COMMITTEE WORKSHOP

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	
Revision of Senate Bill 1 Eligibility Criteria and Conditions for Incentives	)	Docket No. 07-SB-1
	)	
Proposed Changes to Guidelines for California's Solar Electric Incentive Programs, Pursuant to Senate Bill 1	)	

CALIFORNIA ENERGY COMMISSION

HEARING ROOM A

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

MONDAY, SEPTEMBER 29, 2008

9:35 A.M.

ORIGINAL

Reported by:
Peter Petty
Contract No. 150-07-001

COMMISSIONERS PRESENT

Karen Douglas, Presiding Member

Jackalyne Pfannenstiel, Associate Member

ADVISORS PRESENT

Panama Bartholomy

Tim Tutt

STAFF and CONSULTANTS PRESENT

Lynette Esternon-Green

Bill Pennington

Patrick Saxton

ALSO PRESENT

Jeanne Clinton (via teleconference)
California Public Utilities Commission

Robert Raymer
California Building Industry Association
California Business Properties Association

Sue Kateley
California Solar Energy Industries Association

Ralf Muenster
National SemiConductor

Warren Nishikawa
SolFocus, Inc.

Nicolas Chaset
California Public Utilities Commission

Kirk Mulligan
Clean Power Systems

Sara Birmingham
The Solar Alliance

ALSO PRESENT

Christopher Nasys
REC Solar, Inc.

Chuck Hornbrook
Pacific Gas and Electric Company

Polly Shaw
SunTech America

Molly Sterkel
California Public Utilities Commission

Bob McConnell
Amonix, Inc.

George Nesbitt
CalHERS

McKinley Barnes

David Townley
Infinia Corp.

Mike Bachand
CalCERTS

I N D E X

P R O C E E D I N G S

9:35 a.m.

PRESIDING MEMBER DOUGLAS: This is the Renewables Committee workshop on the proposed changes to the guidelines for California's Solar Electric Incentive Programs pursuant to Senate Bill 1.

Last week, two years ago, essentially September 21, 2006, the Governor signed SB-1. And so two years later we have a really good opportunity to reflect on the successes of the program and also challenges that we faced in implementation of this program.

And after two years of working together to put together and implement this program at the Energy Commission, we've made significant progress in pushing solar generation rooftop to the mainstream, and also providing a model for the rest of our country. Today's workshop should help us continue with that record.

And we've put, and our staff has put a lot of thought into how we can improve this program to achieve the Governor's goals, a million solar roofs and beyond.

I'm very pleased that the Chairman is

here. She has been a long-time champion of the program and has provided significant expertise and guidance to it in its development. So I'd like to ask if she has any opening comments.

ASSOCIATE MEMBER PFANNENSTIEL: Thank you, Commissioner Douglas. I only want to say that when we began the program it was with the intention of bringing as many of the industry, the solar industry, together with the energy efficiency group as we could because we see this as an opportunity to move both in parallel, to accomplish several of the goals of the state.

I know that there are specific concerns or pushbacks on given areas. I think we've made a lot of progress and hopefully have accommodated most people's issues and problems and requests and concerns and hopes and aspirations.

So we're here today to see if there's anything yet to be done. And for us to explain how we've arrived at the conclusions we have.

So, with that, back to Commissioner Douglas.

PRESIDING MEMBER DOUGLAS: Very good. Thank you very much. I'd also like to introduce on my right, Panama Bartholomy, my Advisor, and

Tim Tutt on the far left, or my far left, Chairman Pfannenstiel's Advisor.

And with that, Lynette, it's all yours.

MS. ESTERNON-GREEN: Thank you, Commissioners. Good morning, everybody, welcome to our workshop. My name is Lynette Green from the renewable energy office. And joining me here at the table are Bill Pennington and Patrick Saxton from the buildings and appliances office. Smita Gupta, I believe, is on the phone --

MR. PENNINGTON: She's just listening in; we gave her a little break today.

MS. ESTERNON-GREEN: Yeah, she's on maternity leave. Before I start I have to mention a couple of housekeeping items here. For those of you who are not familiar with this building, the closest restrooms are outside, located outside the hearing room to your left. There is also a snack bar on the second floor under the white awning.

And in the event of an emergency and the building needs to be evacuated, please follow our employees to the appropriate exits. We will reconvene at Roosevelt Park located diagonally across the street from this building. Please proceed calmly and quickly, again following the

employees with whom you are meeting, to safely exit the building.

Before I start I'd like to mention that this workshop is being broadcast over the internet. We also may have callers participating on the phone that are on mute. We will open the lines when we get to the public comment section of the workshop.

And for those who are here and would like to speak later, please make sure that you fill out a blue card located in the back on the table. And Diana will be collecting them later.

We specified in the notice also that the written comments are due by October 6th, that's next Monday, to our dockets office. Please make sure to include the docket number; that's 07-SB-1. And indicate in the subject line, comments to the proposed SB-1 guidelines.

So the purpose of this workshop is to present staff-proposed changes and solicit additional comments. I hope you all had a chance to review the draft document we released a couple weeks ago. The proposed changes include changes, basically updates, and also address some of the concerns of the CPUC including their CSI program

administrators and other local utilities.

Incidentally, staff is not going to discuss the details of the nonsubstantive changes. However, we'd like to hear your comments. Those nonsubstantive changes are shown in the draft document, and they're mainly to clarify or modify the language in the current guidelines.

As most of you know, the guidelines were adopted in December 2007. Electric utilities had to comply beginning January 1, 2008. And fully comply by January 1, 2009.

With the exception of the small utilities with 200 megawatts or less peak demand, they're not required to comply no later than January 1, 2010.

So, as program utilities and administrators implement the requirements and prepare to comply for the January 1, 2009 requirements, staff received several comments and questions, including request for clarifications on the SB-1 guidelines.

So to address those concerns and solicit additional comments we decided to conduct this workshop. Basically this will give us an opportunity to update the guidelines that were not

addressed in the first edition of the guidelines.

And with that, I'd like to start with a couple of proposed administrative changes. The first one that staff had proposed is to add in chapter 1 the audit requirement. Some of you may know that Senate Bill 1 directed the Energy Commission to conduct annual random audits for solar energy systems, and evaluate their operational performance.

To accomplish this requirement it is essential that we work with the utilities and their program administrators. So currently we have our technical support contractor, KEMA, who are just basically assisting us in developing this draft scope on the statewide audit plan.

Some of you may have heard from KEMA or have met with KEMA. We're trying to assess your existing protocol and get your input so that we can come up with the best approach for the auditing plan.

The second item that we're proposing is, actually it's a proposal that we received from the CPUC and their program administrators. Staff recognized their concerns and were willing to expand the compliance dates from January 1, 2009,

to July 1, 2009, for chapters that affect -- for chapters 3, 4 and appendices 1 and 2, including chapter 5, which is the energy efficiency requirements.

So this will give utilities and manufacturers additional time to conform to those requirements.

MR. PENNINGTON: Thank you, Lynette. I'm Bill Pennington; I'm the Manager of the buildings and appliances office at the Energy Commission.

And -- next slide, please. The first thing I wanted to do quickly is to review a little bit of why we're here, what SB-1 asked the Energy Commission to do.

Basically the Commission was directed to establish eligibility criteria which included design, installation and electrical output standards or incentives, and conditions for ratepayer incentives. And separately, to set rating standards for equipment components and systems. So that was the fundamental assignment that was the rationale and the objectives that we had for developing the first round of guidelines.

There were some specific expectations --

next slide -- that SB-1 established, that the Commission took cognizance of in developing its eligibility criteria.

SB-1 directed that we be pursuing high-quality solar energy systems. And specific language out of the statute was that we should be attempting to achieve maximum performance to promote the highest production per ratepayer dollar. So, basically a very strong sense of needing to protect the ratepayers' investment in this program.

Secondly, that the system should be designed to provide optimal system performance during peak demand periods.

And thirdly, that the program should have built in energy efficiency in the home or commercial structure before this solar system is installed.

So I'm going to talk a little bit about the energy efficiency aspects of what we're proposing to change in this round of guidelines.

The current guidelines have tier one and tier two criteria that is referenced to the building standards that were in existence at the time that the guidelines were adopted, which were

the 2005 building standards.

This past April the Energy Commission adopted new building standards, the 2008 building standards, which go into effect July 1, 2009. And so we need to be updating the guidelines to reference the upcoming building standards.

So, we have thought about what should the levels be that would replace the current criteria in reference to the 2008 building standards. And we're proposing to keep the same tier one and tier two structure for both residential buildings and commercial buildings.

With the tier one level being the minimum level of energy efficiency that's required to be eligible for receiving solar incentives for the solar system. And we're proposing to have that percentage be 15 percent beyond the 2008 building standards.

We've looked at the availability of measures to do that; the feasibility of doing that; and we're confident that that's going to be a feasible minimum criteria.

One of the things that was quite important to us in coming up with a rationale for this, or deciding, you know, what would be the

right level, is that recently the Administration supported the adoption of the green building standards that were adopted by the California Building Standards Commission.

In those green building standards the policy direction is that for buildings to be considered green, they need to be achieving at least a 15 percent improvement beyond whatever code is in effect.

And we think it's important for this program to align with the green building standards programs. We also think it's important for these programs to align with the incentives programs paid for energy efficiency through the public goods charge programs that the IOUs administer under the PUC's oversight.

And so, you know, we recommend that there be a similar level of incentive, at a minimum, for tier one and those programs. And that these all, all of these activities are aligned and co-encourage each other.

For tier two, tier two is designed to be kind of a best practices level of energy efficiency. And it's a voluntary level, it's not a mandatory level, it's not a minimum criteria for

participation. But it's a level that the Energy Commission recommends.

And we're recommending that the program go to a 30 percent beyond the 2008 building standards for both total energy and for cooling energy. And this is a little bit of a change relative to 2005 in terms of the percentages. We've done some work to look at what's feasible, what measures are available, and we think this is an appropriate level.

One of the things that we're trying to match up here is that we have three state agencies now who have co-adopted the same policy related to moving to zero net energy buildings.

The Energy Commission in its Integrated Energy Policy Report, the Public Utilities Commission in its Strategic Plan, and the Air Resources Board in its Scoping Plan, have all agreed that for climate change reasons we need to be moving to zero net energy buildings.

For residential buildings that should be by 2020, is the target. So this is a serious endeavor that will take much effort and has to get started immediately for us to be able to get there.

Basically this means that all new construction by 2020 needs to be solar. And not only solar, but needs to be all cost effective and feasible energy efficiency in those buildings.

And so this is a serious goal, and we think that this is the appropriate next step related to that goal.

One of the things that we think is very important is that we look at this tier two level as a strategic endeavor to move us to zero net energy buildings. And we think that the public goods charge incentives for reaching this level need to be strategically set. And that it needs to be a substantial incentive, and it needs to provide a large portion of the cost the builders would accrue to get to this level.

So we have been working with the Public Utilities Commission and talking to the program managers and strategic planners at the IOUs about reaching an agreement on a strategic level of incentives for tier two.

Related to energy efficiency for commercial buildings we have a similar set of two tiers that we're proposing for newly constructed buildings, again matching the California green

building standards for tier one, and a 30 percent savings relative to total energy for tier two. Again, promoting the accomplishment of zero energy net buildings -- zero net energy buildings.

The commercial buildings target is 2030. So, there's another ten-year period to get to that level. But this is the level that we think is appropriate, and we think that incentives should be aligned to encourage this.

There's another change in the revised guidelines related to energy efficiency that is prominent. And that is that up to now, you know, in the original guidelines there was an exception that if PVI systems were to be installed, benchmarking would not be required. That exception was both for benchmarking and for building commissioning.

And we're proposing to continue the exception that building commissioning not be required, but that we think that benchmarking should be expected for existing commercial buildings.

Assembly Bill 1103, which passed in 2007 I guess, required utilities to provide utility bills to all commercial building owners so that

that information could be entered into benchmarking software. And requires January of next year for benchmarking to be done for all commercial buildings to be provided at point of sale or point of lease.

And so we think that this is where the Legislature has directed that we go related to existing buildings, and we think it's important for the SB-1 programs to be aligned with that.

MR. SAXTON: Thank you, Bill. My name is Patrick Saxton. I'm also with the buildings and appliances office here at the Commission.

And, as previously mentioned, one of the responsibilities for the Energy Commission under Senate Bill 1 is to establish equipment eligibility requirements for major system components. And we consider those major components to be the solar electric generator, the inverter and the meter.

The language for flatplate photovoltaics from December 2007 has not changed. And certainly that's currently, you know, the most frequently used solar electric generator in our programs. So I think everyone's familiar with those requirements.

The performance standards are listed in appendix 1. And again, everyone's familiar with that, so we won't cover that today.

The major addition under the revision language is for other solar electric generators, and we're using that terminology as a catch-all for everything but flatplate nonconcentrating PV. Some examples of that would be concentrating photovoltaics, PV glazing, any kind of dish sterling, parabolic troughs, and essentially many emerging technologies there.

