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BEFORE THE

CALIFORNIA ENERGY COMMISSION

In the Matter of the Design of the New Solar Homes Partnership	)	Docket No. 06-NSHP-1 New Solar Homes Partnership (NSHP) Stakeholder Forum

CALIFORNIA ENERGY COMMISSION
HEARING ROOM A, 1516 NINTH STREET
SACRAMENTO, CALIFORNIA

MONDAY, APRIL 21, 2014
9:00 A.M.

Reported by:
Kent Odell

APPEARANCES

Commissioners Present (*Via telephone)

David Hochschild
  Gabe Taylor, Second Advisor
  Emilio Camacho, First Advisor

CEC Staff Present

Suzanne Korosec, Deputy Director,
  Renewable Energy Division
Pat Saxton, Advisor to Commissioner McAllister
Le-Quyen Nguyen, Renewable Energy Office
Elizabeth Hutchison, Renewable Energy Office
Sherrill Neidich, Renewable Energy Office
Farakh Nasim, Building Standards Office

Also Present

Justin Onorato, Lennar Corporation
Matt Brost, SunPower
Blair Sweezey, SunPower, representing the Solar Energy
  Industries Association
Don Osborn, Spectrum Energy Development, Inc., Elk Grove
Aaron Nitzkin, Solar Roof Dynamics.
Bob Raymer, California Building Industry Association
Mike Hodgson, Consol
Charlie Bachand, CalCERTS
Valerie Winn, Pacific Gas & Electric Company
Tim Tutt, Sacramento Municipal Utilities District
*Bernadette Del Chiaro, CalSEIA
*Manuel Alvarez, Southern California Edison
*Lela Manning, San Diego Gas and Electric Company
*Leonard Miller, Richmond American Homes
Kathleen Polangco (ph), San Diego Gas and Electric
Company
Carrie Ledo, PetersenDean
George Nesbitt, HERS Rater
*Jacob Atalla, KB Homes
Walter Cuculic, SolarCity
Karl Fotovat, SolarCity
Shonna Sommer, Pacific Gas & Electric Company
*Brandon DeYoung, DeYoung Properties

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P R O C E E D I N G S

APRIL 21, 2014 9:07 a.m.

COMMISSIONER HOCHSCHILD: Good morning everybody. How is everyone? Thanks for -- all right, Happy Easter. I took my two daughters camping this weekend on a school trip with 20 of their classmates, which was great fun, but it's an activity that is totally incompatible with sleeping, so if I appear a little groggy….

So welcome everyone. I'm David Hochschild, I'm the lead for renewables here at the Energy Commission and my Advisor, Gabe Taylor is here with me. My other Advisor, Emilio Camacho, should be here shortly.

As some of you know, I've recently taken over the New Solar Homes Partnership Program from Commissioner McAllister about two months ago, so we wanted to pull together this meeting to have an opportunity to check in with the stakeholders about how it's going and, as I think everyone is aware, we've been working hard to streamline the process. I also want to acknowledge Pat Saxton, who has been absolutely instrumental in helping getting the streamlining going.

So at this point we're going to turn it

over to Le-Quyen Nguyen to walk us through the agenda.

MS. NGUYEN: Okay. Thank you, Commissioner. Welcome everybody. My name is Le-Quyen. I work in the Renewable Energy Division, in the Renewable Energy Office. There are other key people from this program here, so I'll introduce them really quickly. We have Suzanne Korosec, she's our Deputy Director. Elizabeth Hutchison, Sherrill Neidich, and Farakh is not here, but he will be here shortly.

COMMISSIONER HOCHSCHILD: Before we get into it, maybe we could do a quick round of introductions for who is here. Would you mind just saying your name and your organization?

MR. ONORATO: Justin Onorato, I work for Lennar Corporation.

MR. BROST: Matt Brost, SunPower.

MR. SWEZEY: Blair Sweezey with SunPower, representing the Solar Energy Industries Association this morning.

MR. OSBORN: Don Osborn, Spectrum Energy Development, Inc., Elk Grove.

MR. NITZKIN: Aaron Nitzkin, Solar Roof Dynamics.

MR. RAYMER: Bob Raymer, California Building Industry Association, and Mike Hodgson with Consol will be joining me shortly.

MR. BACHAND: Charlie Bachand from CalCERTS.

COMMISSIONER HOCHSCHILD: Anybody else? Would you like to introduce yourself? And can we have staff just introduce themselves, as well?

MS. KOROSEC: I'll start. I'm Suzanne Korosec, the Deputy Director for the Commission's Renewable Energy Division.

MS. HUTCHISON: Hi, I'm Elizabeth Hutchison in the Renewable Energy Office.

MS. NEIDICH: Sherrill Neidich, Renewable Energy Office.

MR. NASIM: Farakh Nasim, Building Standards Office.

COMMISSIONER HOCHSCHILD: And I see Valerie Winn is back there with PG&E, and Tim Tutt with SMUD. Okay, great. Okay, all yours, Le-Quyen.

MS. NGUYEN: Okay. So before we get into the exciting stuff, let me go over some of the boring details like the housekeeping here.

Most of you have been here before, but in

case you've forgotten, if you need to use the restroom, you're going to exit the doors that you came out for this room, make a left, and the restrooms will be on the right. We also have a cool water filter out there if you've brought your own water bottle. Other things, if you need a snack or a break, you can go out the doors and go up to the second floor in the atrium, there's also a snack bar. And then, in the event of an emergency, again, exit the doors and make a left like you're going to the bathroom, but then keep exiting the building, to out those double doors, the alarms will be going off, and you're going to go across the street to the park, and we'll just gather there so that we can make sure everybody has gotten out of the building on time -- or safely. But we don't anticipate anything happening, so…. I felt like I was being a Flight Attendant right there.

So we'll get started with the exciting stuff now.

MS. DEL CHIARO: Le-Quyen?

MS. NGUYDEN: Yes.

MS. DEL CHIARO: Can you hear us on the phone? Oh, I'm sorry, I apologize for

interrupting, I wasn't sure if there was an opportunity for folks on the phone to introduce themselves. This is Bernadette Del Chiaro with CalSEIA. Just wanted to let you know that I'm joining by phone.

COMMISSIONER HOCHSCHILD: Oh, great. Thanks, Bernadette. Yeah, good point, is there anyone else on the phone who would like to introduce themselves? Okay, thanks.

MS. NGUYEN: We've just unmuted everybody on the phone, so if you're not speaking, if you could mute your line, and then I guess, everybody, if you could introduce yourselves again, we didn't hear everybody.

MR. ALVAREZ: This is Manual Alvarez, Southern California Edison.

MS. MANNING: Lela Manning, San Diego Gas and Electric.

MR. DEYOUNG: Brandon DeYoung, DeYoung Properties, from Fresno.

MR. MILLER: Leonard Miller with Richmond American Homes.

MS. POLANGCO: Kathleen Polangco, San Diego Gas & Electric.

MS. LEDO: Carrie Ledo, PetersenDean.

MS. NGUYEN: Okay, great. So if you're not talking, if you could mute your line? Or we could put everybody on mute right now.

COMMISSIONER HOCHSCHILD: I think we can mute everyone for now while you're going through the presentation, Le-Quyen, and then unmute after.

MS. NGUYEN: Okay, great. Thank you. So we'll do a quick program overview and then we'll go into a presentation from CDIA and then SEIA, and then we'll move into our discussion that's just open.

So like I said, I know everybody is familiar with the program, but I thought I would quickly go over the origins of the program. So the NSHP is one of three programs that was created by Senate Bill 1 in 2006 and, specific to NSHP, we have a goal of installing 360 megawatts of solar and encouraging a self-sufficient solar industry, and placing solar on 50 percent of new homes. And our goal is to achieve all of this by the end of the program, which is December 31, 2016.

