sure.

PRESIDING MEMBER GEESMAN: Paul

Vercruyssen from CEERT.

MR. VERCRUYSSEN: Good morning, Commissioners. My name is Paul Vercruyssen; I'm here from Center for Energy Efficiency and Renewable Technologies, which is a coalition of renewable energy companies and environmental and public health advocates.

We are also quite worried about the reductions over the past five years in installments of small wind throughout the state. As many advocates have come here today and said, this is a small technology, but it has a really important role in the state. There are many places that are not suited for commercial large farms, but have very important uses for small DG systems.

We do not really want to see this technology get left behind, as it appears may be happening. We would urge the Commission to increase the rebates. And at the same time, we're closely with the developers of these technologies and these companies, to develop a comprehensive system of sustainable rebates and declining rebates similar to what you've seen developed by SB-1 and in front of the PUC right now.

And that's it, thank you.

PRESIDING MEMBER GEESMAN: Thank you. Lori Glover.

(Pause.)

PRESIDING MEMBER GEESMAN: For those of you on the phone, Ms. Glover is about to give us a PowerPoint presentation, so we're setting it up now.

(Pause.)

MS. GLOVER: Good morning, Commissioners, staff. My name is Lori Glover; I'm the co-CEO of S.O.L.I.D, USA. We're an Arizona company. I was here a few weeks ago speaking to you about your investment plan.

Today I'm here on behalf of S.O.L.I.D, but I hope the next time I come I'll be here on behalf of a national group that we're forming for commercial and industrial solar thermal, the other solar.

I wanted to talk to you a little bit today about including solar cooling, specifically solar HVAC, within your program. We have filed with the PUC on the CSI and hope to the extent necessary to be active with SB-1.

Our manufacturing is currently done in

Austria, a country with lots of sun. We are bringing this technology here trying to start a market so that we can begin manufacturing here in the U.S.

Let me tell you why we're calling this commercial and industrial solar thermal, as opposed to solar hot water. We are distinguishing what we are doing from what is currently being done in the thermal, not the thermal electric, but the thermal market. And that's primarily residential hot water.

Our systems are higher temperature systems that provide process heat for industrial purposes, domestic hot water heating and cooling. And the systems, the energy is provided by three primary types of collectors, large flat plate collectors, troughs and vacuum tubes.

Frankly, a couple years ago these Austrians came to town, to Phoenix, and they said they had this technology that could do solar cooling. And I said, you know, this is great. We don't produce electricity, but this displaces electricity, which we believe is just as important to this renewable effort as actually, you know, generating the electricity. We generate energy

onsite and displace electricity onsite, electricity and natural gas.

This is a firm resource which we think is relatively important. The firmness comes from the storage of the hot water or the chilled water, which allows us to operate when clouds go over, or for days at a time, depending on how much storage you include in the system.

We are coincident with peak because we are a solar resource. Relatively cost effective, I'll get into numbers here in a little bit.

Another advantage I believe we have is because we install in our HVAC product actual systems to provide heating and cooling, we also work quite well with CHP and cogen systems, which is an added advantage to this resource. And, of course, we have the same benefits as other distributed resources.

I wanted to show you a little bit of what's being done globally. This just shows you kind of where we are in the world on PV, solar thermal and wind.

This chart's kind of interesting. This shows you where the U.S. is on solar thermal relative to other countries. And the

interesting -- probably the most interesting thing -- I didn't include this chart, and I should have -- probably the most interesting thing about these numbers is the U.S. is as high as it is because we are the world leader in solar thermal for pool heating, as opposed to heating, cooling and hot water. So you can see where the U.S. is relative to other countries.

In the EU, which is an area we work in, our sister company's in Austria, their target is 20 percent of renewables by 2020. They believe that 25 percent of that entire goal can come just from heating and cooling supplied by solar and by biomass. We believe there should be similar goals here in the U.S.

Just wanted to show you some picture of kind of what this looks like. This is actually in Salzburg, I believe. Some of these are Europe; I'll show you some U.S.

This is actually in Texas; this is actually a solar heating and cooling system. This picture is a little blurry. This is in North Carolina. It's not really a trough, but similar to a trough system providing heating and cooling.

These pictures are awfully blurry. This

is something similar to a trough; and actually this is in Arizona. I believe this system is in Texas. This is Europe. I believe the rest of these are in Europe.

