

BEFORE THE  
CALIFORNIA ENERGY COMMISSION (CEC)

In the matter of )  
 ) Docket No. # 11-RPS-01  
 ) and 03-RPS-1078  
 )  
\_\_\_\_\_ )

STAFF WORKSHOP ON STATION SERVICE IN THE RENEWABLES  
PORTFOLIO STANDARD PROGRAM

California Energy Commission  
Hearing Room A  
1516 9th Street  
Sacramento, California

California Energy Commission
<b>DOCKETED</b>
<b>11-RPS-01</b>
TN 2987
OCT. 04 2013

Tuesday, September 10, 2013  
9:30 A.M.

Reported by:  
Kent Odell

## APPEARANCES

COMMISSIONERS PRESENT

Robert B. Weisenmiller, Chair  
David Hochschild  
Kelly Foley, His Advisor

STAFF PRESENT

Mark Kootstra, CEC, RPS Certification and Eligibility  
Gabe Herrera, Legal Counsel  
Kate Zocchetti, Acting Office Manager,  
Renewable Energy Office

Paul Thomsen, Ormat Technologies  
Rahm Orenstein, Ormat Technologies  
Steven Kelly, Independent Energy Producers Association (IEP)  
Brian Cragg, Outside Counsel to IEP  
Phillip Muller, on behalf of Ormat Technologies  
Jeremy Weinstein, Pacificore  
David Branchcomb, Sierra Pacific Industries  
Nick Goodman, Cyrq Energy  
Sandeep Arora, LS Power Development  
Shawn Bailey, Sempra U.S. Gas and Power

**INDEX**

	<b>PAGE</b>
Staff Presentation	
Mark Kootstra, RPS Certification and Eligibility	4
Public Comment	19
Next Steps	82
Adjournment	83
Reporter's Certificate	84
Transcriber's Certificate	85

1

1 P R O C E E D I N G S

2 SEPTEMBER 10, 2013 9:40 A.M.

3 MR. KOOTSTRA: Good morning. We're going  
4 to get started. Thank you. My name is Mark  
5 Kootstra. I work on the Renewables Portfolio  
6 Standard in Certification and Eligibility, a lot  
7 having to do with Guidebook revisions. I want to  
8 let everyone know that Commissioner Hochschild  
9 will be here shortly, in about five minutes, and  
10 I'll introduce him when he does come in.

11 As you're all aware, we're here to talk  
12 about Station Service in California's RPS. On  
13 the workshop agenda, we're going to go over some  
14 welcoming and housekeeping, the staff  
15 presentation, and then we're going to go into  
16 public comments, and after that we'll have a  
17 short bout of next steps.

18 There are handouts on the front desk as  
19 you came in the entry with the sign-in sheet;  
20 hopefully most of you saw that. If you haven't  
21 already seen the Station Service paper, it's  
22 there, as well.

23 Restrooms are located on the first floor  
24 just out the main doors and to your left.

25 There's a snack bar on the second floor. There

1 are a number of restaurants within walking  
2 distance. We don't know if we're going to be  
3 stopping for lunch yet, it all depends on how  
4 many public comments we have, but we'll determine  
5 that as we get closer to the noon hour.

6           There are emergency evacuation procedures.  
7 We'll be going over to the park kitty corner to  
8 the Energy Commission, you can just follow staff  
9 and we'll lead you right there.

10           And for those on WebEx, there's  
11 interactive participation. You're either going  
12 to be able to view the slides, raise your hand to  
13 ask a question, that will also chat to the WebEx  
14 Host. Brian is manning the WebEx, so please feel  
15 free to chat with him if you have any questions.  
16 WebEx users are muted on entries, and will be  
17 unmuted during the question and answer time, and  
18 log-in details are on page 4 of the workshop,  
19 hopefully you've already found them if you're on  
20 WebEx.

21           Ground rules. There are blue cards  
22 available to the speakers; those were in the  
23 front area. If you need one and you don't have  
24 one now, Emily is going to be handling the blue  
25 cards and you can just raise those when you're

1 done completing them and she'll pick them up from  
2 you for comments.

3           Before speaking, please provide a business  
4 card to the Court Reporter if you have one, if  
5 you don't, it would be helpful for him to get  
6 your name and company on a piece of paper so that  
7 he has that information spelled correctly. We  
8 ask that you use the microphone at the podium to  
9 speak so that we can have that recording, and the  
10 WebEx and phone participants can also ask  
11 questions during the Q&A.

12           Comments will be taken in the following  
13 order, audience in attendance, then those on the  
14 WebEx, and then the phone-in only participants.

15           The purpose of this workshop is to provide  
16 clarity on the requirements surrounding Station  
17 Service in the Renewables Portfolio Standard  
18 Program and to seek public comment on the Station  
19 Service Requirements in the RPS.

20           What is Station Service? Essentially,  
21 it's the power that's used to generate power at  
22 electricity generation facilities. We're not  
23 talking about, you know, at a biomass facility.  
24 With biomass, we're talking about the electricity  
25 that gets fed back into the system.

1           There's general consensus throughout  
2 industry, at least, that we've seen is that this  
3 power should not be used to create RECs, but the  
4 definition of what a Station Service is, is a  
5 little more disputed.

6           In the RPS, the Guidebook itself did not  
7 mention Station Service until the 7th Edition  
8 Guidebook, and at this time it's only mentioned  
9 in the outstanding issues section. We have  
10 required participation in WREGIS since the  
11 adoption of the 3rd Edition RPS Guidebook back in  
12 2008 -- or, sorry, I believe it was December 2007  
13 with the formal adoption. And this is the quote  
14 from the Guidebook, it essentially states that:  
15 "Facilities must participate in WREGIS in order  
16 to be RPS certified, or they must report that  
17 information to us by a specific date."

18           In 2012, the Program Administrators in  
19 WREGIS came together to discuss Station Service  
20 and we developed an Advice Letter. It provided  
21 what the Program Administrators thought of  
22 Station Service and how the definition that is in  
23 the WREGIS Program Operating Rules should be  
24 applied. The paper supported the current WREGIS  
25 practices we saw at the time.

1           The 7th Edition of the RPS Guidebook which  
2 was adopted in April did originally contain in  
3 the draft language regarding Station Service that  
4 aligned us more closely with WREGIS explicitly,  
5 but that information was removed at the direction  
6 of Chair Weisenmiller, but he did ask that we  
7 retain the status quo language, which retained  
8 the requirement to participate in WREGIS. And he  
9 also directed staff to conduct a workshop to  
10 gather public input so that we could have more  
11 informed discussion.

12           The status quo language is continued  
13 deference to the WREGIS Operating Rules regarding  
14 Station Service. Station Service in the WREGIS  
15 Operating Rules is defined as the electric supply  
16 for the ancillary equipment used to operate a  
17 generating station or substation. The May 2012  
18 Advice Letter also supported this.

19           Staff's view on Station Service. We kind  
20 of looked at it by breaking the power use for  
21 electricity generation facilities into three  
22 groups: directly contributing to electricity  
23 generation, Station Service loads, and energy  
24 consumption not contributing to electricity  
25 generation. These aren't a formal breakdown, but



1 we kind of broke it down conceptually for our  
2 discussions.

3           Directly contributing to electricity  
4 generation: this would include the biomass at a  
5 biomass facility, radiation from the sun at a  
6 solar facility, the type of stuff that is used to  
7 define whether or not the facility -- or what  
8 type of energy resource that facility uses;  
9 generally, it's a fairly obvious item.

10           Station Service loads. We looked at it to  
11 include secondary processes, onsite fuel  
12 transportation, and general facility operations.  
13 If you've read the paper, it has some additional  
14 information on these -- and I'll go through them  
15 for a bit here. The secondary processes --  
16 they're processes necessary to generate  
17 electricity and control the generation process,  
18 but aren't primary contributors to generation.  
19 This would include pumps in such as a ranking  
20 cycle. The pumps are necessary to keep the  
21 working fluid flowing through the system.  
22 They're also able to provide a minimal amount of  
23 energy into the system for generation, but it's a  
24 worthless amount that it's negligible for all  
25 purposes. Condensers, again, are necessary to

1 generate electricity, but they don't really  
2 contribute power to the process.

3           Fuel transportation. We broke fuel  
4 transportation out into onsite and offsite  
5 purposes. Onsite, we categorized as Station  
6 Service, and this is generally any transportation  
7 of the ready-to-use fuel from an onsite or near  
8 site fuel dump that is used to deliver the fuel  
9 from that site to the electricity generation  
10 facility without intermediate steps. And this  
11 was done in part to prevent someone from saying  
12 we're going to draw our facility boundaries  
13 differently so we get this out of it being  
14 considered Station Service. For the most part,  
15 these will be stationary delivery methods and not  
16 trucks delivering from a few miles away to the  
17 facility.

18           General Operations. They don't  
19 necessarily directly contribute to the production  
20 of electricity, but they're necessary to ensure  
21 their operation of the facility, optimal  
22 operations, or safety of the facility, itself.

23           And then different energy consumptions  
24 that we didn't believe contributed to the  
25 electricity generation process. We looked at

1 fuel processing, offsite fuel transportation,  
2 maintenance, and miscellaneous processes, as well  
3 as construction and initial operations.

4           The fuel processing, we consider any  
5 activity that is done to the fuel that doesn't  
6 change the energy content of the fuel, or create  
7 the fuel itself, such as biomass chippers which  
8 do enhance the ability of a facility to use the  
9 fuel, but it doesn't add energy content to the  
10 fuel, itself. Methane captures, a similar thing,  
11 as well as water impoundment, though that's not  
12 technically a fuel; I think we all understand  
13 that if there's water behind a dam, you're  
14 creating the energy potential that could be used  
15 more readily, but it's not truly creating the  
16 potential, it's still a natural cause.

17           Offsite fuel transportation. This is  
18 delivery of the fuel to the fuel storage facility  
19 or location that would then designate whether  
20 it's onsite or not. These transportation  
21 expenditures do have an impact on electricity  
22 generation because if they're not there, you  
23 can't generate electricity, but no matter how  
24 much energy you put into the delivery, it's not  
25 changing the amount of fuel that you have. For

1 example, if you're delivering biomass from a  
2 sawmill that's next door, you're going to get the  
3 same energy content out of a truckload as you are  
4 if you're getting the biomass from a sawmill  
5 three states over, you're going to exert a lot  
6 more energy moving the fuel, but it doesn't  
7 change the amount of generation that you get out  
8 of that same unit of fuel.

9           Also, this transportation energy could be  
10 expended in the absence of the electricity  
11 generation facility. We all know that sawmills  
12 need to dispose of their waste, and if there's a  
13 biomass plant next door to it, it's a lot less of  
14 an energy need, but if that biomass plant goes  
15 away, for example, they're still going to have to  
16 dispose of the waste to some degree, as well as  
17 forest clearing and fire protection, there's  
18 another reason. Often times the generation of  
19 electricity does impact and change the amount of  
20 fuel use that's required, but it's not always an  
21 increase, or fuel for transportation.

