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ENERGY COMMISSION  
STATE OF CALIFORNIA  
BUSINESS MEETING  
  
CEC HEADQUARTERS  
1516 9TH STREET  
HEARING ROOM A  
SACRAMENTO, CALIFORNIA

WEDNESDAY, MARCH 12, 2014  
10:05 A.M.

Reported by:  
Jacqueline Toliver  
CSR No. 4808

1 COMMISSION MEMBERS PRESENT:

- 2 Robert D. Weisenmiller, Chair  
Karen Douglas  
3 Andrew McAllister  
4 David Hochschild  
5 Janea Scott

6 STAFF PRESENT:

- 7 Robert Oglesby, Executive Director  
Michael Levy, Chief Counsel Kevin Bell, Senior Counsel  
8  
Steve Adams, Staff Counsel  
9 Jennifer Allen

|                   | ITEM NO. |
|-------------------|----------|
| 10 Keith Winstead | 3        |
| 11 Bruce Boyer    | 4        |
| Laurie ten Hope   | 5        |
| 12 Juan Garcia    | 6        |
| Sarah Williams    | 7        |
| 13 Andre Freeman  | 8, 9     |
| Joseph Wang       | 13       |
| 14 Amir Ehyai     | 14       |
| Adele Suleiman    | 15, 16   |
| 15 Raquel Kravitz | 17       |
| 16 Jennifer Allen |          |

OTHERS PRESENT:

- 17 Stephen O'Kane, Manager, AES Southland  
18 Brian\* LaFolette, Assistant General Manager, Turlock  
Irrigation District  
19 Jeffrey Harris, Counsel, Almond 2 Power Plant  
Jerome Carman, Redwood Coast Energy Authority (WebEx)  
20 Lisa Mortenson, CEO, American Biodiesel Community  
Kristen Macey, Director of the Division of Measurement  
21 Standards

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P R O C E E D I N G S

MARCH 12, 2014

10:05 A.M.

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CHAIR WEISENMILLER: Good morning. Let's start the Business Meeting with the Pledge of Allegiance.

(Thereupon the Pledge of Allegiance was recited in unison.)

CHAIR WEISENMILLER: In terms of today's meeting, Items 2 and 12 have been held, so with that let's go to the Consent Calendar.

COMMISSIONER DOUGLAS: I move the Consent Calendar.

COMMISSIONER McAllister: Second.

CHAIR WEISENMILLER: All those in favor?

(Ayes)

CHAIR WEISENMILLER: Calendar passes five to zero.

Let's go on to No. 3, which is Alamitos Energy Center (13) AFC-01. Keith Winstead, please.

MR. WINSTEAD: Good Morning, Commissioners. My name is Keith Winstead. I'm the Energy Commission Siting Project Manager for the Alamitos Energy Center. Here with me is staff counsel Steve Adams.

The Alamitos Energy Center is a proposed 1,936-megawatt natural gas-fired, combined-cycle,

1 air-cooled electrical generating facility that will be  
2 constructed in the City of Long Beach on the site of the  
3 Alamitos Generating Station; Demolition of existing  
4 facility and construction of the new facility and  
5 proposed new phases over nine years from 2016 until  
6 1025.

7           AES South Development, LLC filed an Application  
8 for Certification with the Commission on December 27,  
9 2013. On February 18, the Commission adopted a staff  
10 recommendation and found the AFC inadequate in four of  
11 the 43 technical areas reviewed by staff. Those areas  
12 of data inadequacy included Air Quality, Biological  
13 Resources, Cultural Resources, and Transmission System  
14 Engineering.

15           The applicant, AES, filed a supplement to the  
16 AFC on February 18th, a completeness letter from the  
17 South Coast Air Quality Management District on  
18 February 24th, and additional cultural resources  
19 information on February 26. As a result, on February  
20 28, the Executive Director submitted a memorandum to the  
21 Commission recommending the Alamitos Energy Center AFC  
22 data adequate.

23           No public comments on the project have been  
24 received to date. Staff has completed its data adequacy  
25 review of the supplemental information, together with

1 the regional AFC, and has determined that they meet all  
2 the requirements listed in Title 20, California Code Of  
3 Regulations.

4 Staff therefore recommends the Commission to  
5 accept the Alamitos Energy Center AFC as complete.

6 This concludes my presentation. I'm available  
7 to answer questions.

8 CHAIR WEISENMILLER: Thank you. Applicant?

9 MR. O'KANE: Thank you. My name is Sephen  
10 O'Kane. I am with AES. I'm the Manager of the  
11 Sustainability Program, AES Southland.

12 Hello again. I was here just last month. I  
13 gave a restatement about the Alamitos Energy Center. It  
14 is the third AFC now in front of your Commission for AES  
15 bringing them a variety of options to meet Southern  
16 California's energy demands. I think it's one of the  
17 critical-located facilities and will prove to be a  
18 significant part of the energy infrastructure of  
19 Southern California.

20 I also mentioned last time I was here the  
21 personal connection I have with a resident of Long  
22 Beach, Ann Mills, who would love to see the siting  
23 committee come down to our fine city and begin the  
24 process.

25 Our community, I think it's an unusual

1 community, and that we have a very welcoming community.  
2 We have a mayor who is very much closely tied to the  
3 business of electrical reliability. Mayor Foster is, of  
4 course, our chairman of the California Independent  
5 System Operators, so I could say with some confidence we  
6 have a supportive local government.

7 So we look forward to progressing with AEC and  
8 seeing you all in Long Beach very shortly.

9 CHAIR WEISENMILLER: Anyone from the public?

10 I would note that Bob Foster, Mayor Foster, was  
11 at the Energy Commission when I was here the first time.  
12 Bob was head of our Energy Efficiency Division and was  
13 responsible for our first round of the building of  
14 appliance centers, and load maintenance centers too.  
15 So, actually, he has deep roots in this organization. I  
16 spoke with Pat.