This is actually a system in the U.S. this is not an HVAC system; I just put this in there to show you kind of what a trough looks like. This is a hot water system at a prison. There are numerous hot water facilities all over the country. The federal government is interested in installing solar hot water systems, so we have a number of those large ones over the country. But not as many of these solar HVAC systems that we're discussing today.

Therefore, we'd like to be included in this program. I just noticed that I accidentally left off my suggested definition, sorry. It was a busy week last week, but we can provide you a suggested definition.

I looked at the program guidebook. The program guidebook says, you know, come to us; petition to include, you know, your technology in our program. But you have to generate electricity. And that's, to me, the crux of the issue. We displace electricity and not generate

it.

And let me just kind of show you a little bit about how this works. This is a picture of what a typical HVAC system looks like. You have heating coils, cooling coils, you know, pipes that you run water through to heat and cool a building.

And this diagram, you can see, we've put solar panels on, and we've added two -- there's a picture there two water absorption chillers. That's the portion that we add as part of the system. So we add panels and what are called absorption chillers, which have been around for 50 years, but obviously are much improved. They produce them primarily in Japan; but they service them all over the U.S.

So it's really just a variation on what's currently being done by commercial customers, larger commercial customers I'll say.

So in the program specifically, you know, this is an issue I'm not really sure how to address. We, you know, would suggest that we can receive incentives when we displace electricity. However, the picture of the diagram I just showed you shows that we put in a system, and we also

provide heating and hot water.

So the question is, I don't know the extent of you authority to include a technology that displaces natural gas versus electricity. However, it's part of the entire system. And I think there are kind of three issues in your guidebook that need to be addressed on that topic.

On the other requirements, this is a thermal resource, and we believe has the potential to be very cost effective. But at this point, since we don't have an industry in the U.S., it's a little bit more expensive trying to create the industry, import as opposed to producing here, you know, a variety of factors.

We believe it's commercially available because there are thousands of these systems all over the world. I believe actually on the cooling side Europe has 70 of these large projects. I don't think -- I can't imagine them even using cooling. Maybe they're all in Italy or Greece or something.

Our systems have warranties; they are 25-, 30-year life. And obviously have been working for years. So I think we can satisfy all the other criteria relatively easily.

This is my last slide, and I wanted to show you this to give you an idea of what we have been doing since we've come to the U.S.

Last year, the Arizona Corporation Commission, for the pilot program, placed for five solar HVAC projects. Two projects are being built under that program. Unfortunately, I don't think all five will be built because there's been a change of personnel at the utilities, and we're moving into a new program. And this is the program that I'm showing you right here. So, I think it's okay; I think we're going to end up with a lot more than five.

We agreed with Arizona Public Service to be the guinea pig and participate in a PBI. So, we are looking at a tariff -- and I apologize, I didn't put the term -- a ten-year PBI contract with Arizona Public Service. And the way we've put that program together is that we will get incentives for both heating and cooling, which is allowed under the rules in Arizona. And we'll get 7 cents kilowatt hour equivalent for heating and hot water and 16 cents for cooling. Which I noticed I didn't put that on there. I apologize. It was a busy week, but this is 7 cents for

heating and hot water, and 16 cents for cooling.

And they have chosen to cap the incentive at 50 percent. The idea being let's get some experience with this; let's, you know, figure out really -- they didn't want somebody to come in and get 100 percent of the project funded, and these numbers are -- we've worked with some others in the industry, but since we don't have a lot experience yet, they decided they wanted to cap it at 50 percent, which is fine. So that we won't have a situation of being over-incentivized.

So that's where we are. We are, I believe, meeting with some of your staff tomorrow to discuss some of these things further.

So, that's all.

PRESIDING MEMBER GEESMAN: Thank you very much. Mr. Herrera, does our statute give us any discretion at all in terms of the generation of electricity in this particular program?

MR. HERRERA: Well, the way the statute was enacted, Commissioner Geesman, it identified four principal technologies, and then kind of a -- it allowed the Commission to consider other technologies. But the statute references back to our report, which is where the criteria come from

that that Ms. Glover was referring to.

As part of that statute the Energy Commission needed to prepare an investment plan, which it did. It identified those criteria. So those criteria, to some degree, are codified in the sense that they're referenced in the statute.

Right now those criteria identify electricity reduction. They don't identify reduction of gas, for example.

So if this is an area where the Commission thinks it wants to go, then it's something that we should identify in our current investment plan for our program to start in 2007, for example.

PRESIDING MEMBER GEESMAN: Yeah, I'm not certain I heard you. Let's leave the natural gas out for a minute. Did you say electricity production or electricity reduction?