22           And then also, maintenance and  
23 miscellaneous processes. We didn't consider  
24 maintenance to be Station Service activities  
25 because they don't directly contribute to the

1 production of electricity. They're absolutely  
2 necessary to operate a facility, but generally  
3 maintenance occurs when the facility is shut  
4 down, when it's intentionally shutdown for a  
5 period of time.

6           And then also other miscellaneous  
7 activities such as security work or  
8 transportation inspection work. To start  
9 including these, we'd need to start looking at  
10 lifecycle analyses and we are not in favor of  
11 doing that, and it wouldn't be a benefit to the  
12 RPS, necessarily, to do that.

13           Construction and initial operations.  
14 Construction of a plant is similar to  
15 transportation of fuel offsite. They can be done  
16 in many different ways and you can expend more  
17 fuel for economic reasons because it's easier and  
18 you're able to do the process differently, but it  
19 doesn't directly contribute to the electricity  
20 generation process. Additionally, the initial  
21 operations such as at a solar thermal plant that  
22 is using molten salts, you need to get the salts  
23 into a fluid state so that you can move them  
24 around, but once they get into that fluid state,  
25 they very rarely go back to a solid, there's

1 typically not allowed to do that. And so that  
2 initial energy use to liquefy those salts  
3 wouldn't be considered. But as you start  
4 generating electricity, then you need to start  
5 considering that process.

6 Additional considerations that the Energy  
7 Commission staff has -- I want to take a minute  
8 to introduce Commissioner Hochschild; he's the  
9 Lead for the RPS.

10 Additional considerations that the Energy  
11 Commission has in regards to Station Service,  
12 we're concerned that people may choose to begin  
13 powering processes with non-electrical energy.  
14 If you're able to switch from electricity that  
15 the power plant generates to, say, diesel or  
16 natural gas burned on the same site to directly  
17 power a pump, by the definition currently in the  
18 WREGIS Operating Rules, that may be assumed to  
19 get out of being considered Station Service, and  
20 that's concerning.

21 Also, time of the Station Service loads  
22 relative to the generation of electricity.  
23 Looking at the time of use can be difficult in  
24 some cases because you can adjust when a certain  
25 process is going to occur relative to the

1 generation of electricity. Normally, those are  
2 fairly minor, but staff chose to look at it  
3 instead at is the load a Station Service load or  
4 not, not when is -- can a load ever not be  
5 Station Service load? And we thought that that  
6 wasn't really the case. We thought if it's a  
7 Station Service load, it's a Station Service load  
8 whether or not you're generating electricity  
9 because it is still providing the same function.

10           Also, the location of the energy  
11 consumption. As I talked about earlier, we  
12 wanted to prevent people from redefining facility  
13 boundaries, to get out of calling something  
14 "Station Service Load". As I've been made aware  
15 by folks, you can have the boundary of a facility  
16 immediately surrounding the electricity  
17 generation device itself, and that manipulates  
18 what you would call Station Service or not if you  
19 have a location requirement attached to that,  
20 that's very stringent to the facility boundaries.

21           Staff position on the additional  
22 considerations. As discussed before, Station  
23 Service Loads can't cease to be Station Service  
24 Loads simply by changing the source of the power  
25 at the time of operation, or at the legal

1 boundaries of the facility. It just provides a  
2 lot of gaming if you allow this type of thing to  
3 say, you know, "this plant, if you move the  
4 border 10 feet, changes the inputs." And so we  
5 caution that we need to be careful on these  
6 options.

7           We wanted to give a little specific input  
8 on the geothermal well pumps, as most comments  
9 were in regards to the geothermal well pumps at  
10 the adoption for the RPS Guidebook in April.  
11 Most of the arguments that have been presented to  
12 us were saying that the geothermal brine is the  
13 fuel for the facility, and that geothermal well  
14 pumps are a form of fuel delivery. However, we  
15 believe this is a flawed approach to look at it;  
16 specifically, geothermal is of or relating to, or  
17 produced by the internal heat of the earth, and  
18 that's a definition I believe I found in several  
19 locations. The geothermal brine itself is a hot  
20 concentrated saline solution that is circulated  
21 through the crustal rocks in an area of high heat  
22 flow from the earth. Given that, just to make  
23 the argument that the geothermal brine is a fuel,  
24 when fuel is defined as a substance that is  
25 burned or otherwise modified to produce energy,



1 the only change that brine undergoes when giving  
2 off energy to the geothermal facility is a loss  
3 of heat, and that can be done either through an  
4 expansion in the generation turbine itself, or  
5 through a heat exchanger. And by looking at it  
6 that way, we find it hard to view the geothermal  
7 brine as a fuel itself.

8           And then looking at what would the  
9 geothermal brine then be, we would look at it  
10 more as a heat transfer fluid in binary systems,  
11 similar to a solar thermal system with binary.  
12 For example, the SEGs plants, which you can see  
13 on the left-hand side of the screen, uses a  
14 binary system where there's synthetic oil flowing  
15 through the solar collection fields, similar to  
16 the brine that flows through the geothermal  
17 field. In both cases, there is a heat transfer  
18 that occurs between the initial fuel that  
19 collects the heat, either from the sun or from  
20 the earth to water or another fuel -- or, sorry,  
21 another working fluid in geothermal facilities  
22 that actually turns the generation turbine, and  
23 is the true working fluid of the facility. But  
24 in both cases the geothermal brine and the  
25 synthetic oil in the SEGs plants is necessary and

1 it's a heat transfer fluid that really can be  
2 considered a secondary working fluid. If you  
3 take the analogy of calling geothermal brine as  
4 the fuel for a geothermal facility to a solar  
5 thermal facility, you'd be essentially making the  
6 argument that a solar thermal facility, such as a  
7 SEGs, is operated with synthetic oil as the fuel,  
8 which that is kind of concerning to say that a  
9 solar facility is truly powered by synthetic oil.  
10 It raises some questions that we can't seem to  
11 find good answer for. We fully recognize that  
12 there are significant differences between the two  
13 technologies, for example, geothermal brine is  
14 not necessarily cycled through a closed loop as  
15 synthetic oil does in the SEGs plants, but it's  
16 also the case that geothermal brine is not a  
17 requirement for the existence of a geothermal  
18 resource. Many geothermal resources need to be  
19 fracked apart so that you can get water to flow  
20 through enough to generate electricity.

21           So the question comes down to what truly  
22 powers a geothermal facility. Staff believes  
23 that geothermal facilities are powered by the  
24 earth, not the brine itself. The brine is an  
25 integral part of getting the heat from the

1 geothermal well to the generation equipment, but  
2 it acts more as a heat transfer fluid, similar to  
3 the synthetic oils in a solar thermal facility  
4 than it does as a fuel transportation process.

5 At this time, we're going to open up the  
6 floor to commenters. I believe we have a number  
7 of blue cards. Please, if anybody has blue  
8 cards, let Emily know, or if you need them she  
9 will be passing them out, as well.

10 The first one we have is Paul Thomsen of  
11 Ormat Technologies.

12 MR. THOMSEN: Great. Thank you very much,  
13 Mark. My name is Paul Thomsen for the record.  
14 I'm the Director of Policy and Business  
15 Development for Ormat Technologies. Ormat  
16 Technologies is a geothermal energy company  
17 specializing in the development of binary  
18 geothermal power plants. By way of introduction,  
19 we operate about 400 megawatts of geothermal  
20 power in the WECC, with about 202 megawatts of  
21 geothermal generation in California.

22 We want to start by commending the  
23 Commission staff for agreeing that the energy use  
24 for offsite fuel transportation, for fuel  
25 delivery from the source to the electric

1 generation facility, should not be considered  
2 Station Service. Staff goes on to say that,  
3 consequently, if geothermal brine is in fact a  
4 fuel for geothermal facilities, then the delivery  
5 of that fuel to the geothermal facility should  
6 not be considered Station Service, consistent  
7 with other renewable technologies.

8           Obviously, this brings the conversation to  
9 this discussion of fuel or working fluid, and we  
10 just want to make a couple observations, I think,  
11 in this workshop that we think need kind of  
12 further examination or exploration because, right  
13 now as we see the situation, we think it's  
14 unfair, it's inconsistent, and unfortunately it  
15 harms one industry in California. And so, based  
16 on those three criteria, I want to kind of walk  
17 through this.

18           Talking about why it's unfair: other  
19 technologies have fuel delivery systems that they  
20 do not have to net out. We have seen from the  
21 geothermal sector that we have lost baseload  
22 contracts or competitiveness because a baseload  
23 binary system has to net out its fuel delivery  
24 system, where other technologies such as  
25 biomethane and others do not have to do so. And

1 that is what we are trying to rectify here and  
2 finding a policy that treats them all equally.

3           Second, we think defining the geothermal  
4 brine as a working fluid and not a fuel is  
5 inconsistent. We've reached out to academia,  
6 we've reached out to FERC, and we've reached out  
7 to other jurisdictions that have looked at this  
8 issue and decided that, indeed, the delivery of  
9 the geothermal brine is part of a native system  
10 in its native form, the hot water that we are  
11 blessed to find in the earth with the heat is a  
12 fuel, and the delivery of that fuel should be  
13 defined as so.

14           Trying to elaborate just a little bit on  
15 the fuel issues in the White Paper, and again,  
16 just areas that may require some closer  
17 examination, the first comment we wanted to point  
18 out is the definition of fuels, I think it's  
19 actually used on Slide 29, says "fuels are  
20 substances that are burned or otherwise modified  
21 to produce energy." The first law of  
22 thermodynamics holds that energy cannot be  
23 produced or destroyed, it can only change form.  
24 And a fuel is not produced energy. It transports  
25 it to a place where it can change form, and into

1 electricity. And so I think we should not be  
2 using that definition of fuel in the fact it's  
3 inherently wrong. And most academia would have  
4 an issue with the idea of the ability to produce  
5 energy.

6           Second is this concept that geothermal is  
7 relating to or produced by the internal heat of  
8 the earth, and therefore, unless we use the rocks  
9 from the heat of the earth, we don't have a fuel.  
10 And I think the question there is, this is  
11 applicable to fossil fuels, which store the  
12 earth's heat potential. As we all know,  
13 hydrocarbons are a result of the anabolic  
14 decomposition of organic matter buried to great  
15 depths in the earth. The geothermal temperature  
16 and pressure gradients at depth alter the organic  
17 material into kerogens and with even more  
18 geothermal heat eventually into liquid and  
19 gaseous hydrocarbons, explodeable volumes of  
20 mobile hydrocarbons, commonly require some means  
21 of isolation and concentration. And then they  
22 are delivered to a power plant. So I think this  
23 definition needs to also be looked at because I  
24 don't think we're trying to exclude or say that  
25 all of our fossil fuel power plants don't indeed

1 use a fuel because they're created by the heat of  
2 the earth, and therefore, unless it's the rocks  
3 from the earth.