17 Does anyone have any questions or comments?

18 COMMISSIONER DOUGLAS: No questions, but thanks  
19 for sharing that. I didn't know that.

20 So I'll move to find the project data adequate.

21 COMMISSIONER SCOTT: Second.

22 CHAIR WEISENMILLER: All those in favor?

23 (Ayes)

24 CHAIR WEISENMILLER: This item passes  
25 unanimously. Let's on to the committee. I'm going to

1 appoint Commissioner Douglas as the presiding member and  
2 Commissioner Scott as the second member.

3 Motion?

4 COMMISSIONER HOCHSCHILD: I'll move the item.

5 Commissioner MC ALLISTER: Seconded.

6 CHAIR WEISENMILLER: All those in favor?

7 (Ayes)

8 CHAIR WEISENMILLER: That also passed  
9 unanimately. Thank you.

10 Let's go on to Item 4, Almond 2 Power Plant  
11 Project (09-AFC-2C). Bruce Boyer, please.

12 MR. BOYER: Good morning, Commissioners. My  
13 name is Bruce Boyer, and I am the Compliance Project  
14 Manager for the Almond 2 Power Plant Project.

15 With me this morning is Kevin Bell, Senior  
16 Counsel. We also have technical staff from Air Quality  
17 to answer any questions you may have. We have  
18 representatives from Almond 2 present as well.

19 The Almond 2 Power Plant is a 174-megawatt  
20 simple-cycle peaking power plant located in the City of  
21 Ceres in Stanislaus County. The project was certified  
22 by the Energy Commission on December 15, 2010, and began  
23 commercial operation on July 13, 2012.

24 On February 22nd, 2013, the Turlock Irrigation  
25 District, or TID, owners of the plant, filed a petition

1 with the California Energy Commission to amend the  
2 December 15, 2010, Energy Commission's final decision  
3 for the Almond 2 Power Plant.

4 Notice of Receipt was docketed, posted to the  
5 Web, and mailed to the post-certification mail list on  
6 March 15, 2013.

7 On June 17, 2013, TID requested that additional  
8 modifications be added to the February 22, 2013,  
9 petition. Staff's analysis of the petition to amend was  
10 docketed and posted to the Web on February 3rd, 2014.

11 No request for information forms were received.  
12 The public comment period ended on March 3rd, 2014. And  
13 today's business meeting notice was also mailed to the  
14 Almond 2 Power Plant as served.

15 Now I would like to briefly identify the  
16 requested changes in the technical area of air quality.  
17 These proposed modifications to air quality conditions  
18 of certification would allow Almond Power Plant 2 to:  
19 (1) Delete the requirement that the fuel-flow meter be  
20 non-resettable and totalizing; (2) Allow the testing of  
21 only one turbine per source test to verify compliance of  
22 startup and shutdown of mass emission rates of NO<sub>x</sub>, CO,  
23 and VOC; (3) And modify or delete conditions that  
24 regulate certain activities with reference to the  
25 completed construction and commissioning phases.

1           After the publication of staff's analysis, the  
2 Energy Commission staff received the following  
3 administrative change and comments from the project  
4 owner. The change and comments are as follows:

5           (1) Administrative correction. Two permit  
6 unit numbers were entered incorrectly, was completed in  
7 A-Q1;

8           (2) After the deletion of already completed  
9 conditions of certification, TID suggested that the  
10 remaining conditions could be renumbered to be  
11 consistent with the Air District. Generally, the  
12 conditions of certification need to retain the assigned  
13 numbering system in order to prevent confusion in  
14 tracking compliance history;

15           (3) TID will comply with AQ-41 but believes  
16 that the requirement and verification of AQ-41 is beyond  
17 what the San Joaquin Valley Air Pollution Air Control  
18 District or Air District and Environmental Protection  
19 Agency require.

20           After taking into consideration previous staff  
21 and Air District analyses and additional research  
22 included in review of requirements for comparable  
23 projects, input from staff of the Air District, EPA, and  
24 the turbine manufacturer, the Energy Commission staff  
25 believe the additional language and the verifications

1 are necessary and appropriate to clarify the intent of  
2 the requirements to ensure the protection of public  
3 health and safe and reliable operation of the project.

4 Air Quality staff are available, if needed, to  
5 answer any questions.

6 Staff has determined that with the adoption of  
7 the revised and deleted conditions of certification in  
8 the technical area of air quality, modified Almond 2  
9 Power Plant Project would conform with all applicable  
10 federal, state, local, San Joaquin Valley Air Pollution  
11 Control District laws, ordinances, regulations, and  
12 standards, and would not result in significant adverse  
13 environmental impacts.

14 These changes will not increase emissions and  
15 are being incorporated into the San Joaquin Valley Air  
16 Pollution Control District's Authority to Construct  
17 Permit.

18 At this time staff recommends approval of this  
19 petition with the proposed revisions to and deletions of  
20 the certification, and is available to answer any  
21 questions you may have.

22 Thank you.

23 CHAIR WEISENMILLER: Thank you. Applicant?

24 MR. HARRIS: Good Morning. Jeff Harris on  
25 behalf of the applicant, and to my right is Mr. Brian

1 LaFollette. Brian is the Assistant General Manager for  
2 Power Supply at TID. Brian's insistence on being here  
3 in person, I think, shows how important this asset is  
4 to the Turlock balancing authority. And Turlock is its  
5 own balancing authority. It also shows the importance  
6 of the relationship with the Commission and staff. So  
7 we're glad to be here in that respect.

8 We look forward to continuing to work with the  
9 staff. We appreciate the detail, and have no problem  
10 at all complying with the requirements. So we'll make  
11 ourselves available for questions.

12 Thank you for -- hopefully, thank you for your  
13 approval.

14 (Laughter.)

15 CHAIR WEISENMILLER: Thanks.

16 Anyone from the public?

17 Actually, let me start with the first question,  
18 which is actually on a related topic. It's just, as you  
19 know, there's a drought. You know the Governor has a  
20 drought task force. We're on point on the energy part,  
21 or particularly Rob Oglesby is on point.

22 Now, at least for some power plants I'm being  
23 approached saying that the drought has implications for  
24 them in terms of our water conditions and that water  
25 conditions may have impacts on CVS emissions. So I just

1 want to encourage you if there are any issues, please  
2 reach out to our staff quickly. As you know, we try to  
3 act fast, but this may be quicker than we can respond to  
4 in terms and conditions.