MR. HERRERA: Well, one of the criteria, and I believe it's number seven, represent -- the technology represents a new electricity generating process. Not while representing existing grid-connected renewable generating facilities.

The other criteria, criteria number eight, project must be designed exclusively for

the purpose of producing electricity for onsite use.

So these are the criteria currently; that was criteria seven and eight, respectively, that I read off, are currently identified in our guidebook. And they were picked up from our investment plan.

So these are two of the criteria we identified to the Legislature in our investment report which we said we would evaluate in determining whether to allow new technologies to participate in the program.

PRESIDING MEMBER GEESMAN: So the proper forum for altering that would be our investment plan?

MR. HERRERA: That's correct.

PRESIDING MEMBER GEESMAN: Doesn't necessarily require a change in statute, but in our investment plan would be where we would address this?

MR. HERRERA: That's right.

PRESIDING MEMBER GEESMAN: Okay. And, now let's go to the natural gas side of it, as well. As I understand it these programs are funded by a surcharge on the electricity

ratepayers. I know that the bean counters in state government feel pretty strongly about keeping those accounts straight.

Do we have any discretion to take into consideration natural gas displacement?

MR. HERRERA: In terms of our current program?

PRESIDING MEMBER GEESMAN: In terms of our current program.

MR. HERRERA: I'd have to look at the statute --

PRESIDING MEMBER GEESMAN: Okay.

MR. HERRERA: -- in terms of whether we have that discretion or not.

PRESIDING MEMBER GEESMAN: Okay. Because the Commission has recommended for consideration, in the CSI initiative, solar thermal programs. In fact, we've done that, I think, since our 2004 Integrated Energy Policy Report Update.

Thank you, Ms. Glover.

MS. GLOVER: Thank you.

PRESIDING MEMBER GEESMAN: Vincent Schwent, Spectrum Energy.

MR. SCHWENT: Good morning,

Commissioners. Vincent Schwent, President of Spectrum Energy. Just a couple comments.

And first of all, not to be redundant, but we also would suggest and encourage you to keep the current rebate level at 2.80 a watt, at least for the next few months.

But in looking at the handouts that were prepared for today, there is apparently some staff analysis in there which attempts to determine what should be the appropriate rebate level. And it's the CBI results for cash financed taxable table. I want to thank the Commission for doing that. Obviously, as a former Commission staffer who was the one involved in setting up these rebate programs back in '98, I appreciate that kind of attempt to analyze where the rebates need to go.

The only comment I would make is from what I can see of that table, of course, it forgets to take into account changes in cost from last year to this year, or from the past to the present. And, of course, that is the reason we're here today, asking to keep the rebate level where it is.

I would just comment it would be nice if there was a way in which staff could share with

the industry the way in which these calculations take place. Because we might be able to offer comment that there may be factors that were ignored or left out, or how we do it as a practical matter. So that when they do that analysis in the future, hopefully it'll be more usable and more acceptable to all.

The only other part I would make is I know there was --

PRESIDING MEMBER GEESMAN: Let me say there, Vince, that before you got here, in his presentation Bill did indicate that they would be making public the Kema report that that analysis was taken from. He's not indicated exactly when that will be ready for publication, but the intent is to make it publicly available.

MR. SCHWENT: Oh, good, thank you. That was the reference to the Kema report.

PRESIDING MEMBER GEESMAN: Yeah.

MR. SCHWENT: The last comment I'd just make is I know there was some interest on the part of Commissioner Pfannenstiel about the performance based incentive.

As an old research scientist, it has to be clear that the current pilot, and it was just a

pilot, isn't the right level. We have been attempting to transfer, to get some of our customers to switch over from the CPUC rebate all year long, when, of course, on day one we had 300 reservations, climbing to 450 reservations just at PG&E alone.

We have been singularly unsuccessful in getting any of our clients to change over to the PBI. And the initial first capital cost seems to be it. We can show them financial projections that say, great, over the first five years, or over the long run you're going to come out economically just as well if you go with the PBI approach, as opposed to saying with the self-gen incentive. Just doesn't fly.

So, I think one question you may want to ask is just what is the PBI attempting to solve. And it might be time to revisit that question again.

Because I know when the program first started up, the incentive program, there was some surveys made of some of the initial PV systems. The performance of some of those systems was fairly disappointing.

I don't know to what extent the

Commission has continued to have a contractor survey performance of recent installs. My hope is that the quality of installs has gone up. I know in the case of my own company, and many others, we're able to predict just bang-on plus or minus 5 percent how much power these systems are going to produce.