4           And this gets into kind of an esoteric  
5 discussion on this, but I think our mission today  
6 is to say, in the native state, this hot  
7 geothermal fluid is the fuel source. Going back  
8 to chemical change is a definition used, it says,  
9 "Brine, unlike a biofuel, does not undergo any  
10 chemical reaction or other modification to  
11 release its energy." We obviously think that  
12 this should also be closer looked at. Geothermal  
13 fluids actually do undergo many chemical changes  
14 in the process of modifying temperature, pressure  
15 and entropy, during production. And we have many  
16 citations that we'll submit, obviously, in our  
17 written comments. But for example, "Minerals  
18 precipitate out from the brine and produce scale.  
19 Controlling the complex temperature pressure  
20 dependent liquid solid chemical equilibria is  
21 fundamental to a geothermal facility." This  
22 doesn't even discuss kind of the phase change of  
23 geothermal brine, and you can elaborate on this  
24 in the fact that fuel change is the discussion  
25 chemical reaction has been expounded upon.

1 Nuclear power plants are believed to use fuel and  
2 don't undergo a chemical reaction, and so we  
3 think this is also the case with the geothermal  
4 fluid.

5           The last point I would like to make before  
6 I introduce my colleague to kind of talk about  
7 the real world harm of the current situation is  
8 the discussion of the solar thermal facility to  
9 the binary facility. I think we had a slide, and  
10 I don't know if we can go back to it, but there's  
11 a key step that I think staff keeps pointing to  
12 that we're slightly missing, which is, when the  
13 geothermal fluid -- first of all, the solar  
14 thermal cycle on the left is not a binary cycle,  
15 it has three phases, the photons from solar heat,  
16 the thermal oil, which then heats water to steam,  
17 that steam turns to vapor and spins a turbine.  
18 Our geothermal fluid heats a working fluid in the  
19 heat exchanger, as you see in this slide. That  
20 working fluid is iso-butane in this picture, it  
21 can be iso-pentane, and it is what we believe is  
22 the working fluid in the Station Service load.  
23 And any pumping of that is absolutely Station  
24 Service, and we believe should be netted out.  
25 But at no time does the geothermal fluid go



1 across the turbine; 100 percent of that fluid is  
2 re-injected back into the earth, back into the  
3 rocks in its native state, we don't change  
4 anything with that geothermal brine. Typically  
5 in a binary process, we keep it under pressure to  
6 stock heavy metals and scalant from building up  
7 and coming out of solution and so forth, and so  
8 that is the native fluid. And we would compare  
9 that geothermal heat to the heat coming into the  
10 photons, the transfer to a working fluid occurs  
11 in the heat exchanger. And there are many  
12 examples in the history of geothermal where  
13 projects have purchased geothermal brine or the  
14 fuel from a separate deliverer of fuel. And what  
15 my colleague is going to talk about is the fact  
16 that today many geothermal facilities share a  
17 single production pump, and that production pump  
18 then has to go to multiple facilities. And the  
19 current metering process has caused the harm for  
20 us because we can't account for it the way that  
21 the CEC currently defines the station usage. So  
22 I think, with that, that will conclude my  
23 comments and I'll let my colleague, Rahm  
24 Orenstein, kind of introduce the practical matter  
25 of how we can't account for this. And I believe

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 we have a slide. So with that, I want to thank  
2 you for the time to make these comments and would  
3 open it up to any questions or observations you  
4 might have.

5 MR. ORENSTEIN: Good morning. My name is  
6 Rahm Orenstein. I'm a Director of Business  
7 Development with Ormat Technologies. So further  
8 to Paul's presentation or explanation, I want to  
9 focus on why is this so painful to us. So just  
10 starting with a very simple diagram on a typical  
11 binary power plant, you can see a production well  
12 on the bottom left, that's where we have a  
13 production pump that we claim is a fuel delivery  
14 system that brings the underground natural  
15 resource, which is the geothermal brine, into the  
16 power plant. Then, typically the brine, which is  
17 like depicted in red, would go through heat  
18 exchangers, you see a vaporizer and a preheater,  
19 then will be re-injected in the injection well,  
20 and then you have a secondary fluid that is  
21 called binary, but you see green, a motor fluid  
22 pump where man introduced material, usually  
23 pentane or butane, is circulated, vaporized, and  
24 spins the turbine.

25 As Paul said, we have no disagreement that

1 all the electrical load that is used to circulate  
2 the motor fluid is Station Service, and this  
3 diagram will include the motor fluid pump, but  
4 the bottom right, it will include -- you see the  
5 air condensers, there are usually multiple fans  
6 that are electrically driven, that cool the motor  
7 fluid, we don't disagree that this is Station  
8 Service; moreover, you see the injection pump and  
9 FERC also has determined that getting rid of the  
10 colder brine is like getting rid of ashes in a  
11 biomass plant, it's part of the plant, meaning  
12 it's part of the Station Service. We don't  
13 disagree with that. Our whole focus is on the  
14 bottom left, on the production well that we  
15 believe, again, as Paul said, the brine is not  
16 the equivalent to synthetic oil, which is a man  
17 introduced chemical in the process that man  
18 designed, the brine is the natural resource that  
19 we are tapping into. We did not put the brine  
20 where it is, Mother Nature did that. We did not  
21 determine the depth of it, the temperature, the  
22 chemistry, unlike synthetic oil, and we do a  
23 conversion from the natural resource, which is  
24 the brine, to then the pentane, to electricity.  
25 So much like in solar, the designer can choose to

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 use photovoltaic, that directly convert photonic  
2 energy to electricity, or they can use solar  
3 thermal, that in that example had two  
4 conversions. You know, maybe an engineer will  
5 come with an even less efficient process with  
6 five conversions, all of these should be Station  
7 Service. But in our case, we claim that only the  
8 motor fluid is man introduced. If you can move  
9 to the second slide.

10 I want to show you something here to  
11 explain why this is so painful. This is a  
12 typical -- this is kind of a simplified  
13 representation of an existing complex that we  
14 have in Mammoth Lakes in California. You can see  
15 two generators -- I call them Generator 1 and  
16 Generator 2 -- each for the sake of simplicity is  
17 assumed to have a 10 megawatt gross in the  
18 generator and it has a separate meter because  
19 each plant has a separate contract with a  
20 separate utility. Each has its own Station  
21 Service, but you see that little bubble, which is  
22 what I showed in the previous diagram? These are  
23 the motor fluid pumps, the brine re-injection  
24 pumps, the fans, all that is Station Service.  
25 Now, these are kind of typical numbers on a

1 typical 10 megawatt gross facility, roughly one  
2 megawatt would go to power, the real State  
3 Service, and then roughly one megawatt would go  
4 to power production pumps. And in this case, we  
5 have production pumps that consume two megawatts  
6 that are physically three miles away from the  
7 power plants, so it only makes economic sense to  
8 have a single well and a single pump and a single  
9 pipeline push that natural resource, the brine,  
10 into the complex. And in reality, it doesn't  
11 make sense to have a pump being fed by two  
12 generators. Then what we do, and that's what  
13 geothermal operators do, we picked which one of  
14 the two generators should be the one physically  
15 wired to the pump, which is the thin black line,  
16 what you see in the diagram, the thick green line  
17 represents the pipeline with the brine, and the  
18 thin black lines represent electrical wires. So  
19 you see each generator wires its own Station  
20 Service, and one of the two, in this case it's  
21 Generator 2, we decided would run the pumps  
22 because Generator 2 uses, in that case, a greater  
23 portion of the brine.

24           So if you click this animation, there's --  
25 right, so the Station Service is the motor fluids

1 pumps, the fans, the brine re-injection, so far  
2 as suppression and air-conditioning, all that  
3 stuff, we're not arguing that -- one more click,  
4 please -- this is an example of the harm, the  
5 commercial harm that we are coping with because  
6 of the current interpretation of what is and what  
7 is not Station Service as expressed in that  
8 Advice Letter that WREGIS issued.

9           So if you look at that table, the gross  
10 generation -- lets look at the complex -- we have  
11 10 megawatts at Generator 1, we have 10 megawatts  
12 at Generator 2, so total for the complex is 20  
13 megawatts gross. Then, what the meters actually  
14 meter in this configuration, so the meter of the  
15 first generator would show the 10 minus the one,  
16 which is the local Station Service, which puts  
17 you at net of nine, meaning it does not reflect  
18 that the brine just gets into that plant. The  
19 meter on Generator 2 would show 10 minus one,  
20 which is the Station Service, minus two, which is  
21 the shared load of the production pump, and it  
22 would show seven megawatts because Generator 2  
23 runs the pumps that pump for both generators. So  
24 the net would only be seven. On a complex basis,  
25 it's 16. That is assuming that we do net out the

1 production pump load. And just for the sake of  
2 argument, in our existing facilities in  
3 California, as well as in Nevada, regardless of  
4 whether regulations allow or don't allow us to  
5 use other forms of feed like the local grid, we  
6 have always -- or for many years, we have used  
7 our own generators because it's usually -- it's  
8 cheaper, meaning it's almost the case, at least  
9 in California and Nevada, buying retail service  
10 from the local utility to run the pumps is more  
11 expensive than what we would be selling as a net.  
12 So we have no financial incentive to do that.  
13 Though, as you probably understand, if the rules  
14 -- if you look at the pumps as fuel delivery  
15 system, it wouldn't change the net of the  
16 complex, but at least would get additional -- I  
17 believe it will be Bucket 3 RECs for the load of  
18 the pumps because that will be RECs that are not  
19 bundled with net energy.

20           So in the current situation, we are  
21 harmed, the ones by the fact that we do not get  
22 those Bucket 3 RECs for those two megawatts in my  
23 example, and this harms us financially and, as  
24 Paul said, we have come across business  
25 opportunities where this was the make or break

1 for our customer, where he compared us with a  
2 biomass plant, for example.

3           But I want to focus on the next two rows  
4 on the table, which I think most people here  
5 don't realize where we are harmed even more, and  
6 that is if production pumping load in geothermal  
7 is Station Service, then each and every meter  
8 that is registered with WREGIS has to be  
9 corrected to show the specific consumption of  
10 Station Service attributed to that plant. So the  
11 third line in my table, the theoretic adjusted  
12 meter should have been -- for Generator 1, it  
13 should have shown eight, 10 minus one, minus  
14 another one megawatt, which is the shared use of  
15 brine. And I'm assuming both plants consume each  
16 50 percent of the shared brine, that in a perfect  
17 world, to try to cope with the Advice Letter, we  
18 should manipulate the meter to show eight, and  
19 the second generator, instead of showing seven,  
20 should actually show just eight, right? Because  
21 we should be netting the full two megawatts from  
22 the second generator, we should net just one and  
23 the other one to Generator 1. So it's the same  
24 total of 16, but it should have been eight on  
25 Generator 1 and eight on Generator 2. And by the



1 way, we have been in discussion with WREGIS  
2 trying to implement that, and they told us, yes,  
3 that's exactly what they expect us to do, but  
4 apparently this is not supported in reality.  
5 CAISO, for example, would not allow that, they  
6 would not allow real time meter adjustment using  
7 any external source, and we have confirmed that.  
8 So the fact, though, what will happen is the  
9 utility to which you are buying or selling the  
10 output of Generator 1, we would have to tell that  
11 utility, well, even though the meter is showing  
12 nine megawatt, we should only be charging you for  
13 eight because that extra one is not in compliance  
14 with the current definition of the WREGIS  
15 Operating Rules. But the utility to which we are  
16 selling the second generator, the meter is  
17 showing seven, they will not pay us for eight  
18 because they would say we're going to pay you for  
19 what the meter says. So in practicality, even  
20 though we're making 16 megawatts net -- net  
21 including of all the production pump load --  
22 we'll be paid as if we made 15 just because we're  
23 in this limbo where CAISO does not support in  
24 their actual procedures this product share of  
25 load. So we're harmed twice, once we're not

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 getting any RECs for the production pump load,  
2 and second, we're losing even an extra megawatt  
3 just because the rules cannot be implemented in  
4 reality. That concludes my comments.