5 So the first question is if you have an  
6 issue -- but even if you don't -- the basic message is  
7 let us know if one is developed.

8 MR. HARRIS: Okay. I appreciate the question.  
9 I'm not sure that I'm the one to answer in terms of  
10 water quality. We are aware that the Commission is  
11 interested, and we certainly will do what we can to  
12 respond quickly.

13 I believe we received a data request just the  
14 other day from the Commission on this topic, on a  
15 related topic, and so I'm aware of that. And we've got  
16 the right folks working on a response.

17 CHAIR WEISENMILLER: Great. Just encourage  
18 timely response, and if problems come up later, let us  
19 know fast.

20 COMMISSIONER DOUGLAS: Briefly, I just wanted  
21 to note that as a lead Commissioner on siting I've  
22 reviewed this amendment. It's technical. It doesn't  
23 affect emissions. The administrative cleanup is  
24 (inaudible) so I recommend it for the Commission's  
25 approval, and I'll move approval of this amendment.

1 CHAIR WEISENMILLER: Any other questions or  
2 comments from the Commissioners?

3 Commissioner MC ALLISTER: I just want to commend the  
4 back and forth that I understand that happened where,  
5 you know, a few things came in from the applicant based  
6 on staff. Staff sort of took advantage of that process  
7 to clean up in ways that make sense administratively and  
8 sort of simplify and streamline and sort of put the  
9 commissioning agency issues -- sort of made them --  
10 cleaned them out of the current going forth.

11 Personally, I think that made a lot of sense  
12 and kind of is representative of some efficiency that I  
13 admire and want to support. So I'll second.

14 CHAIR WEISENMILLER: All those in favor?

15 (Ayes)

16 CHAIR WEISENMILLER: The item passed  
17 unanimously.

18 Thank you.

19 MR. BOYER: Thank you.

20 CHAIR WEISENMILLER: Let's go on to item No. 6.  
21 Excuse me. Item No. 5, which is Public Interest Energy  
22 Research (PIER) 2013 Annual Report. Laurie ten Hope.

23 (Thereupon an overhead presentation was  
24 presented as follows.)

25 MS. TEN HOPE: Good morning. I'm Laurie ten

1 Hope, the Deputy Director for Energy Research, and today  
2 I'm going to provide an overview of the Public Interest  
3 2013 Annual Report for your consideration.

4 This report is required by statute. It's  
5 required to include the prior year's award recipients,  
6 the amount of the awards, the types of projects funded,  
7 and an evaluation of the projects and recommendations  
8 for program improvements.

9 The report before you is due to the Legislature  
10 by March 31st each year, and the report covers the  
11 research activities for the prior January 1st to  
12 December 31st.

13 I'm going to cover today some of the highlights  
14 of the research, the ratepayer benefits, and the legacy  
15 of the PIER Program to date.

16 Public interest R&D is a crucial link between  
17 the researchers with an idea and the investors looking  
18 for a reasonable prospect of return on their investment.

19 The PIER program supports higher-risk research  
20 with the potential for providing a public benefit and  
21 reduces the private sector risk by helping demonstrate  
22 and prove the technical potential of a new idea.

23 Consumers reap the rewards of public R&D in  
24 improved products and reduced costs, and individual R&D  
25 projects can inform entire industries.

1           The social rate of return to public R&D has  
2     been estimated at three to four times the private rate  
3     of return.

4           In calendar year 2013, we encumbered the last  
5     of the PIER electric funds at the June 2013 Business  
6     Meeting. The total electric encumbrances for 2013 were  
7     just shy of 24 million, and that investment was matched  
8     by 102 million, for a total project value of  
9     \$126 million.

10           The bulk of this match funding was  
11     contributed by two storage projects. One was the  
12     storage project with Burbank Water and Power and the  
13     second was a storage project with Pacific Gas &  
14     Electric. Those two projects alone were about \$90  
15     million in match funding.

16           The total funding that's been encumbered to  
17     date for PIER projects is 884 million. About 83 percent  
18     of that total is for electric projects. And this shows  
19     the historic breakdown of the funding allocations, which  
20     basically follows our policy loading order with the  
21     largest funding encumbrance being dedicated to energy  
22     efficiency and demand response, about a third of the  
23     funding, followed by renewables, which is kind of cut  
24     off, at least on this slide, on the bottom of the slide  
25     at about a quarter of the funding; advanced electricity

1 generation, which includes CHP and other clean generation  
2 technologies receiving 15 percent of the funding. And  
3 rounding out, transmission distribution, energy-related  
4 environmental research and transportation.

5 --oOo--

6 In 2013 we funded 26 new projects. And during  
7 the calendar year we're managing over 350 projects,  
8 continued our stakeholder engagement of outreach. And  
9 as you know, the PIER program is winding down, but it  
10 still has a significant project load to manage  
11 throughout this year.

12 An example of the projects that were funded in  
13 the upper right-hand corner is a photo of the Maxwell  
14 Technologies ultra-capacitor project. This project was  
15 started in 2013 to demonstrate the value that  
16 ultra-capacitors can have with concentrated solar to  
17 basically stabilize the power output of the PV and help  
18 with the grid management of intermittent renewables.

19 The other projects highlight two storage  
20 projects that were both ongoing in 2013, including a  
21 ribbon cutting at the Yerba Buena battery energy storage  
22 system in San Jose.

23 And in December 2011 -- well, in 2011 the  
24 Legislature did not pass -- did not reauthorize funding  
25 for the PIER program, so we are in the process of

1 winding down active projects. Those projects will be  
2 managed basically through 2015. Most of our projects  
3 typically have a life of three to five years.

4 And as I think everyone knows, the CPUC in  
5 November 2011 established the electric program  
6 investment charge. And that program will be informed by  
7 PIER, although there's significant changes in the scope  
8 and the structure of the research program going forward.

9 --oOo--

10 So now I want to move into a few of the  
11 highlighted projects that were either initiated in 2013  
12 or had some significant accomplishments during the year.