So we want to provide a more specific way for those technologies to gain eligibility under SB-1.

The current recommendation is to allow these technologies to receive performance-based incentives only. And in the future, expected performance incentives will be considered.

The equipment requirements would be to receive a full safety certification with followup service from a NRTL. And there's certainly recognition that at the product level there are no national standards for any of these technologies at this time.

And the approach would be for NRTLs to

develop new protocols where they would evaluate current standards for any applicability to these new protocols and combine existing protocols from both existing national standards and existing international standards.

The uniqueness of this equipment could lead to a different protocol even within the same technology. And this would be a situation where the communication between the Energy Commission and the manufacturer and the NRTL needs to be open.

When a CEC listing for another solar electric generating technology is provided that's only going to be a confirmation of the safety testing, and not any performance or reliability testing. The manufacturer may have also done that testing but the CEC listing will only be for a confirmation of the safety tests.

Some other major components, the inverters and 2 percent revenue grade meters there's been no changes from the 2007 language. The 5 percent inverter integrated meters, however, will be required to have NRTL certification beginning on January 1, 2010.

And that certification will be to the

test plan that's been developed by the CSI metering subcommittee. I believe the CPUC is currently considering the adoption of that proposal.

As part of the high quality systems that SB-1 desires, one way to achieve that is through verification of the installation. And the first step of that is an installer verification.

The current language requires the methodology that's outlined in appendix 2. There were comments about the depth of that methodology and the requirements that that places on the installer.

And in response to those concerns, an alternate protocol was developed. That protocol includes that a minimum of visual inspection of the system components and a check of all electrical and mechanical connections. The polarity of the source circuits must be verified. And additionally, the open circuit voltage and short-circuit parent of each source circuit should be measured and compared within a tolerance.

This protocol was based on language from NABCEP, which many people are familiar with, is the North American Board of Certified Energy

Practitioners, and is outlined in their system checkout procedure in the study guide for PV system installers. Many people consider NABCEP to be a best practices organization. And this protocol matches those best practices.

Second step of verification is a field verification by the administrator or their agent or a third party such as a HERS rater. And these are currently required for all expected performance-based incentives. Again, with the methodology that's in appendix 2.

The revisions to these guidelines would add PVI systems that are less than 50 kilowatts to this field verification requirement. One-in-seven sampling would be allowed, as it is for the expected performance systems.

The protocol would not be required to be the appendix 2 protocol, but instead have a minimum of visual inspection of all components, installation characteristics and the shading conditions.

And while not required for all PVI systems, the Energy Commission would encourage program administrators to adopt that as a requirement.

A comment that had been expressed several times was concern over the existing SB-1 language which required the assessment of future shade, particularly future growth of existing trees. And in response to that concern there is additional language which would allow program administrators to waive the requirement of assessing that future shade if the installer provides a disclosure to the system owner.

And that disclosure should indicate the sources of that potential future shade. So if there were existing trees the disclosure would specifically say the trees to the west, or the trees to the south on this lot, or on your neighbor's lot, something that was specific to the actual installation.

Another of the Energy Commission's responsibilities is to determine the methodology for the PV production calculation for the expected performance-based incentives. And that methodology is listed in chapter 4. The language allows the use of the Energy Commission's CEC PV calculator, or other calculators which meet those bulleted requirements.

As background on the requirements,

things that they include that specifically address high-performance systems and rewarding performance that's coincident with peak is to use an hourly calculation based on hourly weather data. And also detailed equipment models for both the PV modules and inverters. And those equipment models are based on laboratory performance testing.

The revision language, the major change is to one of those bulleted requirements in chapter 4, and that is the removal of the purse-string shading assessment, which was also done in response to concerns from stakeholders.

Additional concerns were expressed by stakeholders about the assessment of shading, in general. And a new method of assessment has been added to the first edition of the guidelines. And that is to include solar availability, which is currently used by the CSI program.

And solar availability is the ratio of the insolation available at the point of measurement in the shaded condition to the total available solar insolation. And that is a quantity that's determined with the use of a solar assessment tool which accounts for all obstructions on the horizon. And there's several

different tools, but that's frequently done with a digital image of the horizon and software post processing.

The result is a ratio that is 1.0 if there's zero shading. And then a lesser than 1 ratio for any shading with the declining number indicating more shading.

The points of measurement for solar availability will be the major corners, again, inconsistency with CSI, and using the CSI qualification for a major corner.

The monthly solar availability option will allow manual input of the required shading factors. That does become 20 factors, which is a single monthly factor for most months of the year, but three factors per month in the summer of June through September. And that's to specifically capture the shading conditions that are coincident with daily peak.

The revision of the guidelines requires the use of a shade impact factor when the choice to use solar availability is made. And that shade impact factor accounts for the fact that when an array is partially shaded the reduction in kilowatt output from that array is greater than

the area that's shaded. So it's a more significant impact than a one-to-one relationship.

The current default value for that shade impact factor is set at 2. There are many cases when this is actually a moderate value.

The Commission does want to recognize that there are emerging technologies to address this partial shading. Currently those are typically a hardware solution. We definitely want to open the discussion with those manufacturers. And when a effective tolerance to partial shading can be demonstrated, would consider a lower shade impact factor for those technologies.

And at this time Tim Townsend from BEW Engineering is going to discuss the shade impact factor a little further.

PRESIDING MEMBER DOUGLAS: Very good.

MR. SAXTON: Okay. Apparently Tim is not available. I'll discuss Tim's slides.

(Laughter.)

MR. SAXTON: These were based on some simulation work that BEW Engineering did with a software package called PV Syst. And indicates in a portrait mounting of a panel what the shade impact factor would actually be under specific

percentages of shading.

And the green line is the marker of two. So, it's very well indicated on this graph that what appears to be a small percentage of shading actually causes a significant reduction in output of the array, in this case of the panel.

Next slide, please. Simulations were also done for the modules in a landscape orientation. And while landscape orientation is more shading tolerant, this case was specifically for row-to-row shading, but, you know, it becomes a very system-to-system evaluation.

But in the case of row-to-row shading the landscape-oriented panel is significantly more tolerant to shading due to the configuration of the bypass diodes. But you can see that again the lower area shaded 10 percent still results in a shading impact factor higher than the default value of 2.

Next slide, please. This is a summary of the work that BEW had done which, on an annual basis, had resulted in a shade impact factor of 2.1, approximately the 2 percent that the guidelines require.

As I mentioned, it was done with a

software package called PV Syst for a south-facing system in Sacramento, with a 30-degree tilt and portrait-mounted modules.

The row-to-row spacing was set specifically at two-to-one, which would be right at the minimal shading requirement. And when strictly used as a area-related shading loss, which would be a shade impact factor of 1, there was an annual loss of 3.2 percent in power output.

When the -- that was using the software in the default mode, where you can set it to one-to-one reduction -- when you use the software's assumption of modeling loss, which is that the output circuit is limited to the production of the shaded region, whenever there is one-twelfth of the panel shaded, which would be six cells in a typical 72-cell panel, as was modeled here, that when the software does that calculation it is an annual 6.6 percent loss.

So this, as I said, this was done as specifically at looking at this default value of 2. And in the frequent case of portrait-mounted modules there are situations where it's a moderate factor.

That's the conclusion of what I have to

say.

PRESIDING MEMBER DOUGLAS: Very good. If the staff presentations are over, then it's time to open this up for public comments.

I understand we have some -- are we taking the cards now, or did we have some who were going to start?

MS. ESTERNON-GREEN: Well, we wanted to take the CPUC Staff.

PRESIDING MEMBER DOUGLAS: Very good. In that case could Jeanne Clinton please come forward, or CPUC Staff.

MS. SPEAKER: I think she's on the phone.

PRESIDING MEMBER DOUGLAS: Oh, Jeanne, are you on the phone?

MS. CLINTON: Is my line open?

PRESIDING MEMBER DOUGLAS: Very good. Please begin.

MS. CLINTON: Okay. Can you hear me clearly?

PRESIDING MEMBER DOUGLAS: Absolutely.

MS. CLINTON: Great. Good morning, everyone. This is Jeanne Clinton. I'm the Clean Energy Advisor at the California Public Utilities

Commission.

I did send a file of remarks this morning. I'm hoping those are going to be displayed on the screen shortly. This way I can probably take less time and you can read faster than I can speak.

But I want to make just a few comments. First of all, the PUC really values collaborating witH the Energy Commission, both on crafting the state's energy policies and figuring out how to implement them.

Secondly, I think the point of our discussion between -- at least my part of the presentation today is focused on two fronts. One, figuring out how we do a better job of integrating demand side management approaches and combined energy efficiency and renewables and demand response. And offering these to residential and business and institutional energy users in a way that not only manages the state's energy resources, but also manages the (inaudible). So I think we need to keep that uppermost in our minds.

Secondly, today's -- gives us a great opportunity to pursue a well-coordinated strategy across not only government regulations and utility

programs, but also in engaging the business community in creative solutions to delivering energy services to the residential and nonresidential markets.

So, as Bill Pennington remarked earlier, the PUC has adopted the long-term goals for zero net energy. We're proud to be among the three energy agencies or energy and environmental agencies that have adopted these goals.

And it's obvious that in the new construction market sensible combinations of efficiency and renewable energy are what we have to figure out in order to achieve these goals.

So, today I'm going to focus on how we might secure a good fit between the energy efficiency programs of the investor-owned utilities that we oversee, and the state solar incentive programs.

And I might also note that there are two staff members from the PUC in the audience in Sacramento today at the workshop, Molly Sterkel who oversees the solar initiative, along with our distributed generation program, and Nick Chaset, -- group. And I know they will be talking over the course of the workshop to other issues

relating to this. But if there are specific follow-on questions to the efficiency area when I'm no longer on the phone, I certainly invite you to raise those with them.

So, specifically what I want to do this morning is to focus on the question that the Energy Commission Staff has posed to us, which is to look at to what extent the investor-owned utilities proposed efficiency programs for 2009-11 will target similar energy efficiency levels that the Energy Commission Staff were discussing. And to what extent those programs will choose incentive schemes that are compatible with the direction the Energy Commission would like to go in providing solar, but also providing energy efficiency.

To go to the next page, just by way of some background for those of you who are not familiar with the PUC process, first of all, we regulate the state's investor-owned utilities, gas and electric utilities specifically in this case. And those utilities on the electric side provide somewhere between 75 and 80 percent of all the electricity delivered in California. And on the gas side it's a higher proportion of the gas

delivered.

The four primary investor-owned utilities are Pacific Gas and Electric, Southern California Edison, Southern California Gas, and San Diego Gas and Electric.

The CPUC oversight of -- sets policy and sort of technical guidance on a range of issues regarding energy efficiency programs specifically. And we set quantitative goals for efficiency to be achieved both in three-year and longer term time horizons. Those are in metrics of energy units.

We have a cost effectiveness requirement for what we call each utility's overall portfolio of efficiency programs and expenditures. And I'll explain about that in a little bit later.

We also set policy objectives that these utility portfolios must meet, including the portfolio going forward, starting with 2009, also need to reflect the recently adopted California long-term energy efficiency strategic planning. That takes a longer term horizon to where we need to go, including the zero net energy goal for 2020 and 2030.

Of particulate note for purposes of today's discussion is that the PUC does not

approve the individual program design features of the utility programs. And, for instance, exactly which efficiency measures are targeted, exactly what the intent of the levels are, or how specific marketing strategies are chosen, or what the implementation specifics are. And I'll explain a little bit about that in a minute.

We also set overall evaluation standards to assess the portfolio savings performance. And then related to that the utilities can earn shareholder incentives equivalent to profit they otherwise would have made if they had invested in more traditional power plants, for verified savings performance that to the extent it is in excess of 85 percent of the goals that we set for them.

And the corollary is that the utilities are subject to a shareholder penalty if their performance falls below 65 percent of goals. And I mention this because it is relevant to what kinds of activities and expenditures go into the portfolios.

The next slide is specifically on the 2009-2011 portfolio filings. The utilities submitted these in late July. There were four

filings, one for each of the utilities.

Again, across the four filings there are over 250 programs, energy efficiency programs, that are proposed. If you were to stack up the hard copy printout of these applications, they would rise to between four and five feet. So it's a significant undertaking to review all the details and -- of those portfolios.

The portfolios that are proposed are nearly $4 billion, which is about twice of the current 2006/2008 program portfolios. The utilities are proposing to nearly double the level of activity and incentives.

This is separate from an additional approximately $750 million which is proposed over the next two years for the low-income energy efficiency programs.

I want to talk a little bit about timing schedule, because it is relevant to the timing of the application, if you will, of the proposed SB-1 requirement. The staff has already taken an initial review of these four or five feet worth of applications. And are in the middle of meetings happening between September and October to give feedback to the utilities on how well the

portfolios reflect the CEC's policy and filing guidance.