5 MR. KOOTSTRA: Thank you.

6 MR. THOMSEN: If I could just -- in  
7 closing, I want to again --

8 MR. KOOTSTRA: Can you state your name  
9 again?

10 MR. THOMSEN: -- sure. Paul Thomsen with  
11 Ormat, for the record. And I just want to thank  
12 you for your time and also just say, again, that  
13 Ormat agrees with the policy that Station Service  
14 should not be eligible for the creation of a  
15 WREGIS certificate, wholeheartedly. The  
16 confusion arises, and this whole issue arises,  
17 with the Advice Letter that Rahm brought up, that  
18 was adopted by WREGIS, issued May 12th by the  
19 Program Administrator, which is the only place  
20 that we find that geothermal brine is defined as  
21 a working fluid instead of a fuel. I think the  
22 discussion you just heard highlights the need to  
23 define the geothermal brine as a fuel, which  
24 would immediately rectify any issues and  
25 definitions of Station Service by WREGIS, the

1 California Energy Commission, FERC, and the  
2 Public Utilities Commission of Nevada, which is  
3 now dealing with the fact that the State of  
4 Nevada has also said that geothermal pumping  
5 loads are part of its fuel delivery system and  
6 not its Station Service. So that's my closing  
7 comments. Thank you very much.

8 MR. KOOTSTRA: Thank you. The next  
9 commenter we have is Steven Kelly.

10 MR. KELLY: Thank you. I'm Steven Kelly,  
11 Policy Director for the Independent Energy  
12 Producers Association. And I'm here representing  
13 a wide array of renewable technologies that are  
14 impacted by this. This is not just a geothermal  
15 issue, it's broader than that.

16 First, I want to thank you for having this  
17 workshop, you and Kelly, too, for scheduling this  
18 and planning this so that we could have this  
19 discussion. I for one have been advocating for  
20 this for a while, we've been raising concerns  
21 over the last year and a half about the direction  
22 that not only WREGIS was going, but the direction  
23 that it seemed like the Commission was going in  
24 their last guidebook revisions. So I thank you.

25 And as background, I want to point out to

1 you that there are no two RPS eligible facilities  
2 that are alike. This description of the  
3 complexity of one unit is probably symptomatic of  
4 a lot of units. This is a highly complex issue  
5 when you start boring down to this level of  
6 detail about what is or is not going to be  
7 treated as Station Service. And I just want to  
8 bring that to your attention because it becomes  
9 increasingly complex, and in many ways you end  
10 up, in order to figure out exactly what's going  
11 on mechanically with these various facilities,  
12 you end up dancing on the heads of a pin for what  
13 purpose? And I'm hopeful that we can get out of  
14 this discussion kind of a better sense of what  
15 the purpose is that the staff and the Energy  
16 Commission have promulgated in moving toward this  
17 direction because I think that it will be  
18 critical for helping the industry work with you  
19 for a solution that is acceptable and works for  
20 everybody.

21 I want to make a couple concerns that I've  
22 raised in the past and want to bring up now. One  
23 is an observation that, just to show you the  
24 complexity of how this can become, the netting  
25 protocol, if you're going to net out Station

1 Service, which is fine, everybody agrees that  
2 Station Service, what the definition is, moving,  
3 but everybody agrees that Station Service  
4 shouldn't be counted. The problem is when you --  
5 one problem that occurs when you do that is what  
6 are you going to net out? In California, with a  
7 33 percent RPS, we might be at a 50 percent RPS  
8 in four, five, 10 years. Nevada may be at nine  
9 percent. Arizona may be at something different.  
10 At that point in time, netting out 100 percent of  
11 the Station Service, when 30 to 50 percent of it  
12 is RPS power, makes little sense to me. And I  
13 only raise that to point out some of the  
14 complexities that rise to the surface when you  
15 move down this path of trying to figure out  
16 exactly what's going on, and what should be  
17 netted out with some of these facilities.

18           What we have been asking for, for a long  
19 time, is a reasonable measure of certainty and a  
20 consistency in the application of Station  
21 Service. And the reason why that's important is  
22 because developers are out throughout the West,  
23 geothermal, biomass, whatever, are out looking at  
24 the sites to develop projects, and finance those  
25 projects, and to do that they have to finance

1 them under a PPA. And in the PPA they're making  
2 commitments to the utilities to sell a certain  
3 amount of RECs. And the utilities are operating  
4 on certain assumptions about how much they're  
5 going to get. And this direction that the Energy  
6 Commission is going has the potential for  
7 certainly undermining the traditional -- the  
8 existing contract treatment for the amount of  
9 RECs that we deliver to a utility under those  
10 PPAs, probably forcing the utilities to go out  
11 and buy more to replace the ones that are no  
12 longer going to count. And it will set a  
13 standard for going forward that will change some  
14 of the development practices. Maybe that's a  
15 good thing, maybe it's not, but it's going to  
16 make it more difficult.

17           And I just want to reiterate the  
18 perception from the industry that we are risking  
19 the potential of going down in a level of  
20 complexity that is probably unwarranted given the  
21 goals of the RPS and the way that these projects  
22 are developed, and the complexity associated with  
23 those.

24           There are a number of potential solutions  
25 that we think should be considered, and in this

1 workshop hopefully we'll get into more detail on  
2 this. One is -- and I just want to emphasize  
3 that the level of precision that is being sought  
4 here is critical, and how much is really being  
5 affected at the end of the day. As California  
6 moves forward to achieve its 33 percent RPS,  
7 millions of megawatt hours of energy are being  
8 used for the utilities and load serving entities  
9 for compliance. The level of precision that is  
10 going to be required to determine the exact  
11 amount of energy to get the purity that seems to  
12 be sought here is, in my view, probably  
13 unwarranted given the scope and scale of the  
14 bigger program that we've got in place.

15           Secondly, we have an existing definition  
16 of Station Service that has been used for many  
17 many years across the West, across the country,  
18 and indeed in California. This is the FERC  
19 definition of Station Service. This was the  
20 definition that the industry was comfortable with  
21 using and was essentially modified in that  
22 Program Administrator letter to the WREGIS in  
23 2012, which is why this is an issue today, it was  
24 not an issue before that point in time.

25           Most people, including myself, who have

1 been working on WREGIS issues for a number of  
2 years, had presumed that this definition of  
3 Station Service that has been developed at FERC  
4 was an appropriate standard for using in  
5 California, and hopefully other states as well,  
6 through WREGIS. It was only until there was a  
7 change that this issue got triggered.

8 I want to again emphasize the de minimus  
9 impact that is at stake here, and the need for a  
10 solution that takes that into consideration, I  
11 think that going forward we could probably  
12 develop a program that keeps the Energy  
13 Commission out of the details of potentially  
14 technical assessments of hundreds of projects to  
15 determine the exact level of megawatts that fully  
16 should be netted out under the direction you're  
17 going. Stay away from that kind of complexity  
18 and maybe we can develop a program that is  
19 simpler and less resource intensive for you, and  
20 provides a better standard for the industry as we  
21 move forward. That may speak for consideration  
22 of some grandfathering for the existing contracts  
23 that were developed under the old paradigm if you  
24 change, going forward. Recognize that any change  
25 going forward is going to impact resource



1 selection, development of resources to meet the  
2 RPS, and so forth, it will probably raise costs.  
3 It certainly may make it more difficult to  
4 configure projects such as these geothermal ones,  
5 where it's not often the case that you can  
6 directly cite your generation right over the  
7 geothermal well -- for a lot of reasons -- land  
8 use reasons, or whatever.

9           When people develop these projects, it is  
10 a highly complex and complicated environment.  
11 And what I'm urging the Commission to do is to  
12 develop a protocol that hopefully you will  
13 advocate at WREGIS so that it applies West-wide,  
14 that is simpler and provides a measure of  
15 consistency, and a standard of review for the  
16 industry so that we can see that and develop our  
17 projects around that to help the state meet the  
18 RPS. And I look forward to that discussion  
19 today. Thank you.

20           MS. FOLEY: Thank you. Kelly Foley,  
21 Advisor to Commissioner Hochschild. Steve, I  
22 wanted to ask you a question and maybe Mark the  
23 same question. The FERC definition, is that  
24 promulgated for all types of power plants, say,  
25 fossil fuel plants, nuclear plants? And does it

1 contain any element of a green determination?

2 MR. KELLY: First, I have my FERC expert  
3 here, Brian Cragg, who I would invite to also  
4 answer this question. But I can answer it, as  
5 well. The FERC definition does not distinguish  
6 between generator types, between green or fossil.  
7 It was designed originally to determine when  
8 retail sales were occurring vs. wholesale. It  
9 actually applies in that context in a slightly  
10 different reference space, but the definition is  
11 one that has been used for designing projects  
12 because it does distinguish between Station  
13 Service. It's a common definition of Station  
14 Service that the developers use when they develop  
15 their projects. So even though it arose in a  
16 slightly different context, the pricing of power  
17 used for generators behind the meter, retail or  
18 wholesale, it has some -- it's provided some  
19 guidance, I think, for developers in this context  
20 for developing renewables. It does not address  
21 environmental attributes, for example. And it  
22 wasn't really meant to do that, but I do have an  
23 expert here, too, who can answer that with  
24 greater precision if you want.

25 MR. CRAGG: Good morning. I'm Brian

1 Cragg, outside counsel to IEP. And in response  
2 to your question, you know, FERC has actually  
3 used "Station Power" is the term that it uses,  
4 that definition and similar concepts, including  
5 the definition of "Auxiliary Load" in about three  
6 different contexts; one is the one that Steven  
7 had mentioned, which is the definition that's  
8 been quoted in the staff paper 2, that arose in  
9 the context of a program to net Station Power  
10 against generation, which is no longer in  
11 existence because of some court rulings that are  
12 no longer affectively in existence, but it was  
13 highly disputed for about eight years, including  
14 several court cases settled FERC decisions. So  
15 that decision was used consistently throughout  
16 that process. People referred to it, they fought  
17 about it, the Courts accepted -- or at least  
18 acknowledged that that was the FERC definition,  
19 so it has a little bit of the authority of having  
20 been tested in a controversial context.