Here are some statistics for you to look at. So here you're seeing what is under review,

what we have reserved and installed and our total numbers. Most importantly, and I'm sure what most of you are interested in, is the funding numbers. So right now we have about $57 million available, we have about $18.5 million that is currently on our processing list, or under review, and that leaves us with a remaining roughly $40 million.

So this chart here just shows the housing starts and NSHP participation, this is not cumulative. Basically what we're showing is, for single family homes, you can see in 2007 there were a lot of homes being built and then the recession occurred, so you see a dip in the market, and then we're slowly coming back out of that recession and so the participation in the program has followed accordingly.

In 2007, we had our lowest numbers because that is when the program had first started, and then in 2008 we ramped up, and then following the housing market participation decreased, and now it is starting to increase again.

So our cumulative megawatts, you can see what we have reserved and paid, and as you can

see every year, cumulative, it's increasing as it should. And the dollars, they're following the same trend as the megawatts cumulatively, as the years past, it's increasing.

Here is a breakdown of the product types that we've paid for, so the majority of the projects are large developments at subdivisions, and then you have custom homes, and then we do have a small percentage of affordable housing projects. So right now it's eight percent. And for those of you who have been here for a while, you know that it was 10 percent, is what our target is, and we're close to that.

A question in the back. George?

MS. KOROSEC: You need to come up to a microphone.

MS. NGUYEN: And I can repeat the questions, too, into the microphone if necessary.

MR. NESBITT: To what extent can you break that down, single family versus multi-family? I'm sure most of the affordable is multi-family, but otherwise is multi-family lumped in like large developments or other? Or do you know?

MS. NGUYEN: So it depends on hot it's

being entered into our online application tool. There is one large multi-family project that is in the large developments, the U.C. Davis project, and that's mostly the apartments. But other than that, we don't have a lot of multi-family just in the market rate housing segment. If you're talking about common areas for multi-family, then yes, we'll have a lot of those in the market rate housing. But multi-family, we see mostly in the affordable housing area.

So some recent programs, streamlining, for those of you who have not been participating in NSHP so faithfully, we created a new incentive level, Code Compliant, and that's to address the 2013 Building Energy Efficiency Standards. We've done a lot of administrative streamlining. We've reduced the administrative documentation requirements, we've standardized some of the correction periods. We made changes to how you can account for your project funding. And then we also created a partial payment option. And we're anticipating, you know, a lot of quick turnaround times just based on those changes, alone.

Some solar legislation to look forward,

there's AB 2188, that's solar permit streamlining; there's AB 2227, that's incorporating the building standards for solar energy systems, so basically into the Title 24 Building Standards, having requirements for how you construct and install solar energy systems; AB 2649, Net Energy Metering for military installations, and SB 1020, PV panel recycling.

So that was my really quick presentation. Next, we're lucky enough to get a guest presentation from Bob Raymer with the California Building Industry Association. Oh, a quick question.

MR. HODGSON: Quick question. On your charts on page 6, you have only single-family data.

MS. NGUYEN: That's correct.

MR. HODGSON: Correct? And then when you get to page 9, you have all projects.

MS. NGUYEN: Yes.

MR. HODGSON: So what ratio is there between single-family and attached housing in New Solar Homes Partnership?

MS. NGUYEN: You said between single-family and detached housing?

MR. HODGSON: Attached.

MS. NGUYEN: Oh, attached housing.

MR. HODGSON: Apartments, multi-family.

MS. NGUYEN: So I don't have that number off the top of my head. We just recently started tracking single-family versus multi-family, and a lot of the multi-family projects that we do get in, it's mostly the common areas. It's only been more recently that we have actually been seeing installations for the actual multi-family, like especially with virtual net metering coming into place. But I would say at least 75 percent is single-family versus multi-family, and that's if you're not including common areas on these multi-family projects.

MR. HODGSON: So the statistics on page 6 are strictly single-family detached housing?

MS. NGUYEN: That's correct.

MR. HODGSON: Okay, thank you very much.

MR. RAYMER: All righty, thank you, Le-Quyen. I'm Bob Raymer, California Building Industry Association. And my apologies to those of you that have seen this chart since the beginning, we just recently updated it for 2013. This is pretty much our housing production, our

Construction Industry Research Board keeps rather meticulous track of data that's going on out there in terms of permits pulled and permits completed. And what's nice about CIRB's numbers is they go back and true things up. Just because a permit got pulled doesn't mean the house got completed.

As you can see from the chart, we bottomed out in 2009, that was the worst year in history for this state since we began keeping statistics dating back 60 years. And so with that, you'll notice that in 2007, normally as we go through our cycles in construction we would have started shooting back up again, but that wasn't the case, we went into a freefall in 2008 and 2009 where we bottomed out at 39,000 units.

We effectively had sort of an anemic recovery through 2010-2011. Starting in 2012, we began to see a lot of developed land where permits were being pulled, but the houses weren't being really built yet. 2013 represents the first year where we've seen a significant increase in construction.

Now there's a clear disparity that doesn't track with historical practice, and if

you look in the columns here you're going to see that single-family in 2012 was actually less than multi-family. In years past, normally you would see a 2:1 where we're building twice as many single-family homes as we do multi-family. And by the way, multi-family includes both apartments and condos, and so there's usually a 2:1 differentiation and a healthy housing economy. That's not the case right now. We're only about 40 percent of normal today, which is a whole lot better than 19 percent, but it should be pointed out that we're still building as much or more multi-family units than we are single-family. We will probably even out at 50 and 50 for 2014.

We're suspecting that 2016, if we have access to effectively cleared lots, that should be a healthy year, a very healthy year for the housing economy. But one of the notable things if you've noticed the *Sacramento Bee* recently, housing prices are shooting up, there's a lack of supply. Effectively, it's sort of a seller's market right now. Hopefully with developed lots being available, production housing will get back strong. If you're looking for information on the areas that are healthy right now, effectively

Coastal California, in particular San Diego, the L.A. Southern California Region, the Bay Area, Silicon Valley, and you've got some bright spots up and around Sacramento and higher up to Roseville and Rocklin.

Unfortunately, the Central Valley is not doing so well. It is still a very anemic recovery, you're effectively seen sort of two separate economies emerge from this, all the way from Stockton down to Bakersfield, and then into Riverside there are still some heavily depressed areas. Those two will be looking up, but you're going to see two different sort of emergence from the housing downfall.

And lastly, sort of as a curiosity with this chart, this is also a good chart of labor employment in California, this is also a good chart explaining the employment levels of local Building Departments, as go Housing, so does California's labor market, and especially the Building Departments. And so we've got the curiosity of effectively -- we lost over 80 percent of our labor force back in 2009-2010, same thing happened with Building Departments. And so right now we're effectively trying to get

up to speed on the last two sets of Energy Codes; and when I say that, I mean the 2010 Regs and the 2014 Regs, you've got Building Departments that are just now trying to re-staff, who are trying to get up to speed on this, the same thing goes for the building industry.

And so we've got a lot of work to do. The good news is we're finally coming out of the downturn in the economy. We're looking forward to 2014 and 2015. Any questions?

MS. NGUYEN: I just want to clarify, are these permits that houses were actually built? Or are they just permits that never were completed?

MR. RAYMER: I would say, starting from 2012 and going backwards, these are the houses that actually got built. In 2013, there's still some truing up happening, but this is beginning to be a very firm number that we see for 2013. And like I said, initially what we'll get in terms of projections are the permits that are being pulled. As I said before, the fact that the permit gets pulled doesn't mean the house gets built, but the numbers for 2012 going back, that's what got built. Those are very solid. In

2013, I don't think you're going to see much of a change in that. We're now into the second quarter of 2014 and the numbers for 2013 are pretty solid. And like I said, these are trued up on occasion, so right now looking forward, I would have to say for 2014, a rough ballpark will be 50,000 each, for multi-family and 50,000 for single-family for 2014. It would be a pretty solid number, which gives us sort of a market penetration of solar of around probably five to seven percent I guess would be a good round number right now.