So we know if they're designed right and installed right, they should perform right. Now, whether it's necessary to go to a PBI approach to insure that level of performance, or whether some other approach may work, might be a question you'd want to ask again.

One reflection. I know in my own frustrations to why my customers haven't been willing to go for the PBI it occurs to me the one important factor between here and Germany is there you're getting a 20-year power purchase agreement from your utility.

You can take that to the bank and finance against it. I don't think we're in that situation here in California with the incentives that we have. The amount of rebate, the incentive, the duration, they're not really finance-able in the sense that they may be in

Germany.

Conversely, of course, the German rebates are for 20 years. What we see in America, and again it may be a difference between American businesses and European ones, in America what we see is our customers, our business customers -- and we do large commercial systems, we don't deal in the residential area -- but our business customers want a five- to seven-year payback. And many of them even want less than that, but I don't even try to meet their needs. But at least there's a significant number that will be willing to invest at five- to seven-year payback.

What that means, however, is their discount rate essentially doesn't look at anything past five to seven years. It doesn't matter to them.

So, I think we're in a situation where if we do have a PBI, it has to pay out fairly quickly. It can't go on forever.

The other critical, critical issue is how it's treated from a federal tax standpoint. It is not clear to me at all, right now with the current upfront incentives it's virtually always received by the retailer, at least in my

experience. The retailer, it's ordinary income whether he gets it from the state or gets it from the customer. So for his standpoint, it's taxable income in both cases; it makes no difference.

When you go to a PBI it's highly unlikely that a retailer is going to take that PBI like they currently take the upfront cash rebate. They can't, from a cashflow standpoint. Therefore, it's critical how the IRS treats that.

If they tax that income to that customer, I think all the advantages of the PBI go away.

And to my knowledge, that issue, while raised many times, has never been addressed.

Perhaps some hybrid approach like Pennsylvania's done, where it's part upfront and part PBI. Maybe it's a one-year PBI. Because again, the crucial issue is are these systems performing as they should be. You're going to know that after the first calendar year.

If that system is producing the right amount of power at the end of its first 12 months, chances are it will go on producing the right amount of power for a long time. Because you know you don't have shading problems; you know you don't have design problems or component

mismatches, poor installation, et cetera.

So something that maybe was just part of the incentive was pay after say a year, so it's a kicker to incentivize he retailer and the customer to check that system and make sure it's performing right through its first full 12-month season of the sun, might make more sense.

Also, again, as I mentioned, to the extent that there hasn't been any recent studies done as to how well current installations are performing versus those first ones that went in back in 1998, that might be useful.

And that was my comments, and I'm happy to answer any questions. Thank you.

PRESIDING MEMBER GEESMAN: Thanks, Vince. Okay, I've got two -- just one? One identified commenter on the telephone. Hank Zevallos from Homewind Power.

MR. ZEVALLOS: Yes, hello. I want to thank you very much for allowing me to be able to participate by the phone today. I've participated personally in the past.

I'm in the Tehachapi area where, at one time, when this program first began, the majority of wind installations occurred. We've had a

dramatic drop in them for several reasons. And this is one of the things I would like to address today.

In addition to increased permitting complications, which were initiated by Kern County recently, and increased costs, the combined effect with the dropping state incentives have had a dramatic decrease in our ability to close and install people in this area, despite the fact that we've had an average of about four people connected to the grid inquiring about wind, because of the number of wind installations that have occurred in this area.

This is a very important situation because the California Energy Commission has identified the area that we're based in as an area where they can get through wind 40 percent of the state's required renewable energy.

And recently, the state has moved to mandate that the grid extend itself from the 670 megawatt capability of the transmission lines in this area by an additional 1000. And yet we're not able to take advantage of this natural wind resource over here to assist consumers in being able to take advantage of a state program that

would assist them in getting a cost effective wind turbine installation.

Because of the price of steel and other demands on components, and also to the increased cost because of a new ordinance that was passed here in Kern County, it has become costlier rather than less or more affordable to put in wind.

So, I really am in agreement with the other statements in favor of bringing parity to the wind rebate along with, as it used to be, with solar.

And this is very important for another reason. And that's that wind is also discriminated against in such other matters are it is exempt, or it's denied the ability to share the property tax exemption that solar gets, despite the fact that wind is really a solar product.