21 FERC also used basically the same  
22 definition for Auxiliary Load earlier for the  
23 original renewables program, the QF Program under  
24 PURPA to determine the net capacity of the  
25 qualifying facilities. Now, those were not just

1 renewable units, they were also qualifying co-  
2 generation units, so they're different  
3 technologies and also waste products at some  
4 point, but there were different technologies  
5 involved, it wasn't exclusively used for green  
6 technology or renewable power.

7           And the other use that FERC has made of  
8 this definition is to determine its jurisdiction.  
9 You know, basically one of the dividing lines  
10 between Federal and State jurisdiction is whether  
11 it's wholesale power or retail power -- wholesale  
12 sales, or retail sales, and FERC has used the  
13 station power definition to determine where the  
14 boundary is between State jurisdiction and  
15 Federal jurisdiction. So using the FERC  
16 definition has the benefit of having been tested  
17 in a variety of contexts over a number of years,  
18 it's widely accepted, it's basically a national  
19 definition that's been relied on, as Steven  
20 pointed out, by industry up until recently. So  
21 it's one way of maybe developing some uniformity  
22 and consistency for this program, as well. Thank  
23 you.

24           COMMISSIONER HOCHSCHILD: I just had a  
25 question for the gentlemen from Ormat. You were

1 commenting about how the brine is a naturally  
2 occurring fluid, if you will, and I'm trying to  
3 follow your logic. Are you suggesting that if  
4 someone were to do geothermal with a synthetic  
5 oil, you know, a closed loop, that that would be  
6 counted as Station Service? Is that the case  
7 you're making?

8 MR. THOMSEN: Thank you, Commissioner.  
9 For the record, Paul Thomsen with Ormat  
10 Technologies. I think if you were going to make  
11 the comparison to SEGs, then, yes, the concept of  
12 introducing a synthetic oil into the reservoir  
13 would have to be counted as Station Service. And  
14 you bring up another point that, today from the  
15 geothermal industry, there is no geothermal  
16 system producing electricity that doesn't involve  
17 a fluid in water. This concept of EGS is in the  
18 early R&D phase and every -- the MIT report from  
19 John Tester and everything talks about the fact  
20 that there are three criteria needed for  
21 geothermal, you know, heat, permeability, and the  
22 fluid. And if you don't have any one of those,  
23 you have to then engineer the system, if you  
24 will, and to date that's never occurred without  
25 geothermal brine. Even the models for EGS and

1 even Ormat, we have the first, I think,  
2 successful EGS project in the United States in  
3 Nevada, we did a simulation in an existing  
4 reservoir using the existing brine of that  
5 reservoir, which then brought that heat source to  
6 the surface. So I think, if you were going to  
7 make a comparison to SEGs, if there was a thermal  
8 fluid introduced, or manmade in any point, you  
9 would have an argument that that would be Station  
10 Service at that point.

11 COMMISSIONER HOCHSCHILD: So I just want  
12 to be clear, basically you have no argument  
13 against our interpretation of SEGs Station  
14 Service, right? It's really --

15 MR. THOMSEN: Not at all.

16 COMMISSIONER HOCHSCHILD: Right, so --

17 MR. THOMSEN: Heat transfer in our system  
18 occurs -- if you were to go back to that slide  
19 with the two, the two circles, the comparison  
20 points would be if you circled the vaporizer on  
21 the binary model and where the SEGs solar --  
22 right, the slide with the two -- sorry -- that is  
23 where the natural renewable resource -- so in  
24 this picture, the yellow trough is where the  
25 photons, the natural energy source, are converted

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 to a manmade working fluid, and then that working  
2 fluid is pumped and that should all be Station  
3 Service. Our geothermal fluid interacts with our  
4 manmade working fluid at the heat exchanger just  
5 like the solar panel at that point. Once the  
6 fuel is delivered to the facility, we then take  
7 it from there and everything from that point on  
8 is Station Service.

9           COMMISSIONER HOCHSCHILD: Right. I'm just  
10 trying to get my hands around, though, the case  
11 you're making. So in the event down the line it  
12 becomes feasible for the geothermal industry to,  
13 for example, have a synthetic oil, on this bottom  
14 pipe, and have that be a closed loop, but that's  
15 obviously not a natural thing, that's a manmade  
16 thing, in your view at that juncture that would  
17 be considered Station Service? It's really by  
18 virtue of this being a naturally occurring brine  
19 that it shouldn't be?

20           MR. THOMSEN: I think that's a logical  
21 breakpoint. And keeping that policies  
22 consistent, when you talk about kind of these  
23 naturally occurring fuels, whether it's coal in  
24 the ground, whether it's biomethane or biomass,  
25 the transportation of that fuel to your facility

1 is typically always defined as a fuel delivery  
2 system. It's at the point that then you  
3 encounter that fuel and start to convert it to  
4 electricity that we start counting Station  
5 Service, and this is where we get into this  
6 unique concept, that geothermal is the only  
7 technology that has to net out its fuel delivery  
8 system and, in our case, I mean, it's even more  
9 difficult because we're trying to power that pump  
10 with our own gross generator and are unable to do  
11 so, as Rahm talked about, the multiple harms.  
12 And I think this brings the bigger question is,  
13 if we are going to count the production pump for  
14 geothermal, to keep policies consistent we should  
15 start to dictate what kind of trucks bring in the  
16 biomass, whether it's electric or diesel, and  
17 subtract those electric charging stations from  
18 the net output of the facility. If we're using  
19 biomethane, we need to start looking at  
20 compression stations, whether those compression  
21 stations are driven by fossil fuels or by  
22 electricity, and netting it out again. There  
23 came this divide at some point where we said the  
24 fuel delivery system for geothermal, I don't know  
25 if it was easy, or if it just was going to be

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417



1 treated differently. And I think we are -- from  
2 a policy perspective we want fair and equitable  
3 treatment, so if the question is we're going to  
4 include that fuel delivery system, we would  
5 encourage the CEC to include all fuel delivery  
6 systems to have to be netted out from development  
7 or treat our fuel delivery system just like every  
8 other one. There was a lot of comment about  
9 moving the boundaries and worrying about what the  
10 fuel source was for these production pumps, and I  
11 guess my question to that is, why? In no other  
12 technology do we worry what type of energy source  
13 powers the fuel delivery system. This is the  
14 essence of calling it the fuel delivery system to  
15 say "we are not going to go into the supply chain  
16 that far to try to figure out or to deduct that  
17 from the facility." But we're more than happy to  
18 do that if it's going to be fair and equitable  
19 and treat all facilities the same.

20 COMMISSIONER HOCHSCHILD: Yeah, I would  
21 just say, you know, thank you, by the way, and I  
22 would just say that certainly consistency is a  
23 very important thing for us because the program  
24 does have to be defensible and, you know, across  
25 technologies, and I just would ask the indulgence

1 of everyone here as we plow through this issue,  
2 just to understand, you know, the line has to be  
3 drawn somewhere, and it has to be defensible and  
4 consistent, and there's no way to do it in a way  
5 that's going to make everybody happy, but I will  
6 say the reason I was late this morning, I was  
7 just meeting with Chairman Weisenmiller, and one  
8 thing I would like to do on this issue is just to  
9 actually pull together a roundtable geothermal  
10 meeting to get input from industry just more  
11 broadly on what can be done to help break down  
12 some of the barriers industry is facing, and  
13 what's it going to take to unlock greater  
14 success. We do have this GRDA program we're  
15 going to be giving out, I think, on the order of  
16 \$6.5 million early this spring, so the context  
17 for me is I really want to see geothermal  
18 succeed, I really believe -- I treat all the  
19 renewables -- it's like raising a family, you  
20 want everyone to graduate and succeed, and I  
21 think there are some big challenges the  
22 geothermal industry is facing, in particular, but  
23 as we go through this we have to be very  
24 sensitive to consistency and so we're balancing  
25 that. I just wanted to share that with the

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 audience, with folks, and I haven't talked about  
2 this with Kelly yet, but I do want to pull  
3 together a sort of bigger picture meeting of just  
4 what it's going to take for geothermal to succeed  
5 above beyond just this issue, I know it's the  
6 focus of the agenda today. So, thank you.

7 MS. FOLEY: Kelly Foley. I had a quick  
8 question for Paul as a follow-up. And excuse my  
9 ignorance of the name of the process, but I think  
10 in the geysers the plants are not binary, they  
11 inject water into the well and then steam comes  
12 up? Are you familiar with that kind of process?  
13 Or am I even correct?

14 MR. THOMSEN: Paul Thomsen for the record  
15 with Ormat Technologies. I would inquire if  
16 there's someone from Calpine or the Geysers here  
17 who wants to discuss their process.

18 MS. FOLEY: Well, it's not per se that  
19 process. My question to you in the context of  
20 fuel analysis is, if there is such a geothermal  
21 application where it's not the brine in the well,  
22 it's an injection of water into the well, would  
23 you consider that fuel?

24 MR. THOMSEN: Absolutely.

25 MS. FOLEY: Okay.

1           MR. THOMSEN:  And I think you bring up an  
2 interesting point.  Again, not only do we have a  
3 discrepancy among different technologies, but  
4 even in the geothermal sector it appears that the  
5 CEC or WREGIS defines the fuel delivery system  
6 for the Geysers differently than it does for a  
7 binary system.  In their situation, I believe  
8 they inject water into their reservoir, which  
9 then -- and it turns to steam, and it turns a  
10 steam turbine -- we believe that is a fuel  
11 delivery system and should not be netted out from  
12 their gross output, which is exactly the way we  
13 think we should be treated with the same fuel  
14 delivery system for that geothermal brine  
15 because, again, in the definition of fuel, that  
16 energy is going through a phase change to create  
17 geothermal power there.

18           COMMISSIONER HOCHSCHILD:  That feels a  
19 little inconsistent with the what you just said  
20 because, in the case of the Geysers, right, it's  
21 actually -- it's not what is wastewater, right,  
22 so it's a manmade -- right?

23           MR. THOMSEN:  And again, I'm not  
24 intimately familiar with the Geyser situation and  
25 I think they should comment on it, but I think we

1 believe that if that is the geothermal fluid that  
2 they're working with, it should be considered a  
3 fuel delivery system.

4           COMMISSIONER HOCHSCHILD: Okay, I thought  
5 the case you're making, if it's a manmade fluid,  
6 it would count as Station Service; if it's not,  
7 it wouldn't.

8           MR. THOMSEN: Right, well I think -- I'm  
9 sorry, I was reiterating -- I think the question  
10 from Ms. Kelly -- I believe that is how they are  
11 treated today. And again, I'm not the expert on  
12 this issue, but there is some inconsistency there  
13 on the difference between the two technologies,  
14 and I think someone from the Geysers would have  
15 to speak to that specifically on whether it's  
16 netted out and how the RECs are accounted for  
17 that situation.