13 And this first one is an example of a building  
14 energy efficiency research project that was developed by  
15 the Western Cooling Efficiency Center. This basically  
16 uses a aerosol sealant to locate and seal leaks in  
17 building envelopes and is proving to be a solution that  
18 can dramatically reduce total leakage.

19 The test results, both in the lab and in a test  
20 home, demonstrate that this can seal 50 percent more of  
21 the remaining leaks after doing a standard manual  
22 sealing process.

23 Sealing building envelopes saves energy by  
24 reducing the loss of conditioned air and, consequently,  
25 the demand for cooling and heating. And automating this

1 process is estimated to save between 15 and 30 percent  
2 of the total energy used for HVAC.

3 Perhaps even more significantly, this can be  
4 done a lot faster. So for a typical 1200-square-foot  
5 home, this process would take about a half a day  
6 compared to three contractors spending an eight-hour  
7 day. So we've got energy savings and labor savings.

8 --oOo--

9 This technology is very promising in the lab,  
10 and so we've done a projection of what we think the  
11 future benefits of this current research might be.

12 And the contractor for this project has a  
13 strong track record of commercializing technologies. He  
14 was responsible for commercializing duct sealant  
15 technologies; basically created a spinoff company, and  
16 was quite successful and decided to get back into the  
17 research area.

18 This calculation right here is using a  
19 conservative one percent market penetration of all  
20 residential and commercial buildings in California. And  
21 projecting that between 2016 and 2024 the savings from a  
22 15 percent reduction in HVAC energy demand could result  
23 in 3000 gigawatt hours and over 200 million therms. The  
24 potential cost savings is a net cost savings of  
25 \$765 million. A big number, almost as large as the

1 historic funding for the PIER program.

2 --oOo--

3 I'd like to switch now to renewables. This is,  
4 I think, a really interesting potential breakthrough in  
5 the area of renewable energy research. This slide  
6 highlights a project that improves solar energy  
7 forecasting and better predicts the level of energy that  
8 will be generated.

9 One of the critical challenges to greater  
10 penetration of solar PV renewable energy into the  
11 state's electricity system is the variability of energy  
12 production associated with solar PV plants. This  
13 creates serious concerns for grid planning and  
14 operation.

15 Clean Power Research developed a unique method  
16 to predict power production from a given PV fleet. This  
17 method called "fleet view" uses satellite-derived solar  
18 resources data and the design attributes and locations  
19 of the PV system and combines these with advanced  
20 rhythms to track cloud patterns to predict output.

21 Clean Power Research is now producing seven day  
22 ahead forecasts every half hour for more than 170,000 PV  
23 systems within the California ISO balancing area. And  
24 ISO is now looking at incorporating this into their load  
25 forecasting methodology and have been testing the

1 system.

2 --oOo--

3 Last year -- this is a very new project. This  
4 is one of the last projects that was funded with PIER  
5 electricity funds. Our Generation Research is targeting  
6 renewable energy on military bases to partner to  
7 increase energy independence and incorporate clean power  
8 into the grid. I believe our Chair visited this project  
9 site recently.

10 This demonstration project demonstrates  
11 interconnected cyber-secure and intelligent microgrids  
12 to integrate community-scale renewable energy, energy  
13 storage, energy efficiency, and other technologies  
14 within an existing utility grid at Camp Pendleton, which  
15 is a large marine base with dispersed electrical load  
16 generation.

17 This research will demonstrate the individual  
18 capabilities and interactions between microgrids. For  
19 example, in an outage event these technologies enable  
20 the base to shunt electric loads to support vital base  
21 functions while providing long-term energy securities  
22 for the facility.

23 I think this project is going to be really  
24 interesting because they already have a lot of the  
25 renewable infrastructure. You know, they have demand

1 response and energy efficiency, but what they are going  
2 to do now is link these individual microgrids together,  
3 which should be an instructive showcase for other  
4 microgrid applications in the state.

5 --oOo--

6 While California builds its renewable energy  
7 portfolio to attain its envisioned energy future, we  
8 also support our legacy of supporting environmental  
9 goals. In 2013 the energy-related environmental  
10 research projects helped target, reduce, and plan for  
11 the environmental impacts of energy decisions in  
12 California.

13 This hyper-light ultra-low-cost solar thermal  
14 technology uses a reflector technology. It's basically  
15 long, thin segments of mirrors that focus light onto a  
16 fixed collector, and potentially at a much lower cost.

17 But one of the things that we're also really  
18 interested in is it has a much smaller footprint. And  
19 so with the smaller footprint, smaller projects can be  
20 built on small parcels, increasing the opportunities to  
21 avoid undisturbed habitats and large areas of remote  
22 environmentally sensitive areas.

23 --oOo--

24 We are also investing in energy infrastructure  
25 projects. This project, this is highlighting the Borrego

1 Springs microgrid in Southern California. We've  
2 highlighted this project in the past for some of its  
3 technical achievements and its approach to incorporating  
4 storage, demand response and renewables in a remote  
5 location that's historically had some reliability  
6 issues. But in September 2013, it was put to the test.

7 Borrego Springs microgrid experienced a real  
8 life test demonstrating its reliability when  
9 thunderstorms and flash floods knocked down transmission  
10 and distribution lines, creating an outage that affected  
11 2700 customers. That lower picture is a picture of some  
12 of the damage. It's a little hard to see.

13 The microgrid was able to island, and it  
14 provided power to more than a thousand of the affected  
15 customers for over 20 hours. Such a grid can protect  
16 those in need during outages by supplying energy where  
17 there would otherwise be blackouts, and possibly saving  
18 lives in the process.

19 San Diego Gas & Electric successfully  
20 demonstrated the enhanced reliability a utility  
21 microgrid can provide to its customers. And that's  
22 exemplified by the quote from Tom Bialek, the Chief  
23 Smart Grid Engineer for San Diego Gas & Electric.

24 --oOo--

25 In addition to highlighting a few of the



1 with a 350,000 grant in 1994 to create PowerGuard  
2 basically turned out to be quite a success. Between  
3 2005 and 2012, PowerLight sold 58 million worth of these  
4 solar roofing tiles. The Energy Commission has received  
5 \$1.84 million in royalty payments back from that initial  
6 investment.