It is quite likely that the utilities will have to file some supplemental filings with additional information. And we are expecting that it might take until early 2009 for those supplemental filings to be completed. There's quite a bit of reworking of analysis that needs to be taken whenever, you know, one thread in this nested portfolio gets changed.

That means that the existing 2006-2208 programs are expected to continue into 2009 with bridge funding. And that the program specifics of 2006-2208 would still be what is in the marketplace, if you will, until the new portfolios are adopted. The PUC is expected to take up a vote on supporting the bridge funding on October 16th.

If we have the supplemental filings from the utilities come in in early 2009, we would think that the approval of those portfolios might occur by June of next year with the new programs. And they're associated to nine features to start in a reasonably fast start mode thereafter, the next two to three months.

But clearly there is quite good likelihood that any new incentive levels or incentive designs might not exactly be in place on July 1st. But presumably they'd be coming shortly thereafter.

Now, let me charge to the three specific issues that I think we want to focus on. By way of background today on the question of integrating the SB-1 and the utility IOU efficiency program.

So the next page shows that there's three issues that I'd like to address briefly. One is the level of efficiency required for new construction. The second is the shape of the incentive structure. And the third is the incentive amount.

So, if this slide is showing in the room -- it's not yet showing on the webcast -- for the minimum level of efficiency to qualify for proposed new homes. Right now I think we have some variations across the utility proposals.

But the important thing I think to focus on is that assuming that the 2008 Title 24 standards are 15 percent above the 2005 levels, an given that we set -- targets in the long term energy efficiency and strategic plan to get a

significant portion of new homes to 35 percent better than the '04-2005 Title 24 by 2011, that means that by 2011 we need to see, on average, a good portion of the new homes being 20 percent more efficient than the 2008 level.

So I think we need to be talking about minimum thresholds for efficiency in the 15 to 20 percent range for 2011.

And another point that's important from our perspective is that the efficiency levels that we set and the accompanying incentives need to be obviously identical between the Energy Commission's New Solar Homes Partnership program under SB-1 and the utility programs. And secondly, we would like those efficiency levels to be the target levels for all new building construction programs incentivized by the utilities, regardless of whether that building also (inaudible).

We want the energy efficiency platform to be uniform. And then some additional portion of those buildings will choose to add solar.

In a big picture sense, to get to the zero net energy residential goals by 2020, and assuming that the Energy Commission and the green

building standards are in a position to make about 15 percent improvement in each cycle, and we have five cycles to work with now, 2008, '11, '14, '17 and '20, we think that that five cycles, if it were to achieve about 15 percent improvement to time, would bring it to about 75 percent of the way towards zero net energy, with the balance being provided by renewable onsite or nearby energy sources.

So our conclusion on the minimal level of efficiency, to be looking at between now and 2011, is that the utility programs should be striving to incentivize meeting energy efficiency design comparable to being one and two cycles ahead of Title 24. Meaning that we would be looking for 15 percent and 30 percent better than the levels.

So now let me turn to the question of the form of the proposed incentive, and I'll be briefer here.

The next slide shows what the utilities have proposed to us in their applications. Just on the question of the form -- PG&E's residential new construction program proposes that incentives be paid in three steps.

The first step 15 percent; the second step 25 percent; and the third 35 percent better than code. And proposes that there would be a certain fixed incentive level at each one of those three steps.

The southern California utilities have a slightly different approach for residential development where they propose a continuing slope where the minimum code would be -- above code would be 10 percent. And they would have a linear increase, paying higher incentives for percentage improvement, getting to 35 percent or better.

So, for instance, if you got X percent -- X dollars of an incentive for 10 percent, you'd get X plus something for 15 percent, X plus even more for 20 percent, et cetera.

Similarly, Southern California Edison's commercial new construction program proposes incentives on a continuum starting at a minimum of 10 percent, and going up to 30 percent or better.

And finally, Sempra Utilities, San Diego Gas and Electric and Southern California Gas, on the commercial side put in a request in their application for a proposed sort of placeholder for commercial new construction would be specific,

instead of designed yet to be determined.

But the premise of their proposal was to pay the lower incentive per first year kilowatt hour for lighting, to pay a much higher incentive, perhaps five times as much, for first year kilowatt hour for other electricity savings. And to pay a fixed unit savings per therm for natural gas.

So the conclusion that the CPUC Staff has on the form of the incentive is that first of all, for consistency purposes probably the minimum threshold should be 15 percent above Title 24 across all of these programs.

Secondly, we think that an inclined continuum of getting a higher percentage per kilowatt hour per -- savings, the higher the degree of energy savings performance, would be a good system to adopt. And then sort of reward every incremental step of improvement along the way, not necessarily being artificially constrained to fixed sizes of steps.

We also think that there might be some merit in discussing some sort of kicker incentive, accelerated change in the slope of the incentive for buildings that get to 30 percent or higher.

The final issue I wanted to speak to was the size of the proposed amount of the incentive. The next slide shows the specific dollar amount that the utilities have proposed in their applications.

I'm not going to read off all these dollar amounts, but you can see that PG&E proposes incentives ranging from 30 cents to $1.50 for first year kilowatt hour, depending on the term. With comparable numbers on the gas side.

Southern California residential programs had proposed starting at 29 cents a kilowatt hour, not much different from PG&E, going up to the $1 per kilowatt hour for the buildings that get 35 percent or better than Title 24. And similarly, $1 to $4 on the gas side.

On the commercial side Southern California Edison has proposed a continuum for electricity savings ranging from 10 to first year kilowatt hours of 30 center.

And as I indicated, for the Sempra Utilities, they distinguish between lighting and other electric measures. And then have, of course, their gas savings.

So, the kind of conclusions I want to

make on the amount of the incentive is just, first of all, to remind everyone, as I said at the beginning regarding the portfolio, that the utility portfolio, an average of 50 or 60 programs for each utility, must be cost effective, as a whole. But individual programs need not all be cost effective. Some can be -- have less than a 1.0 benefit/cost ratio. Others would be more than 1.0 benefit/cost ratio in -- portfolio. And the whole to be (inaudible).

And by that we mean if you're going to expenditure ratepayer fund to save the energy and avoid investing in traditional energy resources.

Secondly, if there is any change to program costs as a result of modifying the program, denying either because incentives, administrative or marketing costs are altered, then there may, there most likely will need to be some sort of off-setting cost or program size adjustment -- the portfolio, in order to make sure the portfolio remains cost effective and balanced.

Just to tell you about next steps, the CPUC already has scheduled for tomorrow meetings with all the four investor-owned utilities to talk about the family of programs that relate to new

construction.

And that means their proposal for expenditures the next three years, codes and standards, as you see in the report, which relates to the Title 24 and Title 20 work of the Energy Commission. Work that's being done on emerging technologies to develop new technologies and systems that can be incorporated into both incentive programs, and then later into standards, the residential new construction program and the commercial construction program.

So we are prepared to get into the discussions tomorrow with the utilities on some of the initiatives that I'm presenting now, and that the Energy Commission Staff are raising.

And we've invited the Energy Commission to join our discussion tomorrow. And I believe both Bill Pennington and Martha Brook will be participating in parts of that discussion, which will be a great opportunity to explore the opportunity to try to reach some consensus view on program design across the Energy Commission, the PUC and the utilities.

And that's the last point on the slide. Somewhere I -- some of the information that we

need to focus on in more detail would be useful to the discussion. And in such the lack of the incremental cost to reach forward to these standards; to look at design, installation or technology improvements that might help reduce these costs to make the incremental costs lower.

And then to figure out how much of an incentive is needed to attract builders to reach those target levels. And then obviously, there will be homework on -- side to figure out what that translates into in terms of its effect on the overall cost effectiveness of the portfolio.

So, I hope that presents, probably in more detail than you had hoped, a little bit of sense of how we're working with the utilities on these issues. And our desire to find consensus approaches to these programs that gets California to where we all want to go.

Thank you.

ASSOCIATE MEMBER PFANNENSTIEL: Jeanne, this is Jackie Pfannenstiel. Thank you very much. That was very very informative and helpful.

Clearly we are on the same path of this, and it really, it's a question of calculating the amount for each step along the way in the solar

process to make sure that the dollars are there, and incentive dollars, and are being used in a way that's appropriate and compliant with PUC direction.

Is that a fair characterization from your standpoint?

MS. CLINTON: Yes.

ASSOCIATE MEMBER PFANNENSTIEL: Let me ask staff, Bill, is somebody planning to attend the meeting tomorrow between the PUC Staff and the utilities?

MR. PENNINGTON: Yes, Martha Brook and myself are going to be involved in those meetings.

ASSOCIATE MEMBER PFANNENSTIEL: That is fabulous. I'm very hopeful that we can work out a process and a number such that is we move into the SB-1 implementation, that we're all working towards these zero net energy buildings in the same way.

Thanks very much, Jeanne, for your participation.

MS. CLINTON: Sure.

PRESIDING MEMBER DOUGLAS: And, Jeanne, this is Karen Douglas. I also very much appreciate your presentation today.

I'm turning now to the cards that I have in the first -- oh, I'm sorry. Tim.

MR. TUTT: Jeanne, I'll send kudos to those very comprehensive description. The one question I had was I didn't see anything about PG&E commercial new construction programs in your-- and I'm wondering if there's something you can say about that?

MS. CLINTON: Quite frankly I don't have that information at my fingertips. But we can certainly discuss it tomorrow with Bill and Martha.

MR. TUTT: Thank you.

PRESIDING MEMBER DOUGLAS: Very good. In that case we'll start with public comment. Again, if anyone has not filled out a blue card and wishes to speak, please fill one out. I'm taking these in the order received. Some are from phone comments and some are for people who are here in the room.

The first card I have is from Bob Raymer of CBIA, CBPA, please.

MR. RAYMER: Thank you. I'm Bob Raymer, Technical Director and Staff Engineer of the California Building Industry Association. And as

the Chair indicated, my comments today are also supported by the California Business Properties Association, who sort of represent the commercial side of construction.

I'm not here to oppose this, I want to make that clear upfront. We've been partners with the Energy Commission for the last seven to eight years on a variety of different energy efficiency and solar issues. We don't want to see that change.

But I would like to present to you today some comments and concerns that we do have in the matter in which the program is proceeding, particularly the timing.

By way of background, as I think everyone in the room knows, the housing market is not in a good position these days. In 2007, I'm sorry, 2008, the single family construction for the State of California will be at the worst level we have seen since we started taking statistics in 1954.

You might want to be dramatic and say that's a catastrophic level or construction, but the fact of the matter is this year we'll do about 70,000 total units, both multifamily and single

family. That's less than one-third of what we should be building, given the state's population and housing demand needs.

And in response to this mortgage crisis that we've seen going on, lenders are now responding in a very aggressive fashion. The days of zero down payment are gone. They're not coming back. Depending on whether you're a first-time homeowner or home buyer, in that you'll be living in this home as a primary source of residence, we're seeing down payment requirements that are ranging from 3 percent to 20 percent. That's getting back to where it was quite some time ago.

If you're speculating, if you're buying the property as an investment, you can see that 20 percent figure raise. It may go as high as 30 to 35 percent.

Regardless, buying a $300,000 to $400,000 home and now having to put down 10 to 20 percent is a huge upfront cost. Furthermore, if your credit has been damaged at all over the last couple of years, that, too, is going to make it more difficult to buy that home.

Using that as a backdrop I want to point out the 2008 residential update that's taking

effect in July of 2009. The average cost, using a weighted average throughout the state, from our energy analysis, which I believe are the same energy consultants that you used to do the background data for this report, indicate that the average cost for compliance is about two grand.

Now, that's assuming that you take certain steps. The use of one-coat stucco and the use of third-party raters for ceiling insulation, wall insulation and duct. Some very efficient-minded things to do. But in doing that, once you start to deviate away from that minimum compliance with the 2008 standards, the cost increases exponentially.

To give you an example, in the high desert regions and here in the central valley, going down to Fresno, the cost can triple. That $2000 compliance cost can triple if you deviate away from one-coat stucco and the use of the third-party raters.

That, in turn, gives you a backdrop for what will happen with the 30 percent tier two level that you're proposing here. That's 30 percent -- I'm looking at this from beyond July of 2009, that's how I'm looking at it.

And a 30 percent increase beyond that, while I understand that's why you want to do, if that was to be implemented at a time prior to the availability of the incentives that you're seeking from the PUC and the investor-owned utilities, it could have a catastrophic effect on tier two compliance.

Specifically, a builder moving into the design of a particular product is going to want to know upfront, during the initial design of the product, are these incentives going to be available. If we're not going to know about this until the May, June, July, maybe beyond July, there's going to be a trepidation on the part of the industry to move into that.

So what I'm telling you now, you know, to bring this part of it to a close, is that these incentives that we're talking about, while very generous, the fact of the matter is going 30 percent beyond the 2008 standards is very costly. And we're going to need these incentives if we're going to be able to get people to voluntarily go at such a higher level.

Along with that we also need simplicity in the program. We need -- the industry is

basically running into a lot of hurdles these days to the extent that the paperwork and compliance can somehow be bundled and simplified. That could have an enormous benefit here, as well.