18           MS. FOLEY: Thank you. And I kind of have  
19 a question for staff, too, maybe staff can  
20 illuminate on the Geysers, and then the second  
21 question for Mark. And I don't know if this  
22 structure exists, I think in Southern California  
23 there is a DWR canal that pumps water up a hill,  
24 and then there is this hydro facility on the  
25 other side, and I think that is RPS eligible.

1 Assuming again all these facts are correct, does  
2 it net out the pumping -- and do you know -- does  
3 it net out the pumping on the uphill side from  
4 the downhill flow?

5 MR. KOOTSTRA: I don't know offhand --  
6 this is Mark Kootstra -- I don't know offhand  
7 specifically, but I do know that conduit  
8 hydroelectric facilities are in a special  
9 category, and Gabe Herrera, our legal counsel,  
10 could probably elaborate on that because they are  
11 called out specifically in law as RPS eligible.

12 MR. HERRERA: Yeah. Good morning, Kelly.  
13 Gabe Herrera with the Energy Commission's Legal  
14 Office. I mean, I think we're going into a  
15 slightly different issue there just in terms of  
16 defining what is, and if it is not an eligible or  
17 renewable resource. The Legislature has always  
18 obviously by statute defined what constitutes a  
19 small hydro facility, what constitutes an  
20 eligible conduit facility, etc. Geothermal  
21 resources are obviously an eligible renewable  
22 resource. The issue here, folks, is on Station  
23 Service. I don't believe our Guidebook addresses  
24 that situation or would define the pump allowed  
25 to get the water over the hill to that small

1 facility, small hydro facility or small conduit  
2 hydro facility, as Station Service. You know,  
3 perhaps it should, I don't know, it's just we  
4 don't address it. Steven Kelly looks like he's  
5 eager to jump to the mic. Steven, if you want to  
6 comment on that?

7 MR. KELLY: Well, Steven Kelly with IEP,  
8 and I think that's an interesting question about  
9 how you would treat pumped hydro, for example, if  
10 it was eligible. Even if it was ineligible, and  
11 it looks like small pumped hydro could be  
12 eligible, but not large; so the complexity of  
13 figuring out the answers to those kinds of  
14 questions on that particular project, or that  
15 technology of projects, illustrates the concern  
16 that I've got, that you're going down a path that  
17 is just going to require a measure of consistency  
18 across all the different technologies and all the  
19 different projects that is going to require an  
20 investigation about how they operate, that I'm  
21 not convinced is warranted at all. And as was  
22 commented earlier, if you go down this path,  
23 people will say, "Well, that's fine, let's go  
24 down this path, lifecycle analysis of RPS  
25 resources, but we want that to apply to

1 everybody." And it will open up a huge huge can  
2 of worms. And the effect will be an unnecessary  
3 measure of uncertainty in the industry as we move  
4 forward while you work this out. And it will  
5 take a long time to work out, I can guarantee  
6 that. So that's just my caution.

7 MR. HERRERA: Well, Steven, just a quick  
8 question. This is Gage Herrera. But you would  
9 agree that it makes sense for the Energy  
10 Commission and other regulating agencies to make  
11 sure that there's not an arbitrage of, say, brown  
12 power and converting it to green power; obviously  
13 green power sells for a lot more than brown,  
14 right? And you want to discourage situations  
15 where you could have a generator that is perhaps  
16 converting brown power essentially into green,  
17 right?

18 MR. KELLY: Well, you know, I think that's  
19 -- I don't know -- when you say that, I'm not  
20 sure what you're talking about, and this is kind  
21 of getting to your intent, right? We have a  
22 definition of eligible renewable resources, and  
23 if that definition includes pumped hydro, then  
24 they're not going to be pumping it with the hydro  
25 that's coming down the hill, probably. They're



1 probably pumping it from wholesale power. But  
2 the Legislature or the statute says it's going to  
3 count. So, 1) we want the definition of eligible  
4 renewable resources to be clear, and we want that  
5 to apply, 2) the determination of when you're  
6 browning or greening brown power is a complicated  
7 process and I think there's probably other ways  
8 to get at that issue. To the extent that there's  
9 fraud going on, and in RPS eligibility, that's a  
10 separate question. And I think it begs for a  
11 separate solution that is simpler, too, if you  
12 see that occurring. I mean, you can declare  
13 that's not an eligible resource and you can have  
14 a fight about it, but blanketing the entire  
15 industry across all the technologies with the  
16 complexity that you're proposing, in order to  
17 prevent that occurrence that might happen, I  
18 think, is a problematic way to go.

19 MS. FOLEY: This is Kelly Foley. I just  
20 wanted to make it clear, I wasn't referring to  
21 pumped hydro, which I believe is storage, in a  
22 totally different issue, it only came to mind  
23 because I was trying to think of all the various  
24 scenarios where, whether it's fuel and whether  
25 fuel and therefore fuel delivery, or some other

1 station-like service is in mind. So I only came  
2 up with that -- it may be<sup>4</sup> the only scenario in  
3 the hydro world in all of California, but I just  
4 wanted to throw it out there to think about it.

5 MR. KELLY: Well, I think it's a perfectly  
6 legitimate question, and the Commissioner has  
7 asked kind of a detailed question, too, about how  
8 these things are designed and operated, and so  
9 forth. But it's illustrative of the issues that  
10 you'll have to address going forward, not only  
11 for existing facilities, but new facilities, to  
12 try to ferret out exactly is anybody greening a  
13 brown megawatt hour, even though they're an  
14 eligible renewable technology. And I think we've  
15 got the definition in the Legislature fairly good  
16 on this stuff, I don't know that there's a lot of  
17 fraud going on in the industry right now, if  
18 there was I think we'd correct it in the  
19 Legislature first, but it's perfectly legitimate  
20 to call somebody to the carpet if they are not  
21 operating as an eligible renewable facility. And  
22 that's fine.

23 MR. MULLER: Phillip Muller here on behalf  
24 of Ormat, and I thought I could provide a little  
25 bit more light onto this discussion. First,

1 regarding the hydro issue, Kelly, I think the  
2 point that you were making, they're pumping the  
3 water up and what they're doing with the hydro  
4 facilities with the conduit hydro and the small  
5 hydro that they're using from that, is they're  
6 taking energy that would otherwise be wasted as  
7 they throttle down the pressure. So they're not  
8 actually -- you're not using brown power, you  
9 have to get the power up the hill to get the  
10 water there. And that's what they're trying to  
11 do. And regarding the geothermal at the Geysers,  
12 the equivalent -- pumping the water -- injecting  
13 the water into the ground at the Geysers is  
14 really the equivalent of the feed water pump from  
15 a binary system because it's producing -- the  
16 Geysers up in Northern California are producing  
17 steam. You don't need to pump the steam up to  
18 the generators, the steam will flow as long as  
19 you've got enough liquid down there to make the  
20 steam so that it will go up through the pipes and  
21 through the turbines, so there's no need to pump  
22 it up in order to get that resource to the  
23 surface. The need is to pump the water down into  
24 the reservoir so that it creates enough pressure  
25 that the steam will come back up and generate the

**CALIFORNIA REPORTING, LLC**

52 Longwood Drive, San Rafael, California 94901 (415) 457-4417

1 electricity. Does that help?

2 MS. FOLEY: I think the question was  
3 whether it was a fuel.

4 MR. MULLER: And without the water being  
5 put in the reservoir, nothing comes up, so it  
6 certainly would appear to be a fuel, I mean, what  
7 they're doing is taking the water, underground,  
8 the water is turned into steam, and when it comes  
9 up the steam is then used to generate  
10 electricity.

11 MS. FOLEY: I actually recall, I think  
12 that -- I can't speak for the Geysers, but I  
13 recall now that I'm thinking about it, that since  
14 they're pumping their water up from a wastewater  
15 facility, they pay the utility for that --

16 MR. MULLER: Correct.

17 MS. FOLEY: -- so it's not an issue.

18 MR. MULLER: But it's also not considered  
19 Station Power, and without that, the generation  
20 would be a small fraction of what it is today.

21 MS. FOLEY: Well, I don't know that it's  
22 been considered at all since it's paid separately  
23 through a retail utility rate, as I recall. So  
24 I'm not sure that's the case. So you're saying,  
25 though, that that water, that wastewater being

1 put in, is the fuel?

2 MR. MULLER: Correct.

3 MS. FOLEY: What's the heat?

4 MR. MULLER: The heat is the heat from the  
5 geothermal rocks underground that is turning that  
6 water into steam.

7 MS. FOLEY: But it's not a fuel?

8 MR. MULLER: Well, the heat is the source  
9 of the energy, it's just like the ground is --  
10 just like the earth is the source of what turns  
11 all those old dead dinosaurs into gas and oil,  
12 it's the same thing. The stuff that comes up is  
13 the fuel that you're using to generate  
14 electricity. I mean, it's not a closed cycle  
15 system where you're just keeping -- you're  
16 working fluid going through the process, you have  
17 something that you are taking out of the ground  
18 that is there, it's there naturally, but it's put  
19 there obviously by being pumped in the ground, in  
20 this case from the City of Santa Rosa, or Sonoma  
21 County, or wherever it comes from.

22 MR. KOOTSTRA: Thank you. The next  
23 commenter we have is Jeremy Weinstein with  
24 Pacificore. I said that wrong, I apologize,  
25 Jeremy.

1           MR. WEINSTEIN: That's fine, thanks.  
2 Greetings. Thank you very much for holding this  
3 workshop. I'm really pleased to see the kind of  
4 seriousness with which the issue of Station  
5 Service has been taken.

6           COMMISSIONER HOCHSCHILD: I'm sorry, sir.  
7 Could you introduce yourself again?

8           MR. WEINSTEIN: I'm Jeremy Weinstein with  
9 Pacificore. And I wanted to compliment the staff  
10 for the seriousness with which they are taking  
11 this issue. From Pacificore's standpoint, and I  
12 would dare say from the standpoint of most  
13 investor-owned utilities, the primary issue is  
14 one of compliance. The utilities are interested  
15 in complying with the rules and that's pretty  
16 much it. And there's a multiplicity of rules  
17 that kind of overlap when it comes to Station  
18 Service. The rules include the California RPS  
19 Guidance, but they also include the FERC rules in  
20 terms of reporting generation. So there is a  
21 document called the FERC Form 1 that utilities  
22 file a report that shows what their generation  
23 is.

24           Additionally, what utilities are  
25 interested in doing is the certainty of knowing

1 that their contracts are certain. So if the  
2 utility has entered into an agreement to buy a  
3 certain amount of renewable energy, it wants to  
4 know that when it's received something from its  
5 seller, for which it has paid a certain amount of  
6 money, which is electricity plus an associated  
7 REC, that it actually retains those. And so from  
8 our standpoint, an important thing, important  
9 concern to avoid, is destruction of RECs, so  
10 after RECs have been generated and delivered and  
11 purchased and show up in the meter, that there's  
12 not some process through deduction of station  
13 service that says, "Oh, those RECs that you have,  
14 those RECs go away, because there was a period of  
15 time when you were off line, and the facility  
16 engaged in the activity that we are seeing is  
17 Station Service that requires to be deducted and  
18 therefore you lose those RECs."