7 In addition to funding PowerGuard, the Energy  
8 Commission awarded PowerLight 1.2 million in 2004, which  
9 was matched by their contribution of 1.7 million, to  
10 achieve a commercially successful design for the  
11 advanced solar PV-tracking system named Power Tracker.

12 This also achieved commercial success, and it  
13 basically improved the electricity production about  
14 35 percent relative to stationary arrays. The Power  
15 Tracker has generated 38 million in sales from 2007 to  
16 2012 and produced 574,000 in royalties back to the  
17 Energy Commission.

18 --oOo--

19 As Melissa Zucker, who's a former VP for  
20 PowerLight said, the backing of the Energy Commission  
21 and other organizations allowed PowerLight to get across  
22 the valley of death of commercialization.

23 COMMISSIONER HOCHSCHILD: I just wanted to go  
24 back to that -- I wasn't aware -- so that's a \$350,000  
25 investment and we got 1.8 million. You said that's a

1 500 hundred percent on investment? Is that something --  
2 I mean, how many of our investments have been -- that is  
3 pretty impressive. I'm just curious how --

4 CHAIR WEISENMILLER: I'm afraid it's like a  
5 venture capital fund. You don't have all of them home runs-- there's  
6 some --

7 MS. TEN HOPE: And we can't take the full  
8 credit for their full commercial sales.

9 COMMISSIONER HOCHSCHILD: Yeah. I understand  
10 that, but relative to other investments it's pretty --

11 MS. TEN HOPE: I'd like to go back and check if  
12 there's any larger -- you know, this is in terms of  
13 sales. We do have a generator project that generated  
14 significant sales. It might actually exceed SunPower.  
15 I'll check.

16 You know, some of the projects you, can't  
17 measure them quite the same way. The synchrophaser is,  
18 you know, avoided outage, and so it's measured in  
19 terms of reliability benefits. And that was, you know,  
20 hundreds of millions in terms of benefits. But, yeah,  
21 this is a very significant sales figure.

22 COMMISSIONER HOCHSCHILD: And those funds then  
23 go back into the R&D budget?

24 MS. TEN HOPE: Yes.

25 CHAIR WEISENMILLER: Good question. My

1 understanding was that basically money flows back into  
2 the general fund as opposed to the R&D funds. We  
3 can check.

4 MS. TEN HOPE: Yeah. We can verify that. We  
5 need to ask for it in our budget authorization. But it  
6 does return.

7 I just wanted to speak a little bit more to  
8 PowerLight. I mean, basically, PowerLight started with  
9 a couple of folks. By 2005 it had 184 employees in  
10 California, and by 2007 PowerLight had over 50 patents  
11 and was the primary seller of solar roofing products in  
12 the United States.

13 PowerLight's largest solar cell supplier was  
14 SunPower. And PowerLight was SunPower's largest  
15 customer as well. And in 2007 the two companies merged  
16 under SunPower. SunPower's revenues rose from  
17 243 million in 2006 to 340 million in the first three  
18 quarters of 2007 as a result of the acquisition, again  
19 supporting the California economy.

20 --oOo--

21 SunPower and its partner operations are  
22 directly sustaining over 4,000 California jobs, in  
23 addition to 800 construction jobs created in  
24 installations each year and 1350 temporary utility-scale  
25 construction jobs. These sustained jobs are located all

1 across California, ranging from offices in the Bay Area  
2 to solar projects in Kern and Los Angeles counties.

3           These jobs create additional employment as  
4 firms and their employees buy goods and services. Staff  
5 estimates the total effect to be close to 11,000  
6 sustained jobs, as well as a temporary 3500 job boost to  
7 the local economies near the solar ranches in San Luis  
8 Obispo County and Antelope Valley.

9           Total sales of SunPower systems through the  
10 California Solar Initiative program amounted to 339  
11 megawatts and generated 560 million kilowatt hours of  
12 electricity a year, generating 2.1 billion in sales  
13 revenue. By supporting the Tracker technology and the  
14 residential market streamlining, the Energy Commission  
15 grants directly contributed to those sales.

16                           --oOo--

17           PIER has been one of the premiere energy  
18 research programs in the country since 1996, and it's  
19 only one of two state programs of its kind in the  
20 nation. The PIER Program has saved ratepayers hundreds  
21 of millions of dollars and has transformed the state's  
22 energy policy landscape, providing clear and  
23 quantifiable results that policymakers and innovators  
24 can use to plan for the future. These investments have  
25 laid a foundation for continued progress toward

1 California's clean energy future.

2 Looking forward, as mentioned in the beginning,  
3 we currently have 350 active electricity projects  
4 remaining in PIER totaling about 196 million in electric  
5 funds. And those will be managed through 2015.

6 We'll do our final PIER Annual Report next  
7 year. And in addition to reporting on the project in  
8 2014, we plan to do a program-wide benefit from the  
9 beginning of the program to close out.

10 Before requesting approval, I do want to extend  
11 thanks to all of the ERDD staff who provided project  
12 information, to include an annual report; and  
13 specifically call out the Project Manager Lillian  
14 Mirviss, who did a fantastic job pulling this report  
15 together and editing the document.

16 So with that, I request your approval of the  
17 2013 PIER Annual Report.

18 COMMISSIONER HOCHSCHILD: I just want to say  
19 congratulations. This is really, really impressive  
20 work, you know. And I think it's obviously benefited  
21 ratepayers but also the innovation sector and helped us  
22 advance towards our climate goals and our air pollution  
23 reduction goals.

24 The one benefit, though, that I didn't see  
25 quantified -- and I'm just curious, to the extent to

1     which we understand it -- is the jobs benefit.  There  
2     seems to be both a direct job creation engine of the  
3     actual innovation that is happening and an indirect  
4     benefit as electric costs for ratepayers get cut and how  
5     much job growth that enables.  I'm wondering to what  
6     extent we have looked at that question and have any  
7     numbers to share on the total, you know, 900 million or  
8     so over the last decade.