Now, at this point I'd like to point out a couple of things that could either help or hinder the application of solar in new residential market. The first one is the Air Resources Board AB-32 cap-and-trade program.

We're all familiar with the zero net energy goals and all that. A problem that I recently became aware of that I didn't think was going to be happening is that on September 2nd, ARB had a little workshop. Panama was there.

And at the workshop the ARB Staff seemed less than enthusiastic about including distributed generation or high levels of energy efficiency in their cap-and-trade program. Which most of the audience found to be rather outrageous.

We think that it should be a significant portion of the cap-and-trade program, particularly if you're putting a 4 to 6 kilowatt system on a rooftop, it makes all the sense in the world. And that could be a very robust incentive program that production builders could use in doing mass

application of solar.

And it was very curious and perplexing why ARB Staff, at least as of September 2nd, seemed to be heading in the other direction.

Lastly, the other issue I'd like to raise, and this is something that I know that Chair Pfannenstiel is aware of, the State Fire Marshal Office has developed some PV installation guidelines. For good or for bad, there are still some problems with these guidelines.

However, a week from this Friday on September -- or October 10th, the State Fire Marshal's Office will be conducting a workshop to kick off the development of regulations. Using as a basis of those regulations, these installation guidelines.

My initial problem is we're heading towards net zero energy by 2020. We're going to need to be able to install about a 4.5 to 6 kilowatt system for PV on your standard 2500 square foot house.

We're going to need every bit of roof area possible. We understand that in southern California two out of three installations were being rejected prior to the guidelines. We

understand there's still some problems.

Here's the problem, though. We don't see this as an issue in northern California for some reason. In northern California the fire service already views getting on top of a residential roof as a hazardous situation with or without PV.

For some reason this seems to be primarily dominated by the southern California fire service. We hope the Energy Commission will participate very actively in this workshop and in the development of the regulations by the State Fire Marshal's Office.

With that and cap-and-trade that could really help us move forward with PV installation.

Unless there's any questions that concludes my remarks. Thank you.

PRESIDING MEMBER DOUGLAS: Thank you very much. The next card is from Sue Kateley, Executive Director of California Solar Energy Industries Association.

MS. KATELEY: Thank you, Commissioners.

ASSOCIATE MEMBER PFANNENSTIEL: Hey, Sue, good commercials.

(Laughter.)

MS. KATELEY: Talk to my people. If you ever get a chance to be on a commercial, don't do it.

(Laughter.)

MS. KATELEY: And no on prop 7.

(Laughter.)

MS. KATELEY: Thank you, Commissioners. I want to first say thank you, Commission Staff, for the work that you're doing on modifying and simplifying the shading. That's been a major concern for CalSEIA, the California Solar Energy Industries Association.

For those of you who don't know us, we represent about 200 solar companies in the state, manufacturers, contractors, distributors, engineers including BEW Engineering. Good to see their work out here. And we represent both small and large companies. And so we actually have a lot of different perspectives that we can find and bring to your attention, which I think makes a better product for achieving our energy efficiency and renewable energy goals.

I want to go through a couple of things that we discovered in doing some analysis using the current calculator, some of the new

information you've presented I haven't had a chance to look at.

But one thing that we did was using the current calculator and the shading methodology that's approved, we found that we could get about five different results on performance level. We found that we could not get consistent results using the exact same site, exact same shading.

What that means in the marketplace, and we're pretty much talking in the case of CalSEIA's membership, we're talking about existing homes, existing commercial buildings retrofit. So, we're not really in -- we've got a few members that are in the new construction market, and I think that my colleague from BIA can deal with the new home issue better than I at this point. But we found that we could get different results.

We also found that I don't know how many of you are familiar with the vent pipe, the drain waste vent pipe that comes from the plumbing stack in the house. We also found that the plumbing stack was just typically no more than a two-inch pipe, usually about 18 to 24 inches tall, was shading a solar panel to more of an extent than a tree that was located 15 feet away.

Bummer? Is that what I heard?

(Laughter.)

MS. KATELEY: Yeah, that's what I said. We think that in a competitive marketplace -- okay, I'll get rid of my friend here -- one of the things about that is that if you can come up with this kind of variation, if Bill and I both owned solar companies and we were competing and bidding on the same job. And let's say he knew how to game the calculator better than I did, or maybe I just did it more honestly than he did, that causes a real problem in the marketplace when you're trying to convince a person to buy solar.

Especially if his shows that he can get a $10,000 rebate and the best I can get is an $8000 rebate, and the only difference was the way we calculated shading.

So, getting more information about how it's supposed to be done in more detail will be very important.

And then very much additionally is looking at the problem in the algorithms where a vent pipe causes more of a shading problem than a tree. We think that's an important issue.

Let's see. This is also a very

important point. One of the things that we are doing right now with the CSI program, the California Solar Initiative, is the solar companies put rebate applications in to the utilities. And then we go out and we get permits. And if we're lucky the fire department lets us move forward.

This is usually a process for a typical residential installations. So that you know, it's six months of administration, it's two days of installation. Very important to understand that.

So, what we have a problem with is that when we put our rebate application in, if there's a new calculator at the end of the process when we're looking to file an incentive claim form, I've entered into a contract with Bill that I'm going to install the system for $40,000 with a $10,000 rebate, because I've gamed the shading.

And --

(Laughter.)

MS. KATELEY: Bill knows. So, one of the problems you have is that the calculator changes at the end. And the incentive that was $10,000 is now $8000. I can't go back to Bill and say, you need to pay me another $2000 more.

The solar company has to eat that difference. And we think that's a lot of risk. So one of the things that we think ought to be done is that if you've got an incentive claim form or a rebate application in, then if you have to modify your incentive claim form at the time that you're submitting the rebate application, you should use the same calculator you were using at the time that you submitted the rebate application.

This is also important because it's very typical for us to revise the equipment. When we did our bid at Bill's house, we said that we were going to use Sharpe modules. Sharpe modules are wonderful, but it turned out that they weren't available when I went to do the install because it took six months to get the permitting done. So I need to use SunPowers instead. You need to file a new incentive claim form.

So we get down in the weeds in this stuff and that actually does affect the rebate levels, and it affects the relationship with the contractor and the customer. We have a little reputation problem because when we make these changes they think it's our fault. They can't

believe that the state government actually required us to make these changes. And they don't believe us.

There's some things about the HERS rating. We've very concerned that the HERS rating could cause us to do even more calculation runs. We have to keep redoing and redoing. So when a HERS inspector goes out we might have to rerun the rebate calculation one more time.

So we're looking at things about the administrative cost of compliance, much like what Bob said about the simplification. In fact, when we were at the New Solar Homes Advisory Committee meeting about a year ago, a number of problems with admin issues were brought up.

And I don't think anything, at least, has been made public on how those things have been fixed. But it would be really great to have a checklist of the things that you're working on and the timeline on when you expect these things to be done.h

And if any of those issues were major barriers you might want to consider not implementing the calculator changes. You might want to delay it until these things are

straightened out.

Handbook. I want to talk about this. There's a statement in the about field verification. It says that a sampling of field verification has to be done by either a third party or HERS rater.

It's ambiguous in the handbook who pays for that service. I think that the person, entity that pays for it is the utility. Yeah, it's Chuck. I think it is, but we think that should be clarified in there.

We also think it's important that there be some language added to the handbook that points out that the shading tools often have a range of error, operator error, a range of performance error.

Because what happens is if you hold the tool like this, or like this, you will get a different result. Or if you stand in a different place. A salesperson or a technician might have gone on the job site and actually taken a measurement of shading. Inspector comes in later, does the exact same shading method but stands in the same place, they will get a different result.

We think that the handbook needs to be

clear that it's possible to get different readings from the shading tool just by having a different operator, not doing anything wrong. You'll just get a different result.

We're afraid that that, again, will affect the rebate results. So we think that it's very important to be clear about these effects.

You can imagine how I felt about having to plan for unplanted trees and unbuilt buildings. I think that my comment on that would be that there really -- there's no consequences articulated in that. Is that a perpetual issue? Or is that something that, you know, if I forgot to ask Bill that he was -- whether or not he was planning on planting a redwood, is there a consequence there? There's nothing articulated in the handbook.

And I do think it's unreasonable to have to figure out what the neighbor's plans are going to be.

There's another issue that keeps coming up, and I'll just go through these very quickly, and then the rest I'll do in comments and writing.

There are problems with having a lack of products listed in the current calculator. Many

of the solar companies cannot even practice using the calculator because the products that they use are not listed yet.

So we need some kick-the-tire time. We need to get some web-inars done or some seminars done with the CEC Staff to actually go through this with contractors. And that way the contractors can give them feedback on how the calculator works in the real world, not just in the office in the theory.

We also have an issue with rebates for systems when customers want to go back and increase size of the system. We have a situation right now in the current program where a significant movie studio, the one with the rabbit not the mouse, bought a PV system last year. And they had enough money in their budget to buy a pretty good sized array. And then they bought an inverter.

And the inverter was sized to accommodate more PV modules. They had the budget to buy this now, they bought it. Then they got to the next year's budget and they said, okay, now we want to finish and put the rest of the modules on. They can't do that, the program excludes that.

They cannot alter the system.

And it's because of the interpretation of new equipment. And I think that it would be useful to have a discussion on that further and try to deal with those, you know, good will, good diligence kind of things where you were just, you know, hamstrung by a budget issue, not hamstrung by the program.

Non PV. I'm extremely excited that we're starting to call it other PV instead of non PV. That's progress. And I'm looking forward to seeing the PUC and the CEC get that program rolling. We've got product out there. We've got people out there. We've got market out there. We can't get to it. We'd really like your help in getting that rolled out quickly. And some certain date.

And the last thing on the calculator, I'm not sure how the calculator handles the micro-inverters. This is new technology that goes on the back of the module instead of single inverter, and that supports an array. I want to make sure that the calculator supports the new technology that's coming on the market and doesn't inhibit it.

The comments that I made about the shading calculation I'll file in my written comments. And you can see the analysis that was done. And you can see how the vent pipe does the shading.

Really like to encourage having more conversations with the installers who are actually using the calculator so that you can get their feedback. They're pretty upset about it. And I'd like to minimize the feedback I'm getting about it.

Thank you very much.

PRESIDING MEMBER DOUGLAS: Thank you very much. Questions?

All right, we'll go on to Ralf Muenster then.

MR. MUENSTER: Good morning. My name is Ralf Muenster; I'm from National SemiConductor. First of all I want to commend the Energy Commission for their work on the impact of shading. That's great. That matches what we are seeing. And it's a good starting point.

What I wanted to share today with you is some analysis and some studying on the impacts of shading on PV systems that we have done.

For people that don't know National SemiConductor, we are an almost 50-year-old company based in Silicon Valley, focused on energy efficiency and optimizing systems on IC level. And we think that optimizing energy efficiency and performance go hand-in-hand.

So, coming back to our study in this respect, this is a common PV system, as you can see, today. And it's built out of panels that are in series, and then series strings to the (inaudible) up.

Typically on the outside of that system you have an inverter that transform the dc voltage to ac, and has some intelligence to optimize for the performance.

What is happening if you have some nonuniformity in the system like showed here, you have one panel shaded, you get a disproportional effect of that nonuniformity onto the whole array.

So in this case -- the current in that particular string which could contain anywhere from six to 15 modules, could be pinged. Or in the better case, the current is rerouted through one of the bypass diodes. And then the voltage of that panel is lost, which causes a mismatch on the

system level. And that causes a disproportionate impact on energy harvest.

Let's go to the next slide. So this is basically a case study done from the INES Institute in France. We looked through many of the academic research that has been done on the impact of shading. It's amazing, there's a lot of information out there. But very little is very specific to the particular impact on shading.

We heard the vent pipe, and I can jus echo that if you see here on this, different shades on a array of nine panels. And they are differently connected. In the second column they are all connected in series to an inverter. And in the second column, in the last column to the right, they're connected in a three-by-three configuration.

The first column shows the shade. And you can see that, for example, the second example, a 2.6 percent shade from a pole can have a 16.7 percent impact on the energy harvest. Or, in a different configuration, 7 percent. So it's really supporting the work that the Energy Commission has done.

And the shade impact factor, too, is a

good starting point. As you can see, most of these examples the shade impact factor is greater than 2, which matches with the data that Patrick has showed, and particular on limited amount of shading.

Let's go to the next slide. This is some data that we have taken jointly with customers testing our shade mitigating technology that we're introducing. And it shows, this is an array of 14 panels, SunPower, 215 watts, and the state of the art -- inverter.

You see the shade on these 14 panels, at different times of the day. And then you can see that 13 percent of the 14 panels were shaded, about 44 percent of that energy harvest was lost. The last column shows what can be recouped by a -- solution.

And you can, as the sun moves across the array we see the shade becoming smaller and smaller. And even at 2 -- 3 percent shade on the array, we have a 25 percent loss in energy harvest. That's exactly same problem that we had with the vent pipe.