It also does not participate in the federal tax credit. I think this is something that really ought to be taken into consideration when we have a very effective ability to bring in a cost effective reduction in grid loads to consumers with wind in a windy area such as I'm in right now.

In bringing this up I also would like to

thank you for bringing the reservation period back to nine months. And I also would like to bring up the fact that the last installation that we were able to do out here, which occurred in June, and is one of a fairly minimal number of wind installations that have occurred recently, took six and a half months before it was able to pass through a new hearing ordinance that was passed here last year in Kern County, as a result of the fact that we're in an area where there's low-flight testing and so forth by Edwards Air Force Base and the Naval Air Base at China Lake.

Hopefully this is being streamlined, which is something that I've discussed with the county. But I still think it's going to take a minimum of three months, possibly more, to get a permit out here. And also they have required a little bit more calculations on the towers and so forth.

And it's a situation where I would like to hope that the ability to get an extension, where permitting problems make it appropriate, would also be reintroduced along with bringing the nine-month reservation period back for wind installations here in Tehachapi, East Kern County

area.

Otherwise, I really want to thank Mr. Blackburn and the Committee for the great work that they have been doing over the years. I just really would like to see a little bit more support of wind, which really is a very cost effective situation.

I do do solar installations, too. But when people in this area consider the cost, what it would cost them to do solar compared to wind, solar is considerably more prohibitive for them. There's a lot of farmers and people in this area who are not very rich, and they really would like to take advantage of the wind. But it's become a little bit too difficult to do that.

And, you know, I've got the interest from consumers. I just don't have the ability to give them what is cost effective.

Thank you very much. If you have any questions I'll be happy to answer them.

PRESIDING MEMBER GEESMAN: Thank you, Hank. Do we have anybody else on the phone? Anybody else in the audience care to address us?

MR. JACKSON: One brief point. As a member of CABEC, and we do many title 24 reports,

I'm curious why solar is not a credit to my reports.

PRESIDING MEMBER GEESMAN: That's really beyond the scope of our workshop today.

MR. JACKSON: Okay, I'm sorry.

PRESIDING MEMBER GEESMAN: I do know there's an effort underway to take solar into account in the next round of building standards. But I'm not on that Committee and hesitate to comment on it.

ASSOCIATE MEMBER PFANNENSTIEL: Well, let me just say briefly, since I am on that Committee, it is being considered. One of the legislative requirements on the title 24 standards is that they must be cost effective.

And so we need to look at solar in that context. But it is being considered. We're just now starting the review of the 2008 building standards. And it's being considered in that context.

MR. JACKSON: Well, we roll the solar on new construction into the 30-year mortgage at 6 percent. It pays for itself the minute we hit the button.

ASSOCIATE MEMBER PFANNENSTIEL: Good.

PRESIDING MEMBER GEESMAN: Yes, sir.

MR. MAAS: Yeah, I just, as a result of the lady's presentation and getting the gas reduction, if it does come in to be, I think that probably the most cost effective thing that the California Energy Commission could promote is tankless water heaters that, in one fell swoop, can do tremendously, make a tremendous amount of savings.

And it's a technology that is now being sold at Home Depot, in various places; and it's the replacement of the storage water heater, which it's a no-brainer.

But it's not being encouraged. And until it is encouraged, it's going to be fighting and struggling to make a mark in the marketplace.

PRESIDING MEMBER GEESMAN: Thank you. I think, based on the discussion we had earlier, and my indication during Mr. Blackburn's presentation, I'm prepared, and, Commissioner Pfannenstiel, I want to inquire as to your level of comfort, in indicating right now our intention to hold the rebate at $2.80 until the next six-month cycle.

ASSOCIATE MEMBER PFANNENSTIEL: I think there were two, in my mind, compelling reasons to

consider holding it at $2.80. The first being the cost information that we have heard extensively this morning.

And the second is consistency with what we are seeing in the PUC program. Now, clearly that program has not yet been decided. But if the PUC rebate is coming down to meet where we are, then perhaps this is the time that we should hold the rebate at the 2.80.

PRESIDING MEMBER GEESMAN: We'll take into account all of the other comments and the written comments filed with us by December 7th. And then our early January release will address if we want to make any other changes to the staff paper.

But, right now, we're stepping out and indicating preemptively that we expect to hold the rebate at $2.80.

Thank you very much, we'll be adjourned.

(Whereupon, at 11:39 a.m., the workshop was adjourned.)

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CERTIFICATE OF REPORTER

I, PETER PETTY, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Committee Workshop; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 11th day of December, 2005.