19 Now, I think there's a lot of savings  
20 clauses in what's going on here that prevent it.  
21 Pacificore prepared a couple years ago while we  
22 were working on this issue on WREGIS a paper on  
23 off line Station Service demonstrating why we  
24 believe that Station Service did not require --  
25 the Station Service rules did not require a

1 deduction, a netting out of Station Service while  
2 the facility was off line. So does off line  
3 Station Service lead to a deduct of RECs? And  
4 the conclusion with which I think most  
5 stakeholders agreed was, no, it doesn't. And the  
6 reason why is because the rule says no RECs shall  
7 be created for Station Service. And so I think  
8 it's pretty straightforward -- no RECs shall be  
9 created for Station Service. That means that --  
10 that's a different sentence than RECs shall be  
11 destroyed if there is Station Service.

12           So this issue of off line Station Service  
13 is -- can I tell you from our perspective, we  
14 want to be sure that if we've bought something,  
15 we've paid for it, that we still have it, and  
16 that if a facility goes off and does something  
17 that can be characterized, like for example in  
18 the second bullet point on page 9, at the end it  
19 says "energy consumption power these processes  
20 should be provided by the electrical generation  
21 facility before the electric generation is  
22 measured for RPS purposes," so that's before. So  
23 that's consistent with what I've just said, "...or  
24 subtracted from the gross output of the  
25 facility." And it's the subtraction of the gross



1 output of the facility that we want to be sure is  
2 not leading to saying, "Well, gross output,  
3 that's what you've got, and so we're going to  
4 come back and we're going to subtract." So I'm  
5 probably saying a lot of words for what I hope is  
6 a very simple concept, which is that, if the unit  
7 is off line and it's doing something that could  
8 be Station Service, that you don't go back in  
9 time or subtract it. All we're looking for is  
10 certainty and, then, if we actually bought  
11 something, we know we've got it.

12           And I want to compliment the staff for  
13 really serious dedication to all the other issues  
14 and this one, as well.

15           MR. KOOTSTRA: Thank you. Our next  
16 commenter is David Branchcomb with Sierra Pacific  
17 Power Industries. Sierra Pacific Industries, I  
18 like to add that extra "P."

19           MR. BRANCHCOMB: Thank you very much. My  
20 name is David Branchcomb. I'm here today for  
21 Sierra Pacific Industries. We are an integrated  
22 forest products production company here in  
23 California. We operate five biomass fuel co-  
24 generation facilities that are integrated  
25 completely with our sawmill operations. And so

1 when we start talking about what is Station  
2 Service and what is not, my mind begins to spin  
3 with actually how we draw the lines and break  
4 that out because our power plants are integrated  
5 directly with our sawmills. We raise steam from  
6 sawmill residue to dry lumber. As part of the  
7 production process, the pumps that are feeding  
8 the boilers are operating whether or not we  
9 happen to be producing electricity at our  
10 generators that are also co-located onsite.

11           So I'm very concerned that we get too much  
12 into the weeds on this because I question the  
13 value of getting down at that level, especially  
14 for facilities such as ours, to be able to break  
15 that out becomes almost a nightmarish accounting  
16 problem.

17           I just wanted to comment on a couple of  
18 issues that staff raised in their paper, and they  
19 certainly did a nice job laying out all the  
20 combinations and permutations, or at least  
21 beginning to lay them out because I think as we  
22 get into this we'll find there are more. I am  
23 concerned that they talk about inter-temporal  
24 accounting for Station Service. This is the same  
25 issue that Jeremy just raised. Some biomass

1 facilities, not necessarily ours, but others are  
2 known to go off line for extended periods of time  
3 just simply in response to economics. I don't  
4 know how you're going to account for the power  
5 that's consumed at that facility to keep the  
6 lights on and keep the transformers warm during  
7 an extended outage. Will that then net against  
8 RECs that were already created? Or will they be  
9 disappeared, somehow? And I don't know how a  
10 compliance entity is ever going to be able to get  
11 their arms around that. So that's a concern. I  
12 think and recommend strongly that we limit the  
13 accounting for Station Service to situations when  
14 the power plant is operating; other than that,  
15 it's an industrial load.

16           Secondly, I did want to make some  
17 observations on the paper and its  
18 interrelationships with WREGIS. I've been  
19 involved with WREGIS for several years and I'm  
20 currently the generator representative on the  
21 WREGIS Committee. This paper seems to suggest  
22 that the Station Service Working Group that  
23 pulled together this Advice Letter, upon which  
24 WREGIS is relying at this point, was comprised of  
25 all stakeholders that are involved with WREGIS.

1 And it's not. And I want to make that clear.  
2 This Advice Letter was pulled together by a  
3 working group that was composed of Program  
4 Administrators. Generators were not involved.  
5 End-use customers were not involved. This was  
6 simply Program Administrators, so it was their  
7 view as to what should be done, rather than the  
8 balance of the stakeholders that actually have  
9 some skin in the game in this process. And I  
10 think that needs to be noted for the record.

11 My final observation is on a phrase that  
12 was in the conclusion in staff's White Paper, and  
13 that was one where they say, "Staff also  
14 recommends that further clarification regarding  
15 how to apply the definition of Station Service be  
16 deferred to the WREGIS Administrator." I will  
17 argue that that's not the right way to go, and  
18 frankly if staff wants to weigh into this briar  
19 patch, they should wade their way out of the  
20 briar patch and not abdicate their responsibility  
21 to the WREGIS Administrator in this particular  
22 situation. These are your regulations and your  
23 rules, and you should be required to explore them  
24 in forums such as this, where we have public  
25 input, where we have policymaker input, and not

1 rely on the WREGIS Administrator to conclude  
2 actually how your regulations should be deployed.

3           The final comment and observation I would  
4 like to make, and this is really a question for  
5 staff as we see the room with several people -- a  
6 lot of people gathered here, a lot of time being  
7 spent on this, this is being kind of a kick-off  
8 of what could be a long and arduous process -- I  
9 guess I kind of wonder why. Current energy  
10 demand in California roughly is 300,000 gigawatt  
11 hours a year. If we go to a 33 percent  
12 Renewables Standard, that's about 100,000  
13 gigawatt hours a year that will be supplied by  
14 renewable energy, or about 100 million kilowatt  
15 hours. How much of that 100 million do you  
16 expect to influence by tightening down the screws  
17 on what the definition of Station Service is?  
18 I'm just really curious because it seems like a  
19 lot of work for very very little incremental  
20 benefit. So those are my comments today. I will  
21 be available for any questions if anyone has  
22 them. Thank you very much.

23           MR. KOOTSTRA: The next commenter we have  
24 is Nick Goodman.

25           MR. GOODMAN: Thanks, Mark. For the

1 record, my name is Nick Goodman. I'm the  
2 Chairman and CEO of Cyrq Energy. And I want to  
3 start again by thanking staff for this process.  
4 We, I think more than most, really appreciate the  
5 opportunity to have an open process. I've  
6 listened to a lot of the comments this morning  
7 and I'll try not to repeat myself.

8           But for us, we've had our challenges with  
9 WREGIS and one of the comments that I appreciate  
10 the most, and I just want to echo here, is the  
11 ability to have an open forum and an open  
12 discussion where there is participation.  
13 Specifically relating to the last comment, we are  
14 confounded by the current status with WREGIS and  
15 this sort of staff Advice Letter, if you will, as  
16 it pertains to the Operating Rules. We are not a  
17 member of WREGIS, but we do have an account  
18 through an aggregator who was on the WREGIS  
19 Committee, who continues to advise us that the  
20 Operating Rules do not encompass this separate  
21 sort of side letter on Station Service and that,  
22 really, if we are bound under the CEC Guidebook  
23 process to the Operating Rules, there's a little  
24 bit of a disconnect there because this opinion  
25 and side letter on what Station Service is and is

1 not, while it did not go through a public  
2 process, it did not even get vetted by the WREGIS  
3 Committee, so I think that's a comment I'd like  
4 to second.

5           But most importantly for us, you know,  
6 again, I echo the comments of Ormat, I think it's  
7 very possible to get into lots of very granular  
8 discussions about what is a fuel, what isn't,  
9 does it heat; we believe that the brine is a  
10 fuel, we believe that it is currently being  
11 treated differently within geothermal, both flash  
12 versus binary, and we've had some discussions on  
13 that, so I just want to state for the record it  
14 seems to us that the consistent approach is fluid  
15 or water, whether it's manmade, it's actually not  
16 the manmade components in a flash system of the  
17 water, the wastewater, it's just the water  
18 naturally occurring that becomes steam, and  
19 that's the same naturally occurring water that we  
20 use. So that's how we arrive there.

21           But at the end of all days, I think we  
22 come down upon looking for consistency and  
23 looking for not just consistency amongst the  
24 various renewables, but more importantly looking  
25 for consistency within the industry and getting

1 projects financed, which is really the hardest  
2 thing for geothermal projects to do today. And  
3 this inconsistency between FERC and what may  
4 happen on the East Coast versus the West Coast,  
5 the FERC definition versus the various  
6 definitions here, we desperately seek  
7 clarification. And so I'll come full circle  
8 again by thanking you because I think this is a  
9 process that's going to get us there, it feels  
10 like you guys are very actively engaged now, and  
11 we would just push for looking to some sort of  
12 industry standard that is fair and consistent,  
13 and we believe that's the preferred definition.  
14 Thank you.

15 MR. KOOTSTRA: Thank you. Our next  
16 commenter is Sandra Aria (*sic*). I know I'm  
17 butchering this name, I'm sorry. Assistant Vice  
18 President of LS Power Development. Oh, I'm  
19 sorry! Sandeep, okay.

20 MR. ARORA: Hello, good morning. My name  
21 is Sandeep Arora. I work for LS Power. I want  
22 to again echo everyone else's comments, thank you  
23 for this opportunity to be here, participate, and  
24 we will continue participating in this forum.

25 This is an important topic for LS Power.



1 LS Power is the owner, builder, developer of  
2 solar generation projects in California,  
3 developer of transmission projects all across the  
4 United States, and also developer and  
5 owner/operator of natural gas-based projects all  
6 across the U.S.

7 In the context of Station Service, you  
8 know, we specifically wanted to talk about the  
9 Station Service requirements as they apply to the  
10 California projects that we have recently built  
11 in our operation.

12 I know there has been a lot of discussion  
13 on geothermal, biomass, and other technologies,  
14 but I think the whole issue of Station Service  
15 and the accounting rules and whether RECs are  
16 available, how RECs are accounted for, they are  
17 applicable to pretty much all projects, not just  
18 specific technologies.