So, next slide. That's the last slide. So this is an example of how tomorrow's PV system

could look like with shade-mitigating hardware. In this case we have circuity on the panel -- that optimizes the energy harvest of that individual panel. And then also maximizes the energy flow through the system.

That could be a technology like we have at SolarMagic which works with today's systems and today's inverters. Or it could be the micro-inverter solution that was just mentioned earlier, the panel -- electronics.

So, again, thank you for your work on recognizing the impact of shading. And thanks to the Commission, the CEC.

PRESIDING MEMBER DOUGLAS: Thank you for your comments.

Our next three speakers are on the phone, beginning with Heidi Kate of Sun Light and Power.

(Pause.)

ASSOCIATE MEMBER PFANNENSTIEL: Is Heidi there?

(Pause.)

MS. SPEAKER: She's on the line; she's just not commenting.

ASSOCIATE MEMBER PFANNENSTIEL: Well, if

she's not available we'll move on to William McDonald.

(Pause.)

ASSOCIATE MEMBER PFANNENSTIEL: Jeffrey Collin?

(Pause.)

MS. SPEAKER: He's not responding, either.

ASSOCIATE MEMBER PFANNENSTIEL: All right, we're back to the room then. William (sic) Nishikawa from SolFocus.

MR. NISHIKAWA: Thank you very much. My name is Warren Nishikawa; I'm the Product Manager at SolFocus, a concentrating photovoltaic company, or CPV. We're based in Mountain View, California. We have over 120 employees.

We've developed an innovative solar technology in the Silicon Valley, and we've deployed test sites in California and over a half a megawatt in Spain.

For the first time this year on September 19th CPV became listed on the CEC's eligible equipment list, which marks a milestone for our industry. These first CPV panels were listed under the category of other solar electric

generating technologies.

Using those proposed provisions that we're talking about today in the SB-1 handbook, these provisions are critical to reduce the barriers for nontraditional new solar electric technologies to be able to participate in California's solar initiative and other SB-1 incentive programs, along with the silicon and thin-film technologies already included.

We support and applaud these provisions in chapter 2, addressing the other solar electric generating systems under the section of solar energy systems definitions. The proposed language allows for broader technology participation.

The CEC's recognition that new and innovative technologies are available in the California marketplace, and this provides consumers, project developers, and businesses additional choices to meet their solar energy needs.

SolFocus has worked closely with the CEC to list the CPV product after attaining rigorous safety certifications for its CPV product. And increasingly California customers, businesses and project developers want to install CPV technology

and be able to participate in the CSI program.

One thing we have noted in chapter 3 regarding the eligibility requirements, currently we recognize it is limited to performance-based or PBI. We'd like to, in the future, see this expand to the expected performance-based initiatives or EPBI.

Many of the customers want to try new technologies before installing greater capacities. These initial installments can be under 50 kilowatts. This will allow customers to try out the new technology as technology adopters. So the choice of EPBI or PBI is important.

We believe that the CSI program was designed to incentivize new technology deployments in allowing those end users different incentive options to finance these solar systems.

I'd like to thank the CEC for recognizing CPV technology with its high growth potential as an industry in the California marketplace, which will ultimately support the RPS initiative of 20 percent renewables by 2010.

In particular, Patrick Saxton and Joseph Fleshman have provided their leadership to define the requirements of other solar electric

generating technologies like CPV.

And the CEC listing does recognize the CPV technology as an industry. And the timely passing of these SB-1 provisions is critical during this current growth phase, this very rapid growth phase in the solar marketplace in California.

CPV can provide safe and effective cost solutions to augment silicon and thin-film technologies in the California marketplace which is expected to be over a gigawatt in 2012.

Thank you very much.

PRESIDING MEMBER DOUGLAS: Thank you. Our next speaker will be Dain Hansen. Dain Hansen.

All right, we'll go on then to Larry Albert. All right, Larry Albert, going once, going twice.

Nicolas Chaset.

MR. CHASET: Yes.

PRESIDING MEMBER DOUGLAS: Very good, thank you.

MR. CHASET: My name is Nicolas Chaset; I work for the California Public Utilities Commission. And I think I just want to discuss

sort of the process by which we worked with our colleagues at the Energy Commission.

We've made a lot of progress. We've worked on a lot of very important issues over the last year or so. So, first of all, let me just express my gratitude and thanks for the openness of the process.

And specifically with regards to the extension of the SB-1 guidelines from January 1st to July 1st. I think it's going to be an important period of time for all parties to better understand the implications of these changes, and make sure they're implemented in the most effective way.

So, that said, specifically the major areas we worked with the Energy Commission on were the calculator, shading requirements, the inspection requirements and tree height calculations.

It's with regards to the calculator we're very appreciative, I think, of the removal of the shading per string in the calculator. That was seen as a real barrier to the CSI because there are larger systems, 30, 40, 50 kW systems that are taking an EPBI incentive. And with the

removal of that requirement the calculator, those 15 requirements are going to be able to much more realistically be applied to our calculator that is developed.

Again, with regards to shading I think we've done a very -- done a lot of interesting work on that issue. And specifically the development of these new shading requirements has really pushed the manufacturers of shading measurements tools to promote more robust analysis. I think that we're all going to be well served by having better tools out there in the marketplace.

Again, with regards to inspections, the proposal out there now, the modification, the recognition of our concerns is much appreciated. And I think the inspection requirements now that represent NABCEP processes are going to promote higher quality installations. And that's an important goal.

And finally, with regards to the tree height measurement I still think there may be some work to do with regards to defining the heights of trees and the use of lists of different tree species. But I think we are working towards a

good resolution.

And sort of those are the four major elements. I will also say that one area that was added to this document that we are looking forward to more collaboration is the audit requirements.

We did have a meeting with Valerie Richardson of KEMA, who did give a description on sort of the initial process for developing the audit requirements. I just would like to say that we have recently passed a $40 million measurement in evaluation plan that includes significant auditing of systems.

And so we just want to make sure that there's no duplication of efforts, and that ratepayer dollars are spent effectively.

With that said, I think, again, I applaud the collaboration and I look forward to continuing to work with the Energy Commission to make all incentive programs more effective.

PRESIDING MEMBER DOUGLAS: Very good, thank you very much.

The next speaker will be Kirk Mulligan.

MR. MULLIGAN: Thank you. My name's Kirk Mulligan. I'm from San Diego, Clean Power Systems. I wanted to comment specifically on the

calculator and how it relates to climate zones and production of systems.

Specific examples we've come across in San Diego, we brought up an issue that the city has two climate zones, but unfortunately the calculator defaults to one climate zone. And the difference in those climate zones actually gives a substantial increase to incentives. And we are forced to be able to use climate zone seven, which is the larger one, versus the correct one, climate zone 10, because it is a default climate zone.

We obviously don't feel that that is fair to the customer, and so we don't want them to have to pay the increase in costs. But we feel that we should not have to pay it, either, because it is an error in the calculator, itself.

So I don't know if you guys have come across these specific examples, but this is just one of the problems with the calculator.

In addition, the production for the systems is misstated, as well. Some of the systems that are installed, let's say, in La Jolla, are getting production numbers higher than systems that are installed 20 minutes inland.

If you've ever been to San Diego, every

been to La Jolla, you have a marine layer and we all know that that's not reality. And we actually do have systems with numbers supporting that La Jolla should not have more production.

So, in addition, I also wanted to make some additional comments on the time that it takes our administration staff to put together the paperwork for this process. Typically it's between three and five times longer through this process than through the CSI program.

The additional paperwork and administrative work is going to cost us more, so obviously that's going to get passed on to the customer. And we're trying to reduce costs, not increase them. So I would encourage you guys to really try to streamline the process as much as possible.

Also not all solar panels are put on the calculator, and so it makes it pretty difficult to go out and offer customer a product when it's not on the calculator.

So if we're going to implement this calculator we could run into an issue like we did in '07 where the integrators took a lot longer to ramp up because of the complex program.

You know, we may be able to understand the CSI program and the EPBV program, but the CEC PV calculator has been an ongoing issue for us. And I know that is a problem issue within the industry.

So, that being said, that's it.

PRESIDING MEMBER DOUGLAS: Thank you.

MR. TUTT: Karen.

PRESIDING MEMBER DOUGLAS: Yes.

MR. TUTT: May I ask you a question, sir?

MR. MULLIGAN: Yes.

MR. TUTT: When you talk about three to five times longer than the CSI program to do the paperwork for the calculator, can you be more specific? Where is that time being spent? Is it in shading; is it in energy efficiency; is it in something else?

MR. MULLIGAN: It's throughout the whole process. So, --

MR. TUTT: The whole process.

MR. MULLIGAN: Yeah, the whole process. So the paperwork will start, and then we have to, obviously, incorporate a HERS rater, which some of the builders are not used to being, you know,

calling on that. So we have to then step in and manage them to be able to go out in the right timeframe to be able to do whatever they need to get the paperwork done.

In addition, you know, when we submit paperwork and it comes back, like the specific examples I just gave you, we're having to re-do the paperwork to file for a correct incentive amount.

So when we factor in the Title 24 requirements, which, you know, I'm all for, but it's more time consuming for us, more time consuming for the end user, as well, to generate this paperwork and then to go through the entire process. That ends up running about three to five times longer.

MR. TUTT: That's great. Obviously anytime it takes a significant amount of time just to file paperwork it's of concern to us, as well. So if you could be specific in your written comments as to what might be changed to reduce that burden, that would be wonderful.

MR. MULLIGAN: Will do.

PRESIDING MEMBER DOUGLAS: All right, next is Sara Birmingham from The Solar Alliance.

MS. BIRMINGHAM: Hi, good morning. My name is Sara Birmingham and I'm a representative of The Solar Alliance, which is an alliance of PV manufacturers, integrators, installers and financiers. And we are dedicated to working on state policies.

And I first want to take a little time just to appreciate the efforts that the staff has put into these recommendations. I know it's been a long process, and I know that they've been very open to communication throughout the year because I've met with them a number of times. And I really appreciate that opportunity to come in and talk with them.

And I also just want to state in particular that I appreciate some of the flexibility that they've shown, particularly in extending some of the timeframes.

And I also want to call out Patrick Saxton, in particular, for his excellent work in outreach and communication with the manufacturers to let them know about the module certifications standards coming up. And also to have outreach to the manufacturers to let them know where their particular panels are in that status. He's been

doing a fantastic job and I just wanted to show that appreciation.

I think, as many of the other speakers have said, simplicity is really important in this program. And I think we all remember when the CSI program first started in 2007 there were some major roadblocks.

And the program administrators and the CPUC have worked very hard in improving the program and the process. And I think that these improvements have really helped the program quite a bit from a use-ability standpoint and a simplicity standpoint.

And as we make changes to the program we really need to insure that any of those changes that we're going to make is measured against the market disruption that it will cause. And we have to make sure that if we are going to go through the time and effort and administrative budget to make changes, that there's a very measured benefit at the end that makes it worth those efforts.

And in particular I want to talk some about the calculator. Recommendations: Anytime you make a change to a tool or calculator there's a lot of expense, effort, and also training on the

side of the installers to make sure that they're comfortable with that new calculator.

And I just have to back up for a second and ask the question, what problem are we trying to solve here. When we look at what SB-1 stated, it stated that we want to develop guidelines that insure that the incentives reward summer peak production.

But when you look at the CSI data, and this is the investor-owned utilities CSI data, it shows that over 98 percent of the systems that are in the program have a design factor of over .96. When I look at that data it looks like the program is working pretty well. People are making sure that their systems are performing, and really optimizing the performance for that summer peak.

And those very very very few minority, that 2 percent, that did have a design factor of less than .96, I think they made that choice to move forward and do that. And they made the choice that they would get a lower incentive. So they have the prerogative and the choice to do that, but the ratepayers are not paying for that choice. And they are receiving a lower incentive.

And I'm very very concerned that this

change is going to be incredibly burdensome on both the program administrators and the installers. And again, I'm convinced that we have a problem here in the current program.

The CSI program was created to transform the market and decrease the cost of installing solar. By creating an additional administrative burden, I think we're heading in the wrong direction.

And so because of that I would like to request a blanket exemption for the calculator requirements for the IOU service territories in the CSI, and allow them to continue using the current EPBV calculator.

One other slight request that I have is on the publicly owned utilities recording requirements. I know that there has been some, there was a -- I think it was in June of 2008, the POUs were going to submit a report in to the CEC. And I would just ask that if there's someplace on the web that we could access those reports. Or maybe a consolidated summary of how the programs are doing. And I apologize if it's on the web; I looked for it, I couldn't find it.

And so I would just --

ASSOCIATE MEMBER PFANNENSTIEL: Can the staff answer that? Is that available on the web?

MS. ESTERNON-GREEN: It's not currently available yet. We're working on that. Our priority is to get this guidelines in place. There are reports that are available by the POUs on their own websites. So you can access their reports, you know, separately.

But I wanted to mention that we're working on the consolidated summary.