9             MS. TEN HOPE:  We've done a jobs analysis in a  
10    couple of ways, so we've done -- you know, the easiest  
11    one to calculate is the direct jobs from the research  
12    itself.

13            And then we've looked at individual projects,  
14    particularly ones that have had commercial sales, and  
15    interviewed the companies for, you know, to get  
16    information on jobs added or jobs maintained.

17            So we're developing a portfolio of the jobs  
18    picture for the investment, but at this point it's been  
19    case studies of the more significant achievements.

20            CHAIR WEISENMILLER:  Again, it's certainly --  
21    Laurie, I'd like to -- as the presiding member, Lead  
22    Commissioner on R&D, I'd like to thank you for your  
23    activities on this.  We certainly, again, appreciate  
24    Lillian's performance on getting this together.  And again,  
25    we're sort of in this situation on the one hand of

1 winding down PIER and on the other hand, you know,  
2 getting the startup of EPIC, both of which are  
3 important; but I think in terms of -- obviously, one of  
4 things that we're putting a lot focus on at this point  
5 is putting together the story on how the programs have  
6 benefited all Californians. And particularly going  
7 forward, we're also trying to do the outreach to make  
8 sure that we also provide benefits -- you know, given  
9 the diversity of California, to make sure that we reach  
10 out to the various affected groups too.

11           So again I'd like to thank you for your  
12 leadership here. If anyone else has questions or  
13 comments, appreciate those.

14           COMMISSIONER MC ALLISTER: I want to thank  
15 Laurie and the team. I'm always continually impressed  
16 with your knowledge on the substantive matters that  
17 you're doing in the division but also just your  
18 management and support of your staff and their  
19 professional development. I think it's really a  
20 positive environment you have created and it's really an  
21 example for the way things can work. So thank you for  
22 that.

23           I also wanted to highlight the Energy  
24 Innovation Small Grant program, which is really an  
25 interesting and small part but highly impactful. And it

1 doesn't quite fit the venture capital mold that  
2 Commissioner Hochschild and Chair Weisenmiller mentioned  
3 but -- the funds are smaller and they're capped. They  
4 tend to go to small, little sort of startup ventures,  
5 but overall I think that has produced a lot of really exciting benefits  
6 at a relatively low cost to the state, to ratepayers;  
7 and, as you know, produces some really interesting  
8 out-of-the-box thinking that I think is just -- it is a  
9 hallmark of the PIER Program over the years.

10           So I wanted to just highlight that as something  
11 that I see as really important. And seeing first-hand  
12 how much enthusiasm and energy those small grants can  
13 create, I think it's really important to recognize them  
14 and keep that going. So thanks.

15           MS. TEN HOPE: The Chair has used that in the  
16 past and talked about the analysis that we did with Jim  
17 Sweeney of Stanford. So the small grants program  
18 develops really cool technology and it's also resulted  
19 in a really high ratio of follow-on funding and jobs  
20 creation. So, you know, you're sprinkling a little bit  
21 of money broadly, and then a few of those have really  
22 materialized.

23           MR. MC ALLISTER: And the academic environment  
24 of where some of that money goes, it can really get  
25 leveraged in all sorts of ways and provide benefits

1 that are really hard to quantify but are real. And so I  
2 think our state certainly benefits a lot from that.

3 We have a few of those to talk about later in  
4 the agenda today, so we have another chance to pile on. Again, thank  
5 you.

6 COMMISSIONER DOUGLAS: And I'll just pile it on  
7 and say, you know, great work and really nice  
8 presentation too. It was good to see.

9 Commissioner Hochschild: I'll move the item.

10 COMMISSIONER SCOTT: It's really interesting to  
11 see the accomplishments compiled in this way, so I would  
12 second the conversation about the terrific presentation  
13 and a good report and just add my voice to the vote of  
14 confidence. And I'll second David's motion

15 CHAIR WEISENMILLER: All those in favor?

16 (Ayes)

17 CHAIR WEISENMILLER: This item passed  
18 unanimously.

19 MS. TEN HOPE: Thank you.

20 CHAIR WEISENMILLER: Lets go on to Item No. 6,  
21 California Department of Food and Ag. This is a  
22 Proposed Interagency Agreement, \$100,000. This is  
23 ARFVTP funding. Juan Garcia.

24 MR. GARCIA: Good morning, Commissioners. I am  
25 Juan Garcia from the Fuel and Transportation Division,

1 Emerging Fuels Technologies Office. This is for  
2 possible approval of Interagency Agreement 600-13-007  
3 for \$100,000 for the California Department of Food and  
4 Agriculture Division of Measurement Standards.

5 The goal of the agreement is to establish fuel  
6 test procedures for hydrogen used as transportation fuel  
7 and to certify the dispensers used for hydrogen  
8 refueling.

9 This effort is in support of California's  
10 commitment to one-and-a-half-million zero-emission  
11 vehicles on the road by 2025. Under this Interagency  
12 Agreement, staff of the Division of Measurement  
13 Standards will test hydrogen dispensers at nine public  
14 hydrogen refueling stations and one university for their  
15 readiness for use in commercial retail sales  
16 environments.

17 Under this agreement, technical staff will test  
18 hydrogen dispensers for certification, and the agreement  
19 will include documentation of hydrogen refueling  
20 dispensers used in California. The documentation will  
21 include dispenser specifications and how the dispensers  
22 behave when used. The accuracy of dispensers will also  
23 be determined and documented.

24 This agreement will be part of the program  
25 currently funded by the California Air Resources Board,

1 California Fuel Cell partnership, and the South Coast  
2 Air Quality Management District, and if approved, will  
3 aim to certify all of California's existing hydrogen  
4 refueling stations in one year and after that future  
5 stations as they come on line.

6 Please approve the proposed resolution for the  
7 Interagency Agency Agreement 600-13-007.

8 Kristen Macey, the Director of the Division of  
9 Measurement Standards, is also here to help answer any  
10 questions.

11 Thank you.

12 CHAIR WEISENMILLER: So I was going to ask if  
13 the gentleman -- anybody, the representative, has any  
14 comments. Or just here for questions?