19 And essentially I want to take a minute  
20 and talk about just the complexity of electrical  
21 design. When we design -- and I'm more familiar  
22 with solar PV projects, so I can speak for those  
23 -- but when you design a solar PV project, it's  
24 100 megawatt plus, a big project, it takes about  
25 1,000 acres, 1,000 plus acres, it's huge. The

1 way you're setting up electrical service for the  
2 project is typically you get backfeed service  
3 from the point of interconnection, and then very  
4 often you also have a design where you get a  
5 distribution feed from the local utility, so that  
6 essentially there are two sources of power coming  
7 into a plant of this size, and back-feed is  
8 essentially to cover for your transformer losses,  
9 your line losses, and so on. And then  
10 distribution services for essentially other  
11 Station Service, auxiliary service requirements  
12 that the plant has.

13           When the plant is generating, it's on  
14 line, then whatever net consumption -- the back-  
15 feed requirements are netted off of the revenue  
16 meter, which measures how much the plant is  
17 delivering towards its point of interconnection.  
18 However, when it's not generating, the meter is  
19 likely spinning in the other direction and it's  
20 consuming some energy. So some plants could have  
21 a dual design where there could be a Station  
22 Service fee, which is a distribution fee. Now,  
23 that's a completely separate electrical system,  
24 but that Station Service feed is essentially to  
25 meet the auxiliary loads that exist at the plant,

1 and also to offset some of the inverter losses,  
2 inverter transformer losses, and so on. So when  
3 we're talking about Station Service, trying to  
4 separate Station Service in a sense, you know,  
5 based on this definition, from overall  
6 consumption for a project of this size, which  
7 comprises of backfeed requirements and Station  
8 Service, is going to be definitely a complex task  
9 to achieve.

10           We're going to have to try to meter and  
11 account for what transformer losses, line losses  
12 versus what's typical Station Service that is  
13 being discussed under this. And again, it's been  
14 discussed before, during the nighttime when the  
15 project is not running, there is some amount of  
16 consumption coming in from the transmission site;  
17 again, there's no RECs that get generated during  
18 that time, so what clarification we are seeking  
19 is that the production level that was achieved  
20 during the daytime, the RECs generated for those  
21 do not get offset by the consumption that takes  
22 place during the nighttime. So we support other  
23 comments that are made earlier that nighttime --  
24 because when we designed the project a few years  
25 ago, this was not really modeled into the

1 financial models for the plan, and that's what  
2 the expectation from the utilities is for which  
3 we have PPAs. I'm sure everyone else is pretty  
4 similarly set up. So if you're trying to change  
5 some rules for projects which are already  
6 operational and functioning under a certain  
7 financial arrangement within these PPAs, I think  
8 that is going to be, 1) it's going to be complex  
9 to achieve, and 2) it's going to cause a lot of  
10 financial impacts -- to not just our projects,  
11 I'm pretty sure there is going to be several  
12 other projects that have similar set-up over the  
13 last few years which will be financially impacted  
14 by this. So we urge the staff to -- I guess  
15 there could be a way to address this, which is by  
16 allowing a de minimus requirement, a de minimus  
17 input that comes into the plant for meeting  
18 Station Service, or backfeed, or other  
19 requirements, and keeping the problem at a very  
20 high level, or a simple level, rather than trying  
21 to get into the details and just trying to split  
22 the meters and seeing how much is backfeed and  
23 how much is station service, again, when the  
24 plant is on line versus when the plant is off  
25 line. And also, their additional complexity is,

1 are the megawatts that are generated going  
2 towards, for instance, CAISO, versus the energy  
3 coming into the plant, is that coming from a  
4 distribution facility, which could be CAISO  
5 distribution usually, or a non-ISO distribution.  
6 So there is going to be a lot of complex  
7 arrangements, metering arrangements, that would  
8 have to be made if we go by what's being  
9 proposed. So we definitely urge the staff to re-  
10 think that and, again, thank you for this  
11 opportunity to participate.

12 MS. ZOCCHETTI: Thank you. This is Kate  
13 Zocchetti. I'm Acting Office Manager of the  
14 Renewable Energy Office. And I just have a  
15 question. A lot of folks have been mentioning  
16 that it's very complex and we're getting into the  
17 weeds, which I agree, that seems to be our job.  
18 I just have a question for you and then I have a  
19 comment. My comment is that I just think it's  
20 interesting that the utilities are very  
21 interested in getting into the weeds and they  
22 will argue with us about a kilowatt hour when  
23 we're verifying electricity, so we're already in  
24 the weeds, and that's what we do every day.

25 I do have a question, though. If we were

1 to consider the off line versus on line issue,  
2 and if off line was taken off the table, would  
3 that reduce complexity immensely or just a little  
4 bit?

5 MR. ARORA: It would definitely reduce the  
6 complexity, however, I think even during the  
7 daytime, if there is a certain amount -- because  
8 every project who is going to be delivering or  
9 generating renewable energy is going to need some  
10 minimum amount of electrical consumption. Now,  
11 whether that's coming from 100 percent brown  
12 power, or as others said, maybe it's 33 percent  
13 green versus, you know, the rest is brown. So I  
14 think to the extent certain de minimus is  
15 factored into the equation, that would simplify  
16 the problem a lot.

17 MR. KOOTSTRA: Okay, thank you. The next  
18 commenter is Shawn Bailey.

19 MS. BAILEY: My name is Shawn Bailey. I'm  
20 with Sempra U.S. Gas and Power. We operate a  
21 number of wind projects across the United States  
22 and we have, in particular, a wind project in  
23 construction in Mexico, serving Imperial Valley  
24 Substation and San Diego Gas & Electric, as well  
25 as two major solar sites, one located near Palo

1 Verde, Arizona, and the other near Las Vegas,  
2 Nevada.

3 I'm feeling really lucky this morning  
4 after hearing that geothermal fuel discussion.  
5 Operating wind and photovoltaic projects should  
6 be a lot less controversial, however, there are a  
7 couple elements to the staff's proposal that  
8 appear somewhat problematic and I would echo many  
9 of the comments that have come before about the  
10 nature of trying to split end uses at the site  
11 location between those that are required for  
12 plant operation versus those that were ancillary.  
13 And in our particular cases, we may or may not  
14 have distribution service from a local utility;  
15 at night, we may simply backfeed from the  
16 wholesale system to meet our essentially computer  
17 loads at the site, lighting loads, SCADA systems,  
18 security systems, essentially systems that don't  
19 have anything to do with operation. And so it  
20 concerns me that the definition may have a gray  
21 area as proposed by the staff about trying to  
22 divide end uses in between those that are  
23 required for operation of the plant versus those  
24 that aren't.

25 I think, as has also been suggested, that

1 you already have in statute this de minimus  
2 multi-fuel use exclusion at two percent, and it  
3 seems to me that that is a very appropriate  
4 metric to use to deal with these ancillary loads,  
5 and that it should be straightforward to review a  
6 solar photovoltaic site, for example, to  
7 determine that a lot of the gaming opportunities  
8 that you're concerned about really don't apply to  
9 those facilities, they're very simplistic: when  
10 the sun is up, you generate; when the sun is  
11 down, you don't.

12           So I would suggest perhaps, you know, one  
13 size doesn't fit all when it comes to developing  
14 metrics to dealing with the Station Service  
15 concept, and it may be a more technology specific  
16 assessment is in order, so that you target those  
17 cases where you've got some potential for gaming  
18 where you have a lot of gray area versus those  
19 that you don't. And that wraps up my comments.

20           MR. KOOTSTRA: Thank you. That's all the  
21 commenters we have in the room at this time,  
22 unless somebody else has a comment they'd like to  
23 bring up. We're going to go to the WebEx if  
24 there's anyone there, Brian? Okay. And then we  
25 can unmute the phones if anyone on the phones



1 have a comment. Please be patient with the fact  
2 that you might have several people talking at  
3 once, but we're going to unmute the phones so you  
4 can comment. Let me know when you get that  
5 unmuted. And again, while people are commenting,  
6 if anyone in the room has a comment, please feel  
7 free to fill out a blue card, let us know, as  
8 well as anybody on the WebEx to raise your hand.

9           COMMISSIONER HOCHSCHILD: While we're  
10 waiting, I'll just say, actually I'm having lunch  
11 today with Charlie Warren, who is the original  
12 member of the Legislature who created the Warren-  
13 Alquist Act. Next year will actually mark the  
14 40-year anniversary of that, and I think he will  
15 be pleased to know that we're at the point where  
16 we're debating these kind of fine tuning issues  
17 for a 33 percent RPS because the state has indeed  
18 come very very far from when the Energy  
19 Commission was first created. Do we have folks  
20 on the phone who are going to comment?

21           MR. KOOTSTRA: We do have it unmuted, so  
22 if there is anyone on the lines, please unmute  
23 your line and speak up if you can and have a  
24 question? Okay. Is there anything on the WebEx  
25 that's come up, Brian? I think at this point, we

1 don't have any commenters on the WebEx or the  
2 phone that have gotten it to work. So I believe  
3 that's what we have for comments. Again, if  
4 anyone in the room has comments, please speak  
5 now.

6 COMMISSIONER HOCHSCHILD: Great. Well,  
7 let me just add my thanks to everyone. I really  
8 appreciate you all taking the time to get here  
9 and to share your thoughts as we try to get this  
10 right. I really am grateful for that. And also  
11 to the staff for working very hard on this issue  
12 and, Mark, particularly for the paper. Thanks to  
13 everyone.

14 MR. KOOTSTRA: I just want to close with  
15 some next steps. So everyone is aware, comments  
16 on this are due by 4:00 p.m. on September 20th.  
17 There are instructions in the notice for the  
18 workshop on how to submit the comments. We do  
19 request that you email them not only to the  
20 docket, but -- I don't remember which address,  
21 it's either the RPS Track or the RPS 33 percent,  
22 email address there so that we can get the  
23 comments as soon as possible. It takes a few  
24 days to go through dockets, and we appreciate  
25 advance notice as much as we can get. Staff does

1 recommend, as we said in the paper, with revising  
2 a future edition of the Guidebook to clarify  
3 Station Service so there is true clarity across  
4 the board, and we also do plan on having a  
5 scoping workshop in early 2014 on the Guidebook,  
6 which may potentially bring up some comments on  
7 this, but it will be focused on other open  
8 issues, as well. Thank you very much.

9 MS. ZOCCHETTI: So, Mark, just to clarify  
10 in the notice it does say also the RPS33@energy?  
11 That's the other email address.

12 MR. KOOTSTRA: Thank you. All right. And  
13 this is contact information if you have any  
14 questions, you can contact either myself or Kate  
15 Zocchetti, who in addition to being the Acting  
16 Office Manager, has also been the RPS Lead for  
17 many years, and I believe still fulfills part of  
18 those duties. So thank you very much for coming.

19 MS. ZOCCHETTI: Thank you, everyone.

20 (Thereupon, the Workshop was adjourned at  
21 11:22 a.m.)

22

23

24

25