MS. NGUYEN: Thank you. Okay, great. Thank you, Bob. Next we have another guest presentation. Blair Swezey will be providing a presentation on behalf of SEIA. And I'll pull up that presentation right now.

MR. SWEZEY: Thank you, Le-Quyen. As Le-Quyen said, I am standing in for Steve Zuretti who is the California Manager for the Solar Energy Industries Association. He sends his regrets that he couldn't be here, he had to be in Washington, D.C. this week. So I'm filling in for Steve. And I just want to give a quick overview of where solar is in the market and sort

of the policy drivers.

First, just what SEIA is about, the National Trade Association for the U.S. Solar Industry, which was founded in 1974 and has more than a thousand member companies nationally working together to make solar energy a mainstream and significant energy source by expending markets, removing market barriers, strengthening the industry, and just as importantly, educating the public and decision makers on the benefits of solar energy.

So let me just speak to California. I mean, obviously California is a very important market for residential deployment in the U.S. The share of megawatts being deployed in California, again in residential, actually increased from 43 percent early in 2010 to 55 percent at the end of 2013. And just as importantly, you look at the overall megawatts, they essentially doubled from a little less than 200 megawatts in 2012 to over 400 megawatts in 2013.

So going on to the next one. Why is California such a good market for residential PV? Well, great solar resource and relatively high

electricity rates have been sort of the underlying drivers, but there's been a lot of policy initiative at the State level to build a market for solar here in California. And I'll just touch on a few of these.

The California Solar Initiative is a 10-year program of declining incentives with a statewide goal to deploy 3,000 megawatts and that's onsite behind the meter, both residential and non-residential systems. And as Le-Quyen mentioned earlier, the New Solar Homes Partnership is a component, an important component, of the CSI.

The availability of net energy metering has been a key policy for solar, essentially providing retail rate billing credits when generation exceeds the instantaneous on-site energy demand, and for the energy that's exported to the grid, and then the customer is able to draw on those credits when their demand exceeds their production at other times of the day.

Rule 21 has been very important in terms of streamlining the interconnection process and the timelines for interconnection.

And then we've got the Federal

Incentives, the 30 percent investment tax credit, as well as accelerated depreciation, which third-party owners are able to take advantage of and provide lower prices to residential customers. And I'll talk a little bit more about that in a second.

And then altogether, California, but really the global market scale has driven solar cost reductions over the last several years. So if you go to the next slide, see how residential installed system prices in California have declined from a little over $7.00 a watt at the beginning of 2010, that is, to just under $5.00 a watt average price at the end of 2013.

So going forward, there are a number of, I'd say, uncertainties that will impact in one way or another the future growth of the market, as well as the ability of the New Solar Homes Program to potentially meet its goals. The first is, well, these are both tied together in the passage of A.B. 327 last year which allows the Public Utilities Commission to make certain changes to residential rate design, essentially compressing the tiered rates, but also provides authority for the Commission to impose a fixed

charge, fixed monthly charge on residential bills of up to $10.00 a month, and then increasing within inflation after 2017. And that is sort of a more general trend to try to shift more of the utility revenue recovery from volumetric charges to fixed charges, and that is certainly going to have an impact if there are certain charges that customers can't avoid; it's going to have an impact both on solar and on energy efficiency, essentially on the value of energy savings generally.

I skipped over net metering because I wanted to do the rate design first. The AB 327 also provides certainty around the statutory five percent net metering cap, but also calls for the Commission to undertake a proceeding to decide what the successor tariff to NEM will be after the five percent cap is reached, so that proceeding is actually beginning later this week at the PUC. The PUC has to decide what the new NEM tariff will be by the end of next year, 2015.

And then, just going back, the other issue that the Commission was to address was how the current NEM customers who come in under the five percent cap would be treated going forward,

and they recently decided that those customers under the five percent cap would continue to receive the full retail NEM credit for 20 years from the date of project interconnection.

We're seeing efforts to make some revisions to Rule 21, particularly in terms of advanced inverter capabilities and what requirements might be imposed down the road, which could impact how much energy is able to be consumed by the customer onsite versus energy that might get used to some extent in providing these advanced inverter requirements, as well as potentially imposing higher costs for the inverters themselves.

And then Le-Quyen mentioned permitting. Permitting can be a very big issue in terms of increasing soft costs, as we bring down the cost of systems and panels, there's also the cost of actually doing business, doing the installations, and doing the permitting. Le-Quyen mentioned AB 2188, which is a bill in the Legislature right now to try to reduce timing and the cost impediments by removing certain barriers on the permitting side.

And then looming over all of this is what

happens with the Federal Tax incentives after 2016, they're all scheduled to expire by the end of 2016, so we may not have the 30 percent tax credit for residential going forward.

MR. RAYMER: Blair?

MR. SWEZEY: Yes.

MR. RAYMER: Before you go on, could you kind of cover again Rule 21 revisions?

MR. SWEZEY: Right. Well, there's an effort underway to -- inverters have particular types of capabilities, some which are utilized and some which aren't right now. And if you end up, you know, if you use some of these in a more overt way, it can actually use some of the energy that you would normally -- it takes energy to provide those services. And if the customer is uncompensated for providing those services to the utility, then that has some impact, whether how big it is, but also the higher cost of providing those capabilities in the inverters. And there's also the possibility that there could be curtailment, longer term under certain circumstances through those inverter capabilities.

So the relevance to the New Solar Homes

Program has been alluded to, to some extend already, but just keep in mind the goal, one of the goals of SB 1 was to establish a self-sufficient solar industry that would make solar a mainstream option for both homes and businesses, and also to place solar energy systems on 50 percent of new homes in 13 years. And I think if I do the calculation on the number that was in one of the graphics earlier, we're at about maybe 20 percent of new homes today, so we still have a ways to get to 50.

I've got 400 megawatts here as the NSHB goal is -- I guess 360 maybe, but I see it both ways in different documents. And then looking forward beyond 2020, you know, we have greenhouse gas reduction goals through 2020, but looking ahead in how we get from 2020 to 2050 and particularly just out to 2030, I think buildings are likely to be a primary target of greenhouse gas reduction goals going forward. So solar is going to continue to be an important part in reducing the carbon footprint of homes, and certainly this also runs into the goals for Zero Net Energy housing that all new residential construction by 2020 in California be Zero Net

Energy.

So that's just sort of an overlay for policy where we've been until now and what we're facing going forward, and I think it's important to understand what the implications are for meeting the goals, the New Solar Homes goals for some of these policies, and hopefully everyone will be engaged going forward in a lot of these discussions.

And here's the contact information for Steve Zuretti, again, the California Manager at SEIA. Thank you.

MS. NGUYEN: Okay. Thank you, Blair, for that presentation. So now after all of these great presentations, we're actually at the open discussion part of this forum. Commissioner?

COMMISSIONER HOCHSCHILD: If we just open up the phones for a minute, just so I think Le-Quyen is trying to hear from the trade associations first. Bernadette from Cal SEIA, are you still here on the line?

MS. NGUYEN: And all the phone lines have been unmuted.

COMMISSIONER HOCHSCHILD: Is Bernadette still on the line?

MS. DEL CHIARO: Yeah, I'm here.

COMMISSIONER HOCHSCHILD: Did you have any comments from Cal SEIA on the program, before we open it up to everyone else?