15 MR. GARCIA: Just here for. . .

16 CHAIR WEISENMILLER: So, Commissioners, any  
17 questions or comments?

18 COMMISSIONER SCOTT: I'd just like to highlight  
19 that this work that we're doing together with the  
20 Division of Measurement Standards and in partnership  
21 with the others is good. This is work that will help  
22 us, as the hydrogen fueling becomes more commercialized,  
23 to be able to guarantee that if you think you're getting  
24 a kilogram of hydrogen you're actually getting fueled up  
25 with a kilogram of hydrogen.

1 COMMISSIONER HOCHSCHILD: I move the item.

2 COMMISSIONER MC ALLISTER: I love this weights  
3 and measures activity. This is fun stuff for  
4 commercialization. I mean, you've got to know, as fuel  
5 cells -- you know, as these technologies get on the  
6 marketplace, you've got to know, you know, that a gram  
7 is a gram. And, you know, this is pretty basic stuff.  
8 It sort of harkens back to the early days of, you know,  
9 the development of the metric system; right?

10 I mean, this is basic infrastructure that  
11 obviously is an obligation of the state to develop so  
12 that the market can function. So obviously excellent  
13 and much needed. So I'll second it. David, did you  
14 second it?

15 CHAIR WEISENMILLER: He moved it.

16 MR. MC ALLISTER: Okay. I'll second it.

17 CHAIR WEISENMILLER: All those in favor?

18 (Ayes)

19 CHAIR WEISENMILLER: This item passed  
20 unanimously. Let's go on to Item No. 7, Pixley Biogas,  
21 LLC. And this is for \$4,672,798. It's a grant. This  
22 is ARFVTP funding. And Sarah Williams, please.

23 MS. WILLIAMS: Good morning, Chairman and  
24 Commissioners. My name is Sarah Williams. I'm also  
25 with the Emerging Fuels and Technologies Office.

1 I'm here to request approval for Agreement  
2 ARV-10-053 to move forward with all work under their  
3 project to construct anaerobe digesters, as you  
4 mentioned, to produce biogas from dairy manures to  
5 power the Calgren Renewable Fuels Biorefinery, which is  
6 an ethanol facility.

7 This agreement was previously approved at the  
8 June 2011 business meeting, but at that time CEQA was  
9 not complete and so the approval was only for pre-CEQA  
10 work. At this time CEQA is complete and they're ready  
11 to go, and would like a chance to get their project  
12 going.

13 I'm available for questions if you have any.

14 CHAIR WEISENMILLER: Thank you. Commissioners,  
15 any questions or comments?

16 COMMISSIONER HOCHSCHILD: Move the item.

17 COMMISSIONER SCOTT: Second.

18 CHAIR WEISENMILLER: All those in favor?

19 (Ayes)

20 CHAIR WEISENMILLER: This item is approved.

21 Thank you.

22 MS. WILLIAMS: Thank you.

23 CHAIR WEISENMILLER: Let's go on to Item No. 8,  
24 possible approval of the agreement with American  
25 Biodiesel, Inc. for \$4,904,375 grant. And Andre

1 Freeman, please.

2 MR. FREEMAN: Good morning, Commissioners. My  
3 name is Andre Freeman. I'm with the Fields and  
4 Transportation Division, Emerging Fuels and Technologies  
5 Office. And today with me I have Lisa Mortenson, the  
6 CEO of American Biodiesel Community Fuels Center.

7 Today I'll be seeking approval of an agreement  
8 with American Biodiesel, who is currently doing business  
9 as Community Fuels, to expand their existing biodiesel  
10 production facility.

11 This project would utilize \$4,904,375 of  
12 funding provided by the Alternative Renewable Fuels and  
13 Vehicle Technology Program, with an additional over \$10  
14 million match money provided by Community Fuels.

15 Community Fuels currently operates this  
16 biodiesel production facility at the Port of Stockton.  
17 It currently has a production capacity of approximately  
18 10 million gallons per year. This agreement would allow  
19 Community Fuels to increase their production capacity to  
20 at least 15 million gallons per year.

21 After additional authorizations are  
22 implemented, Community Fuels expects to increase  
23 production rates upwards of 20 million gallons per year.

24 This facility was specifically built for this  
25 type of incremental expansions to meet the changing

1 demand of California's diesel market which is currently  
2 estimated at over 3 billion gallons of fuel per year.

3 This facility can utilize numerous feed stocks,  
4 including but not limited to camelina, soy, poultry fat,  
5 olive oils, waste and recycled greases, and other off  
6 spec oils. The biodiesel derived from these feed stocks can  
7 provide significant benefits in carbon intensity  
8 compared to conventional diesel.

9 Successful implementation of this project would  
10 provide greenhouse gas emission reductions of more than  
11 45,000 metric tons per year.

12 In addition to the environmental benefits, this  
13 project will also create 11 direct jobs at the facility,  
14 with additional temporary jobs coming from the  
15 construction, technical support, and supply chain  
16 activities associated with this production.

17 In accordance with the California Environmental  
18 Quality Act guidelines, staff has reviewed the Port of  
19 Stockton's Environmental Impact reports, has no  
20 information indicating that the environmental  
21 documentation is inadequate, and has considered this  
22 information in deciding whether to recommend approval of  
23 the proposed agreement.

24 Staff is asking the Commission for two actions  
25 today: The first is to adopt the proposed resolution

1 determining that with existing mitigation incorporated  
2 in the addendums to the original EIR for this facility,  
3 this project's potential environmental impacts will be  
4 less than significant; and second, that the Commission  
5 approve the proposed grant award ARV-13-008 in the  
6 amount of 4,904,375.

7 With that, I'd like to thank you for your  
8 consideration of this item. I'm available for any  
9 questions you may have.

10 CHAIR WEISENMILLER: Thank you. Would you like  
11 to make a statement?

12 MS. MORTENSON: Certainly. I'm Lisa Mortenson  
13 with American Biodiesel. Our trade name is Community  
14 Fuels. We're delighted to be here today, and  
15 importantly I would like to thank the Commissioners and  
16 the CEC for allocating funding to commercial-scale  
17 advanced biofuels within California, and specifically to  
18 biodiesel, which is a commercially proven advanced  
19 biofuel that provides significant impact to helping  
20 California achieve the goals of the low carbon fuel  
21 standard, and importantly also helps to clean local air  
22 for California.