MS. BIRMINGHAM: Okay, great, thank you very much.

And that's the end of my comments. And again, I'd like to thank the staff and the Commission for their hard work on these recommendations.

PRESIDING MEMBER DOUGLAS: Thank you. Next up is -- I'm having trouble reading the handwriting, but Christopher Nasys, REC Solar, Incorporated.

MR. NASYS: Thank you, good morning. I'll bring a taller podium next time.

(Laughter.)

MR. NASYS: My name is Christopher Nasys; I work with REC Solar. We are a

California-based installer in both the residential and commercial segments.

I'd like to, first of all, echo both Sue Kateley's and Sara Birmingham's remarks from CalSEIA and the Solar Alliance, which are very much in line with what we're seeing out in the trenches and the field everyday.

We, of course, work very closely with both those organizations, as do many other very active installers. Active installers being defined as those who use these tools and use these procedures a lot.

So, with over 1000 individual systems in process this year, so installed or in progress, we definitely feel the effects of these changes quite severely.

In a theoretical world time may not be assigned a value in favor of a focus on results. But in the real world, of course, time equals money, so it's important to look at the impact of that. Not just in the paperwork and administrative burden, which in our written comments we will flesh out further, but just in the simple act of the calculator usage, the CEC calculator is very time consuming, and in essence,

expensive to run.

We did a polling within our own sales organization of the time it takes to run the current EPBV calculator, which is about one-and-a-half minutes, versus the average CEC calculation, which took approximately five to ten minutes. That's a factor of four to six X more.

So in an organization with 25 salespeople it's important to recognize that we're running calculations for prospects, as well as deals that actually end up getting sold. I would say this industry, at this point, has no better than a 20 percent close ratio, which means for everyone who actually moves forward, we're also talking of four people who are not.

For most folks we're running between three and seven iterations of a system with various equipments, sizing and layout, all demanding different calculations.

For an organization of 25 salespeople running a calculator 15 times per day per salesperson would require 22 manhours per day additional.

That, in essence, would require us to hire approximately three additional salespeople to

do the same exact amount of work, which would increase our cost of sales by about 12 percent.

To quantify that, cost to the company would be over $200,000 a year. So there's no free money in the world, especially in an industry whose margins are already so compressed. So, the folks who end up paying for this are the people that do go solar.

Now, the CEC calculator has some positive attributes. It's definitely not perfect. The shade calculations are, I would say, particularly onerous in the sense that they expect installers to be arborists. Predicting future tree growth definitely takes us out of our core competency, and likely will not have the intended results.

In addition, if the program is closed and then reopened, all the information has to be re-entered to provide another rebate calculation to the customer, taking additional time.

While the CEC calculator does use an hourly analysis, which is a good thing, it only recognizes 16 climate zones. So similar to the observations of the gentleman from San Diego, it's not accurate enough considering that within some

of those climate zones some areas would have a marine layer and some areas would not.

In essence overall, having such challenges in the -- this would be mainly the pre-sale and immediate post-sale aspect of this industry, it diminishes our ability to set accurate expectations with our customers.

At this point our industry is still very much in its infancy. Our success is very subject to small changes in incentive. The incentive packages overall are not compelling enough that people are flocking towards them. And having any sort of uncertainty or diminished incentive will flat out result in people not wanting to go solar and sitting on the sidelines, which, of course, is not what we're trying to encourage.

Unless there are any questions, that concludes my commentary.

MR. TUTT: Just one question. You mentioned that expecting installers to be arborists is outside your normal realm of expertise. Just wanted to call your attention to the proposal that we have in front of us which indicates that program administrators can waive, for existing homes, the expectation that you take

into account future shading. Are you aware of that?

MR. NASYS: I did see that. I just want to make sure that those recommendations are heard loud and clear; it's very important.

PRESIDING MEMBER DOUGLAS: Thank you.

MR. NASYS: Thank you.

PRESIDING MEMBER DOUGLAS: Next is Chuck Hornbrook from PG&E.

MR. HORNBROOK: Good morning. My name is Chuck Hornbrook; I'm the Senior Manager for Solar and Customer Generation at Pacific Gas and Electric.

First, I'd like to echo many -- everyone else's comments, first the opportunity to speak for the CEC and the Commissioners' time, as well as the staff's time. There's been a great level of collaboration between the IOUs, our colleagues at the CPUC, as well as the CEC Staff. So we'd like to thank everyone's opportunity to do that.

And specifically we'd like to mention the changing, potential changing to the July 1st date. That's very critical, particularly given the investment tax credit, which I've heard, via the Blackberry, will not happen this year it

sounded like. As well as looking at and changing the shading component. We feel that those are very important. We thank you for your consideration of those items.

Overall, given with PG&E's territory that we have 70 percent of the CSI applications, we're always looking for ways to simplify items and reduce costs out of the system. And I'd like to thank the comments that came before us, really providing the view from the trenches about what has to go on. It's very powerful, and we thank the installers from the different areas, in doing that.

Also I think it's very important that we realize that within the State of California we represent roughly 80 percent of the solar installations in the United States. And that what we do here is very critical for other policies and programs that are implemented across the country.

And finally, we'd like to just make a few comments on some of the sections. First is regarding the new audit section, to echo Nick Chaset's comments from the CPUC, we want to insure that there's no duplication of work between the work of the CEC and the CPUC in regards to the CSI

program audit.

Again, it's very important for us to use our customers', the ratepayers', dollars effectively; and we appreciate your consideration on that.

In regards to the field inspection sample size, we'd like to -- and this will be more in our written comments -- but understanding and clarify why the CEC chose one out of seven, as well as why investigating requirements for PVI systems, but while PVI systems probably should be audited, given that we already are getting their production from them.

And finally, on the energy audit disclosure, we were just wondering, again, in the effort of simplifying the program, and insuring that the costs are minimized as we are looking to make as many things electronic. So we're hoping that the CEC will take into consideration electronic signatures, or checkboxes that people understand that their audit disclosure versus a wet signature. And that wasn't explicit in the guidelines right now.

Other than that we'll have more specific comments will be filed on October 6th. And I'm

available for any questions.

ASSOCIATE MEMBER PFANNENSTIEL: Yeah, I just have one. Have you talked with your energy efficiency people about the incentives for the tier, specifically the tier two when the Title 24 standards are increased? Do we know what your opinion, what PG&E's opinion will be on using the incentive dollars to make sure that there's sufficient money for those higher incentive levels?

MR. HORNBROOK: On the energy efficiency side or on the --

ASSOCIATE MEMBER PFANNENSTIEL: On the energy efficiency side.

MR. HORNBROOK: No, not specifically. We have been working with our energy efficiency colleagues on the 09-11 filing. But for the new homes construction -- or new residential construction, I should say, or commercial, no. But I will --

ASSOCIATE MEMBER PFANNENSTIEL: That's going to be very important to us. So, would you see what comments you can provide us in your written comments on that subject?

MR. HORNBROOK: Absolutely. Thank you

for your time.

PRESIDING MEMBER DOUGLAS: Thank you. Next we have Polly Shaw from SunTech.

MS. SHAW: Good morning. I'm Polly Shaw, the Director of External Relations at SunTech America. We are on the board of Solar Alliance and also Solar Energy Industries Association. And I was the former CPUC Staff Lead for the California Solar Initiative.

First I'd like to applaud the CEC's intent to insure accuracy and ratepayer protection. I respect the CEC Staff greatly, especially Bill Pennington, with whom I worked for many years on building standards and energy efficiency.

And I appreciate the challenge of trying to make consistent these broad solar incentive programs around the state. It is quite a task that SB-1 asked the CEC to do.

I'd like to focus my comments only on the incentive calculators. And I'd like to ask, like Sara Birmingham, please do not require the CEC calculator or the calculation factors on the CPUC CSI program.

The fact is that both calculators

satisfy SB-1 by protecting ratepayers' investment. The CEC calculator approach may be better suited to new homes because of the designing phase and the interaction of builders in that design.

The CSI calculator may work better with existing roofs that cannot change the parameters as much. But the point is, though, that the CSI calculator at the PUC is working. And it is simplified, and as Sara aptly noted, there have been two years of modifications back and forth, the stakeholders, to improve it and to make it easy and make it work well.

My concern is that the cost to the market in program disruptions and redevelopment are not worth the effort to prevent what potentially could happen, that there may be potentially a few solar installations that get remunerated while not being perfectly oriented.

There's been discussion about whether or not the CEC SB-1 guidelines are requiring the tool or the calculation factors. In either one, the only way to adapt the 15 factors is to adopt either this more cumbersome NSHP tool, or wholly recreate the PUC's calculation tool.

And so, like Sara Birmingham, I humbly

suggest that this may be a solution in search for a problem, trying to find accuracy. Sara already mentioned a number of reasons, looking at the current CSI applications, 14,500, seeing that there's very very few that are coming in at less than a .98 design factor.

I believe the CEC study from December 2007 also remarked that there was 1 percent or less of the installations that seemed to be oriented less than perfectly.

And I question the accuracy concerns. Especially in the larger context that when this goes into effect in 2009, or even 2010, that net metering, especially net metering under time-of-use, will have a greater impact than this remaining incentive level that's still offered in those years. That the difference of this incentive level will be smaller than the net metering benefit.

So, like Sara Birmingham and Solar Alliance, I ask that there is an exemption. If the Energy Commission will not consider an exemption, I'd like to propose that you consider this only in 2010.

And here's why. The California Solar

Initiative, the PUC, they're entering a measurement and evaluation phase that will be ready, I suppose, by mid 2009, not to put you on the spot, Molly and Nick.

This is a good time to add data or information requests that might reveal whether or not there's even a problem with accuracy of orientation that needs to be fixed. There's also a bunch of evaluations that have to be done, I think, mid 2009 in front of the Legislature.

And so let's wait until after this evaluation phase to see whether or not there's even an accuracy in orientation problem to fix before we ask the market and program administrators to make this very large change.

But also give both agencies time to work on their own calculators, with a very good recommendation that was just made, to incorporate emerging technologies to move to the market.

The one thing, in summary, is that I don't want -- I hope that we are not here in a year and after all the costs of changing the program and retraining the industry and so on, asking ourselves was it worth the thousands of dollars of making these changes for 200 small-

scale customers to get a difference of a hundred bucks or so, or two-hundred bucks.

Again, thank you very much for letting me add these comments. And I really look forward to seeing the results. And, again, thank you very much for your hard work and the report.

PRESIDING MEMBER DOUGLAS: Thank you. Next we have Molly Sterkel from the CPUC.

MS. STERKEL: Good morning, Commissioners and CEC Staff. I'm Molly Sterkel; I'm the Supervisor for Distributed Generation and the California Solar Initiative at the CPUC.

Before I get into the details of my remarks I'd like to remind us of sort of where we are in terms of solar both in terms of our program and in terms of the country.

SB-1 in 2006 authorized the solar program. It's the largest solar program in the country. And it continues a ten-year set of policy and programs here in the State of California for solar.

As a result of all these efforts, both SB-1 and the earlier efforts, solar is growing in California at 40 percent a year. At the end of last year we had installed about 280 megawatts of

solar. In 2007 we installed 81 megawatts of solar statewide.

And through September of this year, actually through data I was looking at last week, we've installed over 100 megawatts of solar in the IOU territories. And so by the end of the year we expect the statewide numbers will look very good and will be a significant margin over 2007. And we've already beat 2007 is what I'm telling you.

Since the start of last year we've received over 14,500 solar applications in the CSI program. Ninety-five percent of those applications are expected performance-based incentive applications. Those incentive applications tend to have a shorter time horizon than the large commercial projects. So, they tend to complete, you know, in under a year.

Nonetheless, we still have about 5000 applications currently in our pipeline. All 5000 of those applications would be affected by any calculator change. Because even if the application did not choose to -- nothing changed on the application, somebody would still have to look at it and decide that there was no need for calculation change. I'll get back to that in a

second. Let me just go on here.

So, anyway, as Nick mentioned, I wanted to thank you, add my thanks to the things already mentioned for the staff level cooperation we've had over the past year. We've been able to better understand each other and come to an amazing amount of improvements to the SB-1 guidelines. And Nick mentioned a lot of the specifics, and so I'm not going to go into those.

I'm going to take a moment to talk about the big picture and step back. As someone who oversee the program, I recognize that the guideline changes, as proposed here, have a lot of merit.

But I also deal with, on a daily basis, the need for the program to have certainty and continuity. The leading concern I get in everything that I do at the PUC is the big picture concern from the solar industry that they don't want us to rock the boat unnecessarily.

So, you know, on a daily basis people are always calling me and asking for this or that, or this or that, but at the end of the day, please don't rock the boat unnecessarily.

And at a time when incentives are

declining there's ITC continuation uncertainty. It's really worth us taking a serious consideration of whether or not we need, in every instance, to have statewide consistency on every aspect of program design. Or whether or not we can have different requirements statewide.

So, I think as Sara and Polly and others mentioned, what is the problem we're trying to fix, is a good question to step back and ask before this set of SB-1 guidelines is finalized.