MS. DEL CHIARO: I think in general we're wanting to reengage more deeply in the months ahead. We really appreciate the changes that the Commission has made to the program thus far, and feel like it's obviously an incredibly important program for California and for the growth of solar power, and so we look forward to working with the program administrators to continue to strengthen it.

COMMISSIONER HOCHSCHILD: Okay, great. Then I wanted to go first to Leonard Miller from Richmond Homes because I understand he has to get off the line. Are you still on the line, Leonard?

MR. MILLER: I am. Thank you. I appreciate you giving me the time and thanks for including me today. I didn't really have a whole lot, I would just say how excited I have been about the program. You know, Richmond made a commitment approximately three years ago to offer solar on all homes in all communities, and I

think we did probably more than 500 homes last year with solar, and close to 1,000 over the last two plus years.

So the program has been working very well for us. We're seeing that we offer a base system where we're finding about 70 percent of our buyers are upgrading to kind of a larger system. So the feedback that we get, I mean, just to let you know how it's working is on a Sunday night, you know, I get reports from all of our communities that talk about who they're working it with sales and, also, every time that we sell a home, the sales agent sends out a note talking about the sales process. I've got to tell you, in easily over half the cases, solar is making a difference for us, consumers want it, and the buyers want it. But what really makes it work with us is to have it as an included feature in the home, rather than having it be an upgrade.

So, you know, things I would note is that what's near and dear to our heart is ensuring funding stability, making sure -- eliminating the uncertainty and potential shortfalls. That would be a major setback for us. Rebates and those sorts of things absolutely make a difference,

there's a few places like with DWP in Los Angeles where we don't get those rebates and it doesn't make it economical for us to offer the program. You know, the cost to us is anywhere from $5,000 to $6,000 basically to offer it as an included feature, and that's when we get these sorts of rebates. If we don't get it, you know, that amount can nearly double and it just economically doesn't make sense for us, and then unfortunately I don't think any of the builders have gotten much traction when we don't offer it as an included feature, but just sell it as an upgrade.

So it's very very important for us. We'd love to see a higher rebate tier for qualifying Net Zero homes going forward in the future. But I just thought I'd keep it brief like everybody else had done, and it's been a great program for us, I'm going to try and stay on the line as long as I can today. But it's been a great program, something that we support and we'll offer any sort of assistance in any way we can, but that's probably it in just a very short summation.

MS. NGUYEN: Okay, great.

COMMISSIONER HOCHSCHILD: That was Leonard Miller from Richmond Homes.

MS. NGUYEN: We actually have somebody on the WebEx right now who has some questions that they'd like to ask, so Michael Winkler. Okay, you're unmuted. Okay, well, if you think of those questions, your line is still unmuted. We also have a roving microphone, so people who don't feel comfortable sitting at the table, you're welcome to just grab the microphone and state your question.

Okay, so now we're at the open discussion -- oh, Bob?

MR. RAYMER: I've got some questions on funding. You've got the good chart that you've put together here on page 3, I think it was like your third chart? Yeah.

The remaining funding, $38.9 million, the figure I'm familiar with, of course, is the $57, which doesn't account for the stuff that's in the line. That does include pending loan payments that are due back by June 30th, does it?

MS. NGUYEN: Yes, it does not include it. So there are two loan repayments, there's one for $10 million and another for $20 million that are supposed to come in by the end of June 2014. That hasn't been confirmed yet, though and we

won't know until we see the May revise of the Budget.

MR. RAYMER: Understood. And we're also as an industry supporting the approval of the EPIC Investment Plan. That has some backstop funding. Should we sort of begin to run out of funding probably mid to late year 2015 before the program expires, do you foresee any problems at the PUC? They have to approve the EPIC Investment Plan, don't they?

MS. NGUYEN: So the EPIC Investment Plan has to go to an Energy Commission Business Meeting first and get approved, and then we'll submit it to the PUC for approval. So I'm not sure --

COMMISSIONER HOCHSCHILD: I believe you're hearing that at tomorrow's Commission meeting.

MS. NGUYEN: Yes.

COMMISSIONER HOCHSCHILD: Yeah, I think we'll be voting on it tomorrow.

MS. NGUYEN: Yes, for the Energy Commission.

MR. RAYMER: The Building Standards commission was Bernadette because they've got a

solar issue over there. We've already submitted our indication for support for that.

MS. NGUYEN: Right. And just whether or not the PUC will approve or not, it's unclear.

You know, as many of you are familiar with the last Investment Plan, they did not approve funding for NSHP, and so we're requesting funding again for this cycle, but it's anybody's guess as to whether they'll actually approve it.

MR. RAYMER: Thank you.

MR. NITZKIN: I wish I had all my notes from years ago, but I'm curious to know how are we doing from -- again, Aaron Nitzkin -- how are we doing in terms of reserved and installed megawatts at this point in time relative to the original forecast that we had when this program was set up? I mean, are we doing about what we were expecting at this point not as well, or are we ahead and have we taken a step back just to kind of gauge the overall progress?

COMMISSIONER HOCHSCHILD: Well, I mean, I don't have those original projections from when we all first got together some years ago, but, I mean, my views were way way behind and that's principally a feature of two things, one is that

the housing market collapsed, right?

And so literally right at the point where we were launching; and secondly, we had a pretty high barrier entry which has now been dealt with with these things, so I don't know how far behind we are, Pat, I mean, do you have any comments?

MR. SAXTON: I don't actually remember the charts either, but I suspect just like Commissioner Hochschild that we're not at the trajectories that were estimated.

COMMISSIONER HOCHSCHILD: One thing I just want to get clarity on because I've heard a lot of different numbers about what portion of the new homes being built today are done with solar. Obviously the goal is 50 percent by the end of --

MS. NGUYEN: 2020.

COMMISSIONER HOCHSCHILD: Is it 2020 or 2017? I thought it was --

MS. NGUYEN: 2020. So our goal is 50 percent of new homes, but it's 2020, I believe, and it's 13 years is what it calls out.

COMMISSIONER HOCHSCHILD: Oh, okay. All right, so our goal is 50 percent. You know, Mike, I remember when we met earlier, six months

ago, you were saying you were guessing around 12 percent, you know, SunPower said they were guessing it was around 20 percent of homes, and you earlier, Bob, were saying we were in the five to seven percent range. So, can you, Mike, maybe comment on that?

MR. HODGSON: Well, yeah. What I was taking was reported completed homes sold with solar.

COMMISSIONER HOCHSCHILD: Yeah.

MR. HODGSON: And comparing it to Le-Quyen's information that she posts religiously every quarter, I believe, on completed homes. And I don't have the fourth quarter of 2013, I presume -- is that posted now?

MS. NGUYEN: We've posted -- so the information right here is from the beginning of April, but I think the information you usually request from me I have not provided you with yet.

MR. HODGSON: Yeah, well, that's okay. But, I mean, so we ask for that information from the New Solar Homes Partnership and then divided by the single-family starts. And I think the last number I gave to Bob was, what, five or seven percent?

MR. RAYMER: Yeah.

MR. HODGSON: So it's pretty simple. Can you tell us what we did in 2013?

MS. NGUYEN: The numbers? I don't have that off the top of my head, I'm so sorry.

MR. HODGSON: I'm guessing it was like 3,000. Does that sound off?

MS. NGUYEN: Installed? Probably a little bit more. I think in 2013, we saw a lot of the payment claims come in.

MR. HODGSON: Okay.

MS. NGUYEN: And it's really hard when we're doing all these numbers because with NHSP we see a little bit of a lag, so a lot of the reservations come in, you know, two or three years earlier, and the payments, they trickle in two or three years after the reservation has been made, and a lot of time the home was built and the system installed the previous year.

MR. HODGSON: But we're trying to take basically the payments made and divide it by the single-family market. And that's the statistics we give you.

MR. RAYMER: And part of the problem in that mathematical game that gets played, you look

at 2011 and 2012, and you have a remarkably low number for single-family homes, and so if you've got 2,000 units in there, you're at the 10 percent figure.

For 2013, we did 36.5 thousand units, single-family. And so if you kept a nice robust application for solar, you're going to end up sort of dropping below a 10 percent figure. I would put it at eight percent for 2013.

The question here is, you've got some reservations in the pipeline right now, and not necessarily picking out companies, but KB and Lennar, that both have very healthy supplies of solar that are going to be going on as a standard feature. It's still up in the air whether that figure -- you could see it jump to probably 15 percent in 2014, it just depends on how the market handles this year.

The important point is, at the national level it takes about 17 years for a product to get sort of assimilated into construction. Things are quicker in California, but still here in California you're looking at probably a nine to 12-year process as opposed to 17, and so quite frankly the numbers for solar are quite striking.

I’ve never really seen something accepted this quickly at such a high volume. And so, in terms of the State’s goals, you’re doing quite well right now.

COMMISSIONER HOCHSCHILD: I -- obviously this program, I think, is sort of the glide path to get us to a Zero Net future, and I guess in many ways 2014 for the Energy Commission is the year of implementation of a whole bunch of things.

We’re implementing Prop. 39, you know, those Regs are done, we’re getting $381 million out the door for that this year; we’re implementing the 33 percent RPS for the MUNIs, those Regs are just finished; and 118 we’re implementing.

And this is sort of the new New Solar Homes Partnership now with the housing market picked up, and I think while the barrier busting that Commissioner McAllister and Pat Saxton and the team have done, I think this is kind of -- we’re turning a new leaf on this program.

I am actually interested to explore the question of why builders so far who are saying no to solar, what is it, I mean, how big a barrier

actually is it? And Matt Brost from SunPower, maybe you could comment on that, just how close are we -- just say a little bit more about the folks who are not at the table today, but could be, and what you think we need to do to reach them? Is it a matter of time? Are there other reforms?

MR. BROST: I'll do my best on that. So I'm working primarily with the country's larger production home builders, and one thing that I will say, particularly with the customers that we've been working with for quite a while in California, and we're really starting to see the program actually have sort of this spillover effect into other states right now. So those builders who have done it, I think, have found success; what we haven't really experienced is any of our large production builders start and then stop. So once they've started and found success with it, they've kept going. So I think that that says a lot about the program.

We've found innovative ways to keep the cost down, as you heard from Leonard, you know, the rebates here in California are extremely important. And when you try to provide a good

pricing strategy along with the rebates, you know, the economics to the homebuyer end up looking pretty good.

The guys that are not doing it, I think what you would find is actually some of them are doing it, but they're dabbling, so I would say of the top 10 or 20 builders in California, I would say almost the majority are doing it, but the majority are not doing it as a standard included feature, like Richmond and KB and a few others.

And I think Leonard even mentioned it, when you try to do it as an option, you're not all in, right? So it makes it more difficult for sales people to actually sell it, it's more difficult for the solar companies to work with those builders because they're not taking -- they're not as invested in the program as they are when they do it, when they make a bigger financial commitment by including that in their base home cost.

So I think that the Code is going to have an impact, I mean, we have an upcoming Title 24 Code that at least some of the climate zones will now allow builders to take credit for PV systems on their homes, although not as big of a credit

as they actually probably should get.

But, you know, it's a step in the right direction and when you combine PV credit with potential marketing opportunity, you know, it's something that will really help the builders market the homes. That could get some of the other builders to participate a little bit more.

So I don't have much more to offer than that. I do know Jacob Atalla with KB Homes, his corporate office is on the phone and he's got a few comments he'd like to make, and he may be able to speak to that, too, from their perspective.

COMMISSIONER HOCHSCHILD: Yeah, can we unmute him?

MS. NGUYEN: Jacob, your line is unmuted.

COMMISSIONER HOCHSCHILD: Go ahead.

MR. ATALLA: Thank you, Commissioner. And good morning everyone. Thank you for doing this hearing and appreciate you including us in it.

So to answer another angle on your question, a lot of it is in the planning and, you know, for builders to change specs, it does take a considerable effort. As you know, solar will

touch on many trades, many aspects of the home construction, including in some cases truss design and other things related to the roof. So I think certainty in the program, ensuring the funding stability, reducing the balance of system costs including permit fees, and the complexities related to submitting for solar permits and so on, all these things when they align very well, they should nudge more builders towards it, in addition to of course customers' interest and demand.

The NSHP Program has done a tremendous job in facilitating a lot of these items, so it should be more, I would grant you that, and maybe as the big builders move deeper into it in markets, it will bring other builders into the mix.

Last year, KB Homes built over 1,000 homes mainly in California that have solar on them -- that's 2013. Overall, 14 percent of KB homes delivered across the country had solar last year.

And I think at this time, we've been through this journey for a little bit and we're seeing what's on the horizon in terms of

opportunities and issues. One of these opportunities is Net Zero Energy homes. As we all want to move towards them, and KB has been making steps towards Net Zero Energy homes, we think that solar is a very important component of it and, if there is more support for it, for the solar incentive towards Net Zero Energy Homes, that could benefit both the solar program and the Net Zero Energy targets and desires of the state. That's an opportunity.

In terms of challenges, one of the key challenges we're looking at right now, we're concerned about, is utilities' net metering clarity and how utilities may handle fees and tariffs and so on related to solar customers in the future. I think that's an issue that we all have to address soon because the attractiveness and the economics to the end user of solar may be impacted in a significant way.

The program has helped us make solar a standard in many many communities. You know, we see it make economic sense for us, we included it as part of the mortgage, we don't do lease, it makes sense also for our customers, whether they are young families that are just starting and

want to save money on the utilities by financing their solar as part of their mortgage, or the older families, the retirees or near retirees that want to know what are their fixed costs going forward to balance it with their fixed income.

Without the NSHP Program, the solar may be less attractive for a builder, including KB, to put it in on the home, and therefore the stability of the program and the availability of funding, albeit it's going down gradually, is important for all of us.

COMMISSIONER HOCHSCHILD: That's very helpful. Thank you, Jacob. And you mentioned 14 percent of KB Homes were done with solar nationwide. What portion in California of your homes were done with solar last year? Do you know?

MR. ATALLA: It is about 90 percent.

COMMISSIONER HOCHSCHILD: Ninety percent, wow. That's great.

MR. ATALLA: Yes.

COMMISSIONER HOCHSCHILD: Well, I really enjoyed -- I spoke obviously of your dedication ceremony in Lancaster, and I'll just throw this

out to the rest of you in the room, I'm personally committed if you do a dedication and need us there, I'll do everything I can to be there in person.

MR. RAYMER: That's good to know.

COMMISSIONER HOCHSCHILD: Yeah, absolutely. I had one other question I wanted to just throw out, which is in terms of white papers or studies the Energy Commission could perform that would help, what are the kind of questions you think we could possibly -- I'm thinking out loud, like one of the -- I believe they did a study in Japan on what happens to energy consumption in homes that are built with solar because you elevate the consciousness about energy. And it was something like an eight percent reduction, just a conservation effect as a result of having solar.

I've actually never seen that evaluation done in California; that's one question I have. I'm just throwing it out, are there others in terms of solar accelerating sales versus non-solar homes, or other questions you think the Energy Commission could address? Yeah, go ahead.

MR. CUCULIC: Walter Cuculic with

SolarCity. Before you jump on to that, one of the things that I think that's been happening in the industry that is also going to accelerate to get to that 50 or ideally 100 percent is the products that are being offered.

And so about I think over the last three years, companies like SolarCity, Lennar now is offering either a lease or Power Purchase Agreement, I'm not sure exactly how they're structuring it, but Lennar is doing that now, Sunrun had done it before, I think some other leasing companies have started to offer the leasing programs, the third-party finance programs to new home builders.