The EPBV incentives, the EPBV calculator that we have today does incentivize south to southwest facing systems. It does incentivize summer peak producing systems. And it does appear to us that it is meeting the intent of the SB-1 law.

However, and we also note that net energy metering is a very large driver, in addition to the incentive offered to consumers. It's a very large driver of value. Net energy metering provides a long-term incentive to all solar customers regardless of whether they install the solar system south or upside down. It incentivizes them to really put solar in where it makes sense; where they're going to get a long-

term customer benefit every month on their bill credit when they see their bill credit.

So, just, you know, to add to the conversation here, and I recognize you have a very difficult decision ahead of you, just in terms of what is the significance of the administrative change, I want to take a moment and say I'm well suited to speak to what the costs are going to be in terms of administrative change.

We've tried, actually, over the past year, like how could we quantify the administrative costs of this calculator change. So here I am, I'm going to try to do it.

There's going to be a direct, if we do do a calculator change, and we do appreciate this work that we've done to try to minimize the impact and things like that, but if we do have one, this is what it's going to take.

We're going to have a direct administrative cost to the CSI program in the IOU territories, and direct IT cost to build a new calculator. So, we will build a new calculator to be commensurate with the revised guidelines.

I don't know exactly how much that calculator will cost, but there'll be a cost.

Now, there hasn't been an exact decision on exactly how to do it, and that's one of the reasons why we really appreciate the extension to mid 2009, because you can imagine if we haven't made an IT decision and it's late September, obviously we can't get that implemented by January 1st, just to speak very plainly.

There will also be a direct cost to those processing applications at the program administrators if there is any calculator change, because they may receive requests from those existing applications to reapply using the new calculator. And under our program rules they're allowed to do that.

There will also be a direct cost to communicate and train or teach about the calculator, as well as a direct cost to receive that training. So industry will also have to receive the training on the calculator.

And what is this -- you know, we have had calculator changes before. But the calculator changes that we've had up to now have not directly affected the volume of applications that we have in the pipeline today, nor have -- they've been tweaks to portions of the calculator that haven't

sort of uniformly affected every potential application out there.

So, with 5000 applications in the active pile, you know, while it might only take a minute to run the calculator, I'm going to guess that it's going to take more than a few minutes to look up all the data that you would need to run the calculator.

And, by the way, the CEC database has about 600 installers in it that work in the solar program. So, let's say every installer just got one guy or gal to spend an hour double checking that they knew how to run the new calculator, or knew the significant changes to be looking for in the new calculator.

And if everybody spent, at the, you know, if everybody spent about, you know, one hour looking at each one of their existing applications, just to double check, you know, should we re-run it with the new calculator, or should we just leave it as is. They have the chance to be grandfathered if they've made no changes to the system panels, -- they have the chance to be grandfathered.

So, anyway, that would be like -- if

everybody just spent one hour on each of those applications, and one hour for all the new installs, that would be like 5600 hours that would be spent just to figure out if you needed to change anything.

So, I don't know, I mean if you just had a rough estimate that it would be $100 an hour, that would be $560,000 that we know isn't going to bring down the cost of solar. I don't know who would bear that cost.

So, I hope that I'm grossly over-estimating the real cost of this, but I don't have any other way. I've been trying for the past year to try to communicate what would the magnitude or the meaningfulness of this change be.

And if I'm wrong, I mean please, the public comment will come in and they'll give you a better estimate than I can give you. But that's just my back-of-the-envelope calculation. So even if that's a five, you know, times too big what it should be, there's still a number.

The point is i's a real number. It has, you know, the REC Solar representative tried to give a different way of calculating the number. It's going to have some effect. That's my only

point.

So, finally, in my closing I'd just like people to also remember that it is a confusing world out there in terms of what governs solar in this state today. So we have the SB-1 law. Now we also have the CEC SB-1 guidelines. For our program there are CPUC decisions. There is a CPUC program handbook. And last, but not least, the program administrators do have their daily practice for, you know, how they actually answer questions on the fly every day in the real world.

So, for customers and for installers participating in the program, when they have a problem or question or they'd like to see something changed, they need to know where to go.

And the SB-1 guidelines, you know, slot in here in a slightly confusing way for the industry and for the public. And so I just want to say that the last thing, you know, there might be some changes to the guidelines right now and that's great. And I'm sure we'll be moving in the right direction.

But for the future we may need to consider the mechanism to revise the guidelines. Because when I get constituent complaints or when

I get installer concerns, I want to be able to say here's how you contact the CEC. This is an SB-1 guideline that we're complying with. And we'd like, you know, if we need to change it, we need to go to the CEC to change it.

Or I say to them, no, this is a CPUC handbook thing. We can change it in the CPUC handbook.

So, you see, we need to find a way to make it a simplistic way for it to be transparent to the public, how we work together. And when we see a need for a change that we're able to make the need for a change.

So, again, I thank you for all the time, and it has been a lot of time. And I really do thank you all for the time that you've spent this year. I've learned a lot about the program in trying to work with you over the past year. And I look forward to working with you in the future. And I look forward to the final guidelines. I know you're going to all be working hard on them.

So, thanks very much. And I'm happy to take any questions now or later.

PRESIDING MEMBER DOUGLAS: Thank you. Next we have Bob McConnell with Amonix,

Incorporated.

MR. McCONNELL: The podium is just the right height. Bob McConnell; I'm Director of Government Affairs and Contracts at Amonix. And thank you, today. I apologize for not being in a jacket and a tie today. After having worked at a governmental lab for 29 years, NREL, and then spent a year at Department of Energy Headquarters in Washington, D.C. in 2006/2007, I really enjoyed coming to California where I stopped wearing jackets and ties.

I wanted to talk about the concentrator PV for a little bit here. I've talked with Patrick Saxton about this, as an emerging technology. We have a particular concern as we try and fit within the CSI program. I'll try and make this short and simple.

I've been involved in standards for a long time. I'm the convener for the IEC standards for concentrator photovoltaics. We have an existing qualification standard. If you look at appendix 1 you reference it for flat plate, the 61215 and the 61646. We now have an IEC 62108. Standards people do this all the time, spout numbers.

62108 is a qualification and type approval for concentrator PV systems. The problem comes about as we try and work within the guidelines of CSI, and there's a number of companies. In fact, all the work for the IEC standards came out of the CPV industry. That started over ten years ago to come up with standards, because they knew this was going to be needed for the technology when it came to market opportunity such as we're being exposed to today.

The concern comes around to the safety certification, because right now there is not a safety standard yet. And Amonix tried last year to conform with the CSI requirements which had only a UL 1703, which is a flat plate standard, which was suitable for flat panels going on rooftops.

Amonix did not pass that standard. But the Amonix system is a 20-ton system not meant for rooftops. And it doesn't go on roofs, period. I mean it stands on a 20-foot pedestal and has a total of around 25 to 35 kilowatts on it.

So, in trying to meet with these safety requirements, I've worked with the UL folks. And they have come up with a standard for safety that

will soon be promulgated, the SU-8703, which is meant to provide a CPV standard equivalent to the UL 1703.

Now, just to make this -- summarize this, it's very important for project developers, and we have large projects on track. Amonix has licensed its technology in Spain. Ten megawatts of Amonix technology was installed in Spain last year. None of it was on rooftops.

So, it's just a plea to be very careful as you specify the guidelines and the requirements for qualifying for CSI. Because we have, I mean during the past couple of years before I came to Amonix, which was a little less than a year ago, I've been exposed to so many people who were interested in trying to move forward with solar technologies, and especially at Amonix.

And this uncertainty about how we qualify, how we meet the CSI requirements, can make or break a project at some very early stages.

So, I applaud your holding this meeting and trying to get clarity on all of these issues. And I and the other members of the CPV industry appreciate this opportunity to provide the written recommendations in the days ahead.

Thank you.

MR. PENNINGTON: Question.

MR. McCONNELL: Yes.

MR. PENNINGTON: I'm not sure if maybe you could provide some clarity about what is at issue with what's in the draft guidelines? What do you think is insufficient?

MR. McCONNELL: Well, I think one of the things that concerned me is there was no mention of existing standards for CPV. There was an early IEEE 1513 standard which expired in 2006 that could have served as a placeholder. 62108 exists. As I said, these are equivalent to the flat plate standards. The 62108 was published by IEC in Geneva in December 2007.

There needs to be some guidance and some specification within the document that I received there that could, for example, reference the upcoming SU-8703, just as the 1703 is mentioned in there.

Because right now these numbers and these standards aren't mentioned in there. So it provides an element of uncertainty. And also, I think there needs to be a distinction, too. There are concentrator PV systems that are designed for

rooftops and for those systems that may be appropriate.

But where you have restricted access for the systems, that's a different situation than putting something that's equivalent to a toaster, for example, putting a PV panel on a rooftop, to me, is equivalent to you need to have UL certification, similar to what a toaster has in a house. Simply for safety purposes.

So, because the concentrator photovoltaic system has sort of these two aspects to it, it can go on rooftops, some companies are developing those; and then for these very large projects such as our project in Spain where we have 400 of our systems, 25 kilowatt systems, that technology was installed.

You need an appropriate set of safety and performance and qualification standards for them. That's the point I was trying to make.

MR. PENNINGTON: Thanks.

MR. McCONNELL: You're welcome.

PRESIDING MEMBER DOUGLAS: Thank you. We have three cards left, and then I'll go through the names that we passed over earlier, so we're definitely going to press on and not break for

lunch at this point.

I'd like to ask the speakers be succinct and obviously please give us your comments, and please, also, don't belabor comments that have been raised before, that you feel were raised adequately.

The next speaker is George Nesbitt with CalHERS.

MR. NESBITT: George Nesbitt, CalHERS. We represent the independent, third-party rater profession in California. We inform, educate and involve HERS rates and develop them as professionals. We work with stakeholders to make programs simple, clear, consistent -- sorry -- achieve energy savings and protect the customer.

Two things I want to comment on. I want to comment on energy auditing and also the verification of systems.

On energy auditing, we have a strategic plan, we've got goals of 15 percent energy use reduction by 2015, and 40 by 2020. We need to make energy auditing credible; it's yet to be. We've got to stop subsidizing renewable energy systems on energy-wasting buildings.

We need to do both things. And on the

new home side we're obviously tying the incentives to higher levels of efficiency.

So, I mean because we, you know, with net metering and time-of-use rates, people who have excess production during the day often have an incentive to actually use more electricity. And I have a colleague who has a customer put in $150,000 system, and his electric bill went from $600 to $2000 a month now, because he apparently doesn't have enough excess production.

It's a shame the building performance industry's not here. They, too, would support greater energy auditing.

So on the verification of systems, we HERS raters currently are doing verifications for the New Solar Homes Partnership. Yet as far as I'm aware, in none of the IOU territories we are doing verifications on the existing building side. This is inconsistent, and I think it also undermines New Solar Homes Partnership, when in addition with the problems with New Solar Homes Partnership, the installer -- nobody sees the costs or the verification.

And so, you know, on a custom home the system's likely to still be installed if the

customer wants it. On the production builder side I think it helps drive the decision to the ultimate buyer of the home and less likely to be installed. It's a lot better if it gets installed upfront.

We, as HERS raters, have problems with the New Solar Homes Partnership program, as well as installers and developers. I've heard nothing but complaints. A lot of people, I think, have been shying away.

If it goes to the existing home we're drawing down those incentives quicker, installing less systems. We're not going to achieve our goals.

Some of the issues we've had as HERS rates with the New Solar Homes Partnership. CHEERS, just so Mike doesn't get worried I'm going to say anything bad about CalHERS. I'm with CHEERS.

I had to ask for my CF1 RPV form. They sent me a text file with everything slammed to the left. I could have maybe parsed it out and figured out what column went with what heading. I had to ask a second time. I got a nice, beautiful pdf. I could read it, I could use it in the

field. No problem with the field verification. Happened to be a Sun Light and Power job. No problems, no issues. That was a snap.

Try to go back and enter it on the registry. Well, CHEERS didn't tell me what I needed to know. I mean if I had a verification, no training, I had to waste my time on the registry to try to do it. And, of course the registry doesn't reflect all the energy efficiency items we're supposed to be verifying in addition.

You know, it was absolutely frustrating. And then Sun Light and Power is asking us for a CFR. Well, there were no HERS measures as part of the Title 24. So how can I give them a form that doesn't reflect anything I did. And then problems in ENERGYPRO, also spits out like a default EER verification, whether it was called for or not.

So, it's been a total mess. And my colleagues, everyone, you know, there's the trainings the IOUs do, apparently do not put emphasis on the importance of the Title 24 reports, the accuracy. You know, changes to those, any changes in the systems. Nor do they adequately describe what a HERS rater is going to do in the field to verify the system.

So, currently the guidelines give the administrators the choice to choose who does the verifications. I guess the -- I don't know who decided we can do it on a new home. I don't see why we can't do it on an existing home. What's the difference? The age of the house. New PV system.