And if you look on the retrofit side in comparison, about 60-70 percent of solar systems that are installed are through third-party finance here in California, and that's grown from I think about 45 percent in 2010 to about 70 percent in 2013.

We've seen similar -- although it hasn't reached 70 percent on the new homes side, it's gone from zero just a few years ago to probably about 30, 40, 50 percent, somewhere in that range of cash versus third-party leasing programs.

And so I think as other solar providers start to offer the leasing programs and give homebuyers a choice between cash and lease programs, that's going to continue to help the development or the adoption of solar and new construction. The reason for that is, as Bob had referenced, solar systems and new construction still today, even with the rebates, depending on the system size, can cost $5,000 to $20,000 in house costs. Depending on the size of the house, that can cost more than the entire framing for a house. It can be the most expensive item that goes into the house.

As other house costs have increased, as well as mortgage rates have increased, that kind of affordability and what you can put in a house and finance in a mortgage is becoming smaller and smaller and smaller.

What we've seen with builders that we work with is, by offering homebuyers a choice between both cash and lease, you don't have to have mortgage dollars available to choose solar. I can go solar and not have to choose or not sacrifice by choosing flooring, design, other options, I can use the lease program as a second

financing tool. And that's kind of proven out on the retrofit side because they have -- the reason I bring that up, too, is rebates have gone away for retrofit and you continue to see high high adoption of solar on the retrofit side.

MR. RAYMER: Bob Raymer with CBIA. Before I get into some needed studies or some expansions of existing studies, I'd like to indicate the Code Compliant option in New Solar Home is a very viable option for, let's say, the small and medium size builder who may not have access to bundled financing approaches to product purchasing.

And so I anticipate, to the extent the Energy Commission, CBIA and others can sort of get the word out over the next six to 12 months, and that could be a very bright way of bringing in those who are not part of the program so far. And that's going to be key down in 2020.

And so that was one of the steps that we're looking at. The other one is something that CBIA has been working on with the Energy Commission for quite some time, as was mentioned earlier by Matt, the 2013 Regs that kick in in July will give very limited and static credit for

solar installation in seven of the climate zones.

For the Regs that will kick in in 2017, CBIA and, it seems, the Energy Commission is receiving this well, to provide some manner of a far more robust compliance credit for solar, depending on the size of the system and, of course, where it's installed, but effectively having 15, maybe even 16 climate zones being able to have access to compliance credit can be very helpful.

As we're looking at the energy efficiency changes that are being considered for 2017, these are what I would say major changes in common construction practice, namely the advanced wall system and the roof deck system, and the Energy Commission for at least the roof deck system is looking at allowing an alternative installation of solar.

And I have to believe right now, given what I know today, that a great many builders will choose the solar option before going with the roof deck, not that the roof deck can't be done, but getting it done properly very quickly is going to be a touch road, and there's a lot more who are familiar with solar.

And so I personally see solar getting another shot in the arm when the 2017 Regs come in.

Our personal view is there really shouldn't be a restriction in the studies that should be done, Mike did a little bit of this two years ago when he was doing some impact analysis for CBIA, and that is looking at the restrictions that are placed on solar and what, if any, should happen if there weren't going to be those restrictions.

We need to have a better understanding of how solar fits into our TDV-based energy efficiency standards and effectively that could be a very useful study if done over the next six to 12 months. The Energy Commission could use the information yesterday.

So we're going to be working our best to try to provide as much of that as we can, but we'll probably be looking to others to sort of hop into the mass here.

MR. OSBORN: Ah, there we go. As far as the barriers go with some of the small or medium sized builders, both single-family and multi-family that we've talked to, one of the things

that comes up most often is simply the complexity of the program. The smaller builder simply doesn't have the staff, nor the time to deal with what they perceive as a very complex program to navigate through.

Some of the things that are being suggested and implemented will go a long way towards alleviating that, but that is still a major barrier for the smaller builders, I think. Also, the uncertainties as far as what the incentives are and what they will be going forward is another major concern that is raised quite often.

The third area, which I think will be increasingly a strong barrier is the uncertainty surrounding NEM, for all the programs that the CEC is concerned with -- New Solar Homes, Zero Energy Program, CSI in general.

Having a strong NEM program which is simple to understand, provides full value, and permits the owner to directly benefit from what they do behind the meter is really an amazingly critical point for this and other programs.

And while I think the new rate designs will go a long ways towards alleviating the

perceived shift among customer classes, what happens with NEM 2.0 will critically impact the rest of your programs.

MR. NESBITT: George Nesbitt, a HERS Rater. Looking at the data, it looks like there's about 90 megawatts of systems installed, paid, and reserved, and we're seven years in to a 10-year program. So that's 90 megawatts out of a 360 megawatt goal.

So I think it's partly the downturn, but the downturn brought prices down, which brought better affordability on the one hand, you know, so before the downturn house prices had been going up and up and up, and that works against us. And we're back sort of into that mode in a lot of markets.

But there's a lot of barriers, I think especially in the custom home market, especially when we get into additions, projects that would comply because they're total gut rehabs. We've heard others.

I've personally had a project I couldn't get through NSHP plan check even though I got it through the New Home Program. And those projects are projects that went to CSI when it existed,

which is one of the reasons uptake on the NSHP was slower. CSI, you didn't have to pay for the HERS Rater to verify the PV system, not to mention there were no credible efficiency requirements. All you had to say is, "Oh, yeah, we're efficient." Right. And we gave you a rebate.

So to kind of address your question about research, something I've proposed to a few people at the Commission already, is to actually do a study on ZNE Homes. Now, I certified the first new single-family ZNE home in California, like two years ago. The Commission wrote a nice proclamation, gave credit to the builder, to CalCERTS, not me, the Rater who actually made it happen, who took it on his own initiative because he was doing everything else that was needed anyway.

So we've got a large database of information in the NSHP because we both have the Title 24 documentation, as well as the PD documentation, so we could go through that and see what percentage of homes that have been in the program have actually hit ZNE already.

I'm currently working on an 80-unit

multi-family affordable project which will be wrapping up in a few months that will be ZNE. That is according to the CEC definition and the HERS Rating system, so it's Net Zero Time Dependent Value, and, you know, Bob's question? Yes, the PV plays well for TDV, quite frankly.

Also, you mentioned reduction of energy use for people that get systems. I would argue it's probably the reverse. They now have a zero bill, so time and time again I see people thinking, "Oh, well, I've got a credit of a thousand dollars which I don't get." Right? "So how do I use more electricity?"

So you will see people on their own, as well as I have seen the solar industry push people to add more electric load because they're getting free solar electricity. And so that's common with efficiency upgrades, too; it's common with solar hot water. They don't see the impact on their bill as much, so they tend to use more because it's free.

So that's something you need to look at and that's one of the reasons I really don't like Net Metering, you lose sight between your consumption versus production.

COMMISSIONER HOCHSCHILD: Thank you. Go ahead, Mike.

MR. HODGSON: Thank you, Commissioner. I'd like to follow-up a little bit on Bob's comments and maybe broaden the question you asked, how can the Energy Commission help put solar into the building industry in a production environment?

The concerns the building industry has been expressing, especially with the 2016 Standards that are being developed now, is really the radical change in how we're doing attics and walls. And it's not attics and walls, it's just we're trying to adopt a lot of things in the building industry that are relatively new to our construction style.

And I'm not saying the building is slow to change, but there's a lot of liability in things that we do in the building industry and there's a lot of long term consequences of that, and so they are slow to change until they know that warranty issues are satisfied, there's quality installation. And I think in the 2013 --

COMMISSIONER HOCHSCHILD: Will you please mute the phone? Thank you.