Just a side note, when I applied for my first rebate back in 2001 it took like six months to even get an acknowledgement of the application. And so I've been through that process, and it's been pretty bad. And I know it's much harder on the New Solar Homes Partnership, you know. So simplifying, making it easier, quick, but while keeping it all credible. So I'll leave it at that.

Thank you.

PRESIDING MEMBER DOUGLAS: Thank you. Next is McKinley Barnes.

MS. BARNES: I, too, am very grateful for this opportunity today to make comments and to hear the changes that you have made and are considering.

One little followup to the last presenter person, I am aware of a job that didn't

happen because the NSHP was so onerous and there was so much misunderstanding about what was needed, from whom, at what time that this person who was a builder who was putting the system on his home, decided not to go forward with NSHP, decided to wait until he could go through the CSI program.

By the time he was finished with the house he was out of money and there's no solar on the home at all, period. So, simplification of NSHP would be greatly appreciated. And I think it would take some of the pressure off of CSI, because I do believe that the majority of single family dwellings are not considering NSHP as an option at all. They're all going CSI as far as I know.

I did a little calculation about the percentage that shade has, the impact that shade has on the CSI program currently just to get an idea. Because I agree with some of the other people that this seems like a pretty sizeable change in the shading requirements for the calculator.

So I took all of the EPBV applications that are currently in the CSI program, according

to the database, and I took away all the ones that had an over 1 design factor and everything that had no design factor. Somehow there was a number of those.

So, it was over 14,000 applications. I averaged the design factor. I got an average design factor of 0.94815165. So, .95 design factor.

And from my understanding there are four things in that design factor and that's tilt, azimuth, NOCT and shading. So if you just decided to divide that difference, you know, the difference is -- you know, you take 1 minus that number I just gave you; that difference is 0.0518484. Divide that four times since four things affect that. And you round up as 1.3 percent effect that shade has on the current over 14,000 applications in CSI that are going EPBV currently, which would then be EPBI.

So, I just kind of want to put it in perspective of what we're looking at in terms of shade and the impact of shade. It seems to me, from those calculations, it should be pretty small.

And some of the costs, I do rebate

applications and net metering applications and paperwork. And it's a pretty labor-intensive process currently. And I get a lot of, a lot of, a lot of complaints from my customers about the process. And why is this needed, and why is that needed, and I can't do this today, and oh, no, no, and it just gets put off and put off and put off until the last minute.

So, pretty much every week I want to quit what I'm doing. So it needs to get simpler because the rebate amounts are going down. So to change the calculator to a new calculator seems like something that would greatly jeopardize businesses in the solar industry right now.

So, to give you an idea of the impact of the cost of this, I know that there was something that says that the future shading would be waived. But it seems that there's still quite a bit of calculation of tree height and categorization of trees. And looking things up on a website, and then buying a book and categorizing things according to a book. And that seems a bit rough for an installer.

So that's one thing. Probably an arborist would be needed to be involved in that.

And that's $50 an hour from the one arborist that I spoke with.

And then to get that arborist from wherever they are to the job site however many times over. And most installers have work that they do not right there in their town, so maybe within a 50-mile radius. And so people are probably not all driving Priuses. That would be nice, but -- or electric cars. So there's an impact to the environment which I know that we're all concerned about.

So, maybe there's one trip to the installation site, possible installation site for a salesperson to look at it. Then maybe there's another trip for that same salesperson to go back with an arborist. The arborist is probably in their own car, so that's three trips in a car to someplace within a 50-mile radius of the office.

Then there's maybe a project monitor that goes and checks out the box and makes sure everything that has been calculated by the salesperson is accurate. So, then there's an installation trip; that might be two days.

So, what are we up to? One, two, three, four, five, six maybe. Then there's a permitting

trip, that's seven, to meet the permitter, you know, final building permit person, inspector.

And Then we have to go back possibly one more time to make sure everything complies with the paperwork we have submitted. So maybe that's seven trips. And then if it gets inspected, maybe eight trips.

So that's a lot of traveling in what may or may not be a fuel efficient car at a time when we're all trying to conserve energy. So, making one or two of those trips not be necessary would be helpful in terms of the shading change and the calculation change.

And for the 5000 applications that are currently in, this would have to happen, to some degree, to go back and recalculate. So maybe more than just an hour to look at it, you might have to actually make a trip there to do a calculation. And then come back and decide whether or not you need to change paperwork. And that's a couple more hours of change.

And then that gets mailed to the customer for signature and then back, so the electronic signatures would be helpful, too, that the previous person spoke of.

So, then there was some mention here about calculating three times per month for several of the months. Twenty inputs for shade instead of the 12. And I'm just curious as to whether the solar currently has an output for those calculations. Because that would be really helpful. That's a tool many people use. So I'm not sure where those extra three, or extra two for the summer months, comes from.

And --

PRESIDING MEMBER DOUGLAS: Is that a question that staff has an answer to?

MR. SAXTON: The tools don't currently provide that data, but manufacturers we have spoken with have indicated that at the point the guidelines are adopted, they would definitely make those outputs available.

PRESIDING MEMBER DOUGLAS: Okay. And I'd like to ask, as well, that you, you know, very much bring these questions forward, but please try to be concise in your examples. You have the opportunity to submit all of this information and more in written comments.

MS. BARNES: Okay. Real quick. Tier one and tier two energy efficiency things. Just I

have a question about air conditioning. A lot of places don't have air conditioning and don't need it, but that in the past has been something that has hurt their ability to meet the tier one and tier two guidelines because it is assumed automatically that that person will have an air conditioner later, and they will buy the worst possible one. So then the worst possible air conditioner gets calculated into the calculation. So I ask that that gets looked at. Maybe it already has, but I don't know.

One of your charts seems a little difficult for me to understand, where it has the 2 percent in different places for the shade impact factor. They both seem to be well under 2 percent. But just where the 2 is on your second makes it look like it's a very high impact on shade. So you might want to look at that calculation.

And when this calculator does go to, if it does go to, I would really hope it doesn't change at all. But currently the NSHP calculator -- is not on my calculator. It's something that only works on a pc. And Patrick Saxton can tell you that he and I have talked many

times because we've had to actually purchase a pc in order to use the calculator. And Vista is not a very happy operating system with the calculator.

And so we've had many hours of trouble. And I so appreciate Patrick Saxton and his time and patience with me, going over that several times.

So, again, I appreciate all the time that you've offered us all today, and for the opportunity to speak.

ASSOCIATE MEMBER PFANNENSTIEL: Ms. Barnes, you didn't say when you got up, who do you represent?

MS. BARNES: I do rebate paperwork. I represent several companies that I process paperwork for.

ASSOCIATE MEMBER PFANNENSTIEL: I see. And you mentioned at the outset that from your experience there's a lot more activity in the CSI than in the New Solar Homes Partnership. Do you understand what the difference is between the two programs?

MS. BARNES: I do. I've gone through both.

ASSOCIATE MEMBER PFANNENSTIEL: But that

the New Solar Homes Partnership is only available to new residential construction, not commercial and not existing.

MS. BARNES: Right. But this is -- single family dwellings are eligible, or at least they were. And I do go through the single family dwelling --

ASSOCIATE MEMBER PFANNENSTIEL: Not existing dwellings, just new construction.

MS. BARNES: Right, new construction single family dwelling.

ASSOCIATE MEMBER PFANNENSTIEL: Yes. Thank you.

PRESIDING MEMBER DOUGLAS: The next speaker, David Townley with Infinia Corporation.

MR. TOWNLEY: Thank you for the opportunity to address you today, Commissioners. I am David Townley, Vice President with Infinia Corporation, a U.S. company headquartered in Kennewick, Washington, producing a 3 kilowatt ac dish sterling solar electric system. More than 100 employees in Washington State, and we've opened our California office and will be serving the U.S. market from southern California.

I want to thank the staff, and, Patrick,

thank you very much for the work that you've done in interacting with us, for the language that is in the guidelines. Nick, thanks, as well, from the other side of the shop there.

Thank you, Commissioners, for addressing us as solar electric generating technologies, Even if we're the other guys, we appreciate that, rather than the former moniker, non PV.

I have three comments here but -- in chapter 3, component standards. The initial access to the PVI-only incentive is an appropriate place, I think, for a number of these new technologies to enter the market. It is a way for you to encourage new technologies coming faster to the market. Even smaller applications can choose PVI, so it's a place where we can enter the market.

And certainly as a footnote, though, you acknowledge that as we're moving forward, more information is gathered together, that can be considered in the future, the EPBI approach. And we appreciate that.

On page 13, though, we'd want to comment that you have requirement that we would like to change a word in. And it's significant to us.

But all new test protocols must be approved by the Energy Commission. You could change that to all new test protocols must be submitted for review by the Energy Commission.

The context in the paragraph, and certainly the previous sentence, is very appropriate and notes that the NRTL must determine any of the applicable existing standards, and the NRTL must then develop any new test protocols. And that's appropriate. The NRTL is the body required to make sure that any new testing protocols meet the safety standards that are being applied.

The CEC Staff should not then be inserted sequentially into that process as an approval process. But certainly you may want the staff to be aware of any of those changes. And so the language might be appropriate that you would have a requirement to submit it for review.

And finally, just a comment on the inverter. And, again, we're talking about components. But the inverter discussion there, just the recognition, and there was some staff confusion into the discussions, particularly about our technology and maybe others of the solar

electric generating technologies, that integrate the inverter right into the package.

So the package that's put into the field is an ac output. And under the PVI program, then, of course, just what's coming out is what's measured in inefficiencies in the internal uses, all of that is taken care of because you're measuring the final output.

And then there was the issue, though, of just the language, but the difference. The requirement says listing for listed. And that's very appropriate when you have an inverter that the company's going to sell to the public as a system. That's appropriate, it should be listed.

But a recognized system is a system that meets the standard, but is only incorporated into another system. In our case the entire system will have a series of tests done to multiple standards. Again, the NRTL has identified which of those standards.

But just making a point of clarification that what's written in the inverter is really applicable to PV, not necessarily applicable to some of the other solar electric generating, especially when they come as a packaged system

already.

The language that is there is good. We would be submitting those. But just the play on listing versus recognized, understanding that that difference is appropriate when you're doing an independent system.

So I want to thank you for the opportunity to make these comments to you and be glad to answer any questions. Thank you.

PRESIDING MEMBER DOUGLAS: Thank you. The last card I've got before I go back to the ones we passed over is Mike Backand, or --

MR. BACHAND: Bachand. I am Mike Bachand from CalCERTS, a HERS provider. I wanted to make sure that the -- I'm not up here to defend my providership or anything, but I am here to make sure that the Commission understands that the problems that were characterized by George Nesbitt regarding the CHEERS Registry are not in existence in our registry.

Our registry is fully functional. It works the way the guidebook says it should work. It does the things that it is supposed to do and handles the data flow properly for all of the various plan checkers and writers and people that

need to handle it.

And even though this is just me standing up here saying this, there's an unsung hero with a halo above his head up in your staff office up there, Kirk Pisor, who is your plan checker. And we talk with him two to three times a week. Things do happen, and things are not always perfect.

But I think that he would echo the sentiment that those characterized problems are not throughout the entire HERS system. He's been to our training, other staff, people have been to our training. Smita Gupta, another person with a halo, probably, up above her head.

They've been to our training and they have not asked us to change it, add it or inform us that it's inadequate in any way. So I just wanted to clarify for the Commission and the people that that's the case.

And we've also gotten a ton of help from Patrick Saxton on the data management and other things, too.

If you have no questions, that's it.

PRESIDING MEMBER DOUGLAS: Thank you. I'm going back now through the people who didn't

respond when their names were called the first time, some of whom are on the phone.

Heidi Kate. William McDonald. Jeffrey Collin. And Dain Hansen. And Larry Albert. Anybody?

Very good.

MR. TUTT: Those cards appear to be from a previous hearing --

PRESIDING MEMBER DOUGLAS: Ah, well, that would explain --

(Laughter.)

PRESIDING MEMBER DOUGLAS: -- in that case why none of them are present.

Is anybody on the phone?

(Pause.)

MS. SPEAKER: I guess not.

PRESIDING MEMBER DOUGLAS: Very good. In that case I'd like to thank everybody for coming and for your comments. We very much look forward to your written comments.

MS. ESTERNON-GREEN: I just want to briefly go over the schedule for our SB-1 guidelines before we adjourn.

So, we have the October 6th deadline for written comments to dockets office. And we'd

appreciate it if we could get it sooner so that we could summarize all your comments, and we can discuss those.

The next step would be on November 4th. Currently we plan to release the proposed Committee final guidelines. And then for the notice of adoption for November 19th business meeting date.

PRESIDING MEMBER DOUGLAS: Thank you very much.

MS. ESTERNON-GREEN: And that concludes our workshop.

PRESIDING MEMBER DOUGLAS: The workshop's adjourned. Thank you.

(Whereupon, at 12:25 p.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 8th day of October, 2008.

PETER PETTY