MR. HODGSON: In the 2013 Standards, there's an opportunity to --

COMMISSIONER HOCHSCHILD: Sorry, Mike, just wait a second. Is that muted? Okay, go ahead please.

MR. HODGSON: So I think there's a start in the 2013 Standards to give some credit to PV and tradeoff against deficiency, but I think that's a huge loss to opportunity because it's capped and it's in specific cooling climate zones where it could be variable across the state.

If I were in the solar industry's position, I would want to sell as much solar as possible and get as much credit to the builder; if I'm in the builder's position, I don't want to change what I'm doing. Once I know what I'm doing and I know it does not have a problem, then I want to build the same way.

And the only variable -- so if we could come up with an exceptional method possibly because the next time we're going to have a variable PV credit is going to be --

COMMISSIONER HOCHSCHILD: Sorry. Could you please mute all the phone lines? Okay, every workshop I've had, we've always had some issue.

Thanks.

MR. HODGSON: We could just go talk outside. So I think we have a lost opportunity, but also an opportunity. And that is I'm really not happy with the slight PV credit we get in the 2013 Standards, that was the compromise, and we're moving forward. Does that mean we have to wait three years now to get a variable PV credit?

We're building a very efficient shell right now, we have an R21 wall, we have an R38 ceiling, and we have very low air and filtration. If we could keep that as a minimum standard, and then allow as we move forward, larger and larger systems not in 17, but in 15 and 16, so we don't have to wait, then I think that's a stimulus that when we get the Code of the production home builder and say, "Well, you can put in 2 KW and get this credit, and you could put in 4 KW and get the same credit, but it costs twice as much, you can put in 6 KW, three times as much cost, but no credit, I just can't sell that.

And I'm not a solar person, but I think that's a negative sell. So if you're trying to stimulate that in the market and we know we're going to need it in 2017, and we know we're going

to meet it in Zero, is there a way to start to stimulate that sooner than later? So that's my suggestion is I don't think I need to do research, what I think I need to do is get more solar on the roof and get the production builder more credit for that, but have minimum standards that's acceptable to the Energy Commission for efficiency.

And, you know, we have a good shell right now and we're happy to talk about that shell because we know what we're doing. But in '17, we're going to change the wall and we're going to change the attic, and that causes us a lot of concern because there's problems when we do that. I'm not saying it's impossible to do, but we're not going to do it in three years.

COMMISSIONER HOCHSCHILD: That's a great point. Thank you. Aaron.

MR. NITZKIN: I have two thoughts, the first is tied to perceptions of cost-effectiveness. I remember, I think it was last year, that there was a workshop that the PUC put on about Net Zero Energy Homes, and this big fancy study and the outcome was solar is not cost-effective. And I think that there's

probably a lot of builders out there that still think that, and they don't understand that cost-effectiveness is really not a black and white situation, that you really need to look at how it's being financed and cash flows versus simple payback, and whatnot.

And I think that we really as an industry need to do is get together and educate builders on the value proposition because the value proposition is there. It really is strong.

In my opinion, and this has been like this for a number of years, if you're building a new home in California today and you're not putting solar on, it will probably cost you more to not put solar on than to put solar on. And if you don't understand that, you're doing a disservice to your homebuyers. So I think there's a huge education opportunity.

And the second point I want to throw out there to think about is, while I commend the solar companies that are making headway, I think that we need to think of ways to objectively get in front of builders to educate them on what has happened over the past five to 10 years in this market in non-biased ways, but to show data, show

traction, give case studies like what KB is doing, and get them to start thinking about it not in a sales way, but in more of an education way.

And the only idea I have on that front, they're not going to come here to a workshop on NSHP, but they do go to their BIH events and there are chapter events all over the state, and without having to sponsor maybe the different BIH efforts would be open to letting the Energy Commission give 10-minute updates on the status of solar in the market, where I think you'd have representation from all the local builders, and they will listen. And they're not going to feel like they're being sold to because it's not someone presenting a product, it's giving them an update on the status of the marketplace.

COMMISSIONER HOCHSCHILD: That's a great point. And I'm a big believer we need to go get out of Sacramento more. I just took a couple staff this last week, we drove five hours up to Lassen to visit some power plants and geothermal, and I think that's an important part of what we need to be doing here, is getting around the state. So I'm happy to do that.

In terms of other data, though, that we could be presenting, one other question I had is, has anyone evaluated how solar homes are selling?

I've heard anecdotal stories of a New Solar Homes community built right next to a New Homes community, and the solar homes selling faster. But do we have any actual studies of that, or any data? Is that an area you'd like to see the Energy Commission evaluate? Go ahead.

MR. CUCULIC: Yeah. There have been a number of studies out there, both that show -- the two arguments you make are sales *price* and sales *pace*, right? So builders, they're trying to constantly get higher sales prices, and then increase that sales pace.

The National Renewable Energy did one right around 2004, I think it was, with Shay Homes down in San Diego, that's a big one, but it's dated, it's almost a decade old now, that shows the kind of statistics for that.

Unfortunately, it was during 2004 and everything was selling quickly, so that's part of the jaded kind of view on that community. So that study could easily be updated.

And then the sales price one –- and I

think the Berkeley Lab has done a good job there, the National Renewable Lab out in Berkeley did one talking about premium of sales prices for solar versus non-solar homes. And I think Aaron's comments about the fact that if you're not putting solar on your homes today, you're doing a disservice to your client.

And I kind of commend -- although, how should I say this -- in essence they've kind of taken part of the pie, but what Lennar has done is, with their zero down program, or prepaid lease program, or power purchase program, whatever they're calling it, what they've done is they can now offer every single one of their homebuyers a solar program, and there's debates about its benefit, but they are including solar into every single one of the homes without raising the sales price of their home through their power purchase agreement, or zero down program.

And that's why I brought up the lease programs today is, homebuyers today, whether it be through SunPower's dealership network, through SolarCity, through Sunrun, through all these different solar companies, can get solar for zero

out of pocket cost, and there's so much savings when you're designing it upfront, and that's where I kind of go back to, these zero as-is product evolution happens, you know, when you look at the reason people don't go solar on the retrofit side, it isn't about cost anymore, it's really about dealing with the contractor, being home, you know, all these other reasons or objections.

When you're building a house, you've hired a company to take care of it for you, and that's where I'm like the least programs get accepted, there's no reason to do it because I'm already hiring somebody to install my cabinets and my countertops.

If it doesn't cost me or the builder anything, then you can do the zero down programs that Lennar has done. And I think they're going to have like 80 to 100 communities through their zero down program rolled out this year.

MR. ONORATO: I'm Justin Onorato, I actually work at Lennar, and I've heard our name thrown around a few times, so I just want to be able to chime in a little bit here.

And what Walter is referring to is a

guaranteed discount on our Solar 2020 plan, so we offer our homebuyers solar with no upfront costs to the homebuyer, it doesn't increase the price of the home, and they get solar for 20 years at a 20 percent discount benchmarked to local utility rates. And so --

COMMISSIONER HOCHSCHILD: And what portion are Lennar Homes built in California done with solar today?

MR. ONORATO: I'm sorry, what was the question?

COMMISSIONER HOCHSCHILD: What portion of the homes you're building in California are done with solar?

MR. ONORATO: So, as Walter hit on a lot of our communities, are doing solar standards with SunStreet and we can't get into numbers, but I think as far as the number of homes, I think the range --

COMMISSIONER HOCHSCHILD: No, just a portion. Is it 50 percent?

MR. ONORATO: No, it is -- I can give you the 2013 number –

MR. CUCULIC: Well, any community that has your zero whatever --

MR. ONORATO: It's Solar 2020 Plan?

MR. CUCULIC: -- 2020 Plan, every homebuyer gets it and anything that –

MR. ONORATO: That's right. So our initiative is basically in all these communities it will be a standard feature going forward in those communities.

And I think, I mean, we looked up some numbers from 2013, and we were in the 30 percent range, that number is trending higher given the SunStreet Initiative.

COMMISSIONER HOCHSCHILD: Great. Go ahead.

MS. KOROSEC: Brandon De Young on the line wants to speak. Brandon, your line is open. All right, Brandon, we had a glitch. Go ahead and do it again.

MR. DE YOUNG: Hello, can you hear me?

COMMISSIONER HOCHSCHILD: Yes.

MR. DE YOUNG: Okay. So this is Brandon De Young, De Young Properties in Fresno. We work with Walter in SolarCity and I would kind of piggyback on what Walter is saying.

You know, I haven't really heard the word "appraisal" kind of talked about yet in this

discussion and I feel it's pretty paramount because to offer solar at the purchase, you've got to make sure that the appraisers are going to be able to give enough value to it for it to suitably work, you know, in the price of the home, and therefore the bank will be able to invest, you know, lend on the true value of the cost of the home.

And we haven't in our area in the Central Valley haven't been seeing that really occurring, you know, if someone is going to buy a $30,000 solar system we're seeing the appraiser only giving like $5,000 worth of value. And therefore they have to come out of pocket, you know, if we're talking about it being an upgrade, $25,000 just to pay the difference.

So that's why ultimately we decided to go with SolarCity's zero down and lease program, we initially asked to credit with them a prepaid lease, but the appraisal value of solar has become a big issue, at least for us, as far as trying to include solar in the home, so that's ultimately why we've gone with the zero down product, as it didn't create any issues with the appraisal of the home.

So I definitely would second what Walter was saying about the lease products that are out there. There's obviously some hesitancy with the consumers, I think, in there with the leases; in fact, we were as builders, as well, when we first heard about them, we thought they were a little maybe sketchy at first, but once you kind of got into the details, they seemed to be pretty legitimate, and so I think it's an education kind of thing.

But anyway, I just wanted to put in my two cents on that.

COMMISSIONER HOCHSCHILD: I thought that LBNL had done a study on that some time ago and found that for every $1,000 of annual energy savings, it would increase the appraisal value by 20,000. This is maybe five years ago. Is that --?

MR. BROST: That was the Appraisal Institute.

COMMISSIONER HOCHSCHILD: I'm sorry, that was who?

MR. BROST: The Appraisal Institute.

COMMISSIONER HOCHSCHILD: The Appraisal Institute, okay.

MR. BROST: And it's fairly aged.

MR. DE YOUNG: They even have like some tools for appraisers to help them value solar, but that doesn't necessarily mean they're going to do it here in our area.

COMMISSIONER HOCHSCHILD: Okay, but this is a great point, let's pause on this for a second. I mean, what would be helpful for the Energy Commission to do on that question?

I mean, would some sort of white paper or something on the net present value of the system for the homeowner over time -- I'm just thinking what exactly -- or is there something, as you mentioned, could do to help shed some light on that? Or is that something LBNL or another entity could perform?

MR. BROST: Sandia Labs and the Appraisal Institute recently partnered and came out with a new appraisal tool, and it's a lot better than what we have had, which is nothing, it's actually pretty good, it still has some improvement opportunities, but generally I think getting behind that and helping to get that in front of the appraisal industry in California would go a long way, particularly where these systems are

financed by the homeowner and the value needs to be recognized within the mortgage.

COMMISSIONER HOCHSCHILD: Great. Pat, are you familiar with that? The Sandia tool?

MR. SAXTON: Yes, I am.

MR. NESBITT: Yeah, George Nesbitt. Yeah, there's a green addendum, RESNET I think has also been working with the Appraisal Institute. We have the HERS Rating System and part of one of the reasons for the HERS Rating System is the whole energy efficient mortgage idea, the idea of putting the value of the improvements into the mortgage and financing it, and justifying the cost from the energy savings.

So to the extent that we can promote and get appraisers to be aware of the addendum and to use it to promote the HERS Rating system, to promote energy efficient mortgages, things like that, it could go a long way.

COMMISSIONER HOCHSCHILD: Okay, great. Well, this has been really fruitful so far. One other question I had is just with respect to construction today, how much savings do you think the difference is between doing a retrofit solar project today versus building it in a production

home scenario?

I mean, I imagine there's some less comp shingle or other material or building efficiencies you get. How big is that delta? Or is there much of a delta, if you could -- yeah.

MR. RAYMER: The economy of scale favors production housing, most definitely, in terms of labor application. When you're doing the logistics for this, as was mentioned earlier, you've got the one entity that is sort of taking care of things, and with a custom home or retrofit you effectively have to go out to the site, you have to arrange things, everything is done on a one-house scale; and when you're doing a production housing market, you're probably looking at anywhere from 12-15 homes at a given time.

From a logistical standpoint, that's a lot easier to schedule, and that's very important. So in essence you could effectively arrive at a site with a rather mass quantity of product and effectively have labor ready to go who does the installation, as opposed to maybe having the guy show up a couple hours early, sitting around chatting while they're waiting for

the truck that got caught on 650, you know, it's -- you have any number of problems that can happen with a single home as opposed to production housing. That's not to say production housing is easy, but….

MR. BROST: I'd just say the other major piece of it is the customer acquisition cost. In retrofit, as you probably know, it's quite high to acquire a customer.

In new homes when you can sell to homebuyers in communities at a time, you're not having a market, you're not having to find that customer, the customer has found you.

COMMISSIONER HOCHSCHILD: Right, so I think we all agree on the principle, but nobody has a number -- would you guess it's 15 percent?

MR. BROST: I think I've said before between 10 and 20 percent.

COMMISSIONER HOCHSCHILD: Yeah, seven to 10 to 20 -- is that…?

MR. CUCULIC: Yeah, that's about right. And it really deals with, I mean, just a side audit alone, right, on an existing home, we typically have to go out there and do a visual inspection, that's $300 to $500, depending on the

location.

The rest of the cost in terms of savings typically are in the pre-wire cost, and then the upfront engineering. With the production home environment you can engineer it once. If the vent pipes are out of the way, you're not working around obstructions and things of that sort, so you get a much quicker installation time. But I agree with Matt, it's usually about 10 to 20 percent savings.

COMMISSIONER HOCHSCHILD: Okay, that's really helpful.

MR. RAYMER: By the way, on appraisers, about 10 days ago I had a meeting with Assemblymember Ting's staff, who is going to pull back on one of their bills. They may be looking at dealing with this issue from both energy efficiency and from renewable energy. He is an appraiser. And so, interesting to state, my boss, former Senator Cogdill, *was* an appraiser down in the San Joaquin area. And so there is a lot of knowledge in this, also Nancy Skinner, this is an issue that's near and dear to her heart.

So there are a lot of individuals that

would like to see something happen. The question here is we need to get a little background information. And the fact is, down in Davis you've got the example of two very similar homes, one with about four kilowatts of solar on it, and its neighbor that was built at the same time, so two homes that are very close, but you've got a 4 kilowatt system on the roof, they're both valued the same, and that is just wrong.

COMMISSIONER HOCHSCHILD: Right, right. Great. Any other comments? Le-Quyen or Suzanne, any questions you'd like to see addressed? All right. Well, thanks everyone. This was really fruitful, I really appreciate everybody coming in and look forward to working with you. Any other closing comments, Suzanne or Le-Quyen? Okay, thank you.

(Whereupon, at 10:34 a.m., the workshop was adjourned.)

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REPORTER'S CERTIFICATE

I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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IN WITNESS WHEREOF, I have hereunto set my hand this 2nd day of May, 2014.

PETER PETTY
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