23 As you know, biodiesel can be blended with  
24 petroleum at up to 5 percent and used within the  
25 existing infrastructure. That means it's going into the

1 existing diesel fleet and through the existing diesel  
2 fueling infrastructure, making biodiesel one of the  
3 most cost-effective advanced biofuels for California.

4 I have served as CEO of Community Fuels since  
5 we were formed back in 2005. And as Andre mentioned,  
6 every phase of our development anticipated broader  
7 support for clean fuels in California. That was a big  
8 bet that we made many years ago. And our facility at  
9 the Port of Stockton has been specifically designed to  
10 support expansion.

11 So I'm personally excited about taking those  
12 next steps to expand our facility, which is an  
13 expansion that's been many, many years in the planning.

14 Thank you.

15 CHAIR WEISENMILLER: Thank you. Commissioners,  
16 any questions or comments?

17 COMMISSIONER SCOTT: I had a question about the  
18 timeline for the proposed expansion.

19 MS. MORTENSON: Well, I'm even more excited  
20 about the timeline. So when I said that all the  
21 planning was put in place, our original site layout and  
22 initial engineering and all the structural support had  
23 all of the places. And this was outlined in our grant  
24 application where you could see concrete foundation,  
25 structural steel, piping. Everything's in place for

1 true drop-in expansion.

2 So we're hoping to complete this expansion to  
3 bring our plant to 20 to 25 million gallons per year  
4 within 18 months. It's truly shovel-ready.

5 CHAIR WEISENMILLER: Thank you.

6 COMMISSIONER HOCHSCHILD: Move the item.

7 CHAIR WEISENMILLER: I think we have a  
8 resolution we have to move.

9 COMMISSIONER SCOTT: We would have to move adoption of the  
10 resolution and approval of the board?

11 CHAIR WEISENMILLER: Yeah, exactly. Mike, do  
12 you want to --

13 CHIEF COUNSEL LEVY: It's all in the same  
14 resolution, so moving approval of the item is fine.

15 CHAIR WEISENMILLER: Okay. Great.

16 COMMISSIONER HOCHSCHILD: I'll move the item.

17 COMMISSIONER SCOTT: Second.

18 CHAIR WEISENMILLER: All those in favor?

19 (Ayes)

20 CHAIR WEISENMILLER: This item has been  
21 approved. The resolution has been approved, so let's go  
22 on to Item No. 9, Kings Canyon United School District.  
23 This is a \$300,000 grant, again ARFVTP funding. And  
24 Andre Freeman again, please.

25 MR. FREEMAN: Thank you. They also will be

1 seeking approval of an agreement with Kings Canyon  
2 Unified School District to upgrade and replace their  
3 existing compressed natural gas fueling station.

4 This project will also be funded through the  
5 Alternative Renewable Fuel Vehicle Technology Program.

6 The school district originally constructed this  
7 natural gas fueling facility in 1996. As the facility  
8 has aged, it has continuously needed repair and parts  
9 replacement. Due to budget constraints, the school  
10 district has not been able to complete a complete  
11 overhaul of the system.

12 This agreement would provide the funding  
13 necessary to replace the major components and allow them  
14 to solve their issues rather than continuously putting a  
15 bandage on it.

16 This compressed natural gas station will  
17 primarily provide fueling for the school district's bus  
18 fleet which serves the 9200 students in the region.

19 In addition to the Kings Canyon School District  
20 fleet, the station will also be utilized by the City of  
21 Reedley's municipal fleet, members of the public, and  
22 the surrounding rural school districts.

23 The station is expected to displace 80,000 gallons  
24 of diesel fuel immediately, with additional increases in  
25 usage over the time from the fleet expansion that this

1 facility will allow.

2 With that, I'd like to thank you for your  
3 consideration. I'm available for any questions you may  
4 have.

5 CHAIR WEISENMILLER: Thank you. Commissioners,  
6 any questions or comments?

7 COMMISSIONER MC ALLISTER: What are they doing  
8 now to fuel the CNG buses they have?

9 MR. FREEMAN: Well, the facility is partially  
10 operational. It's operating at a lower rate. I think  
11 that was a continuous issue, or a prevailing issue with  
12 a lot of the school districts that requested funding  
13 under this solicitation. Some of them had more  
14 temporary methods to fix the existing equipment, hoping  
15 for a long-term solution. Some of them had to resort to  
16 things like renting out mobile re-fuelers, which were  
17 quite expensive compared to operating their current  
18 facilities.

19 So our investments into those facilities kind  
20 of allowed the school districts which just flat out  
21 didn't have the budgets to fully replace its equipment  
22 to impact that long-term solution.

23 CHAIR WEISENMILLER: Thanks.

24 MR. MC ALLISTER: I'll move Item 9.

25 COMMISSIONER SCOTT: Second.

1 CHAIR WEISENMILLER: All those in favor?

2 (Ayes)

3 CHAIR WEISENMILLER: Item 9 passes unanimously.

4 Thank you.

5 MR. FREEMAN: Thank you.

6 CHAIR WEISENMILLER: Let's move to Item 10,  
7 which is Redwood Coast Energy Authority. And this is  
8 another \$300,000 grant, ARFVTP funding. And Brian  
9 Fauble.

10 MR. FAUBLE: Good morning, Commissioners. My  
11 name is Brian Fauble with the Fuels and Transportation  
12 Division, Emerging Fuels and Technologies Office. Today  
13 I'm presenting for your consideration approval of  
14 Agreement ARV-13-012 with the Redwood Coast Energy  
15 Authority to develop a readiness plan for the increased  
16 use of alternative fuel vehicles and infrastructure in  
17 Humboldt County.

18 The Redwood Coast Energy Authority applied for  
19 funding under the Emerging Fuels and Technologies  
20 Office's Alternative Fuels Readiness Plan grants  
21 solicitation PON13603.

22 The purpose of this resolution is to help  
23 prepare California for the increased use of alternative  
24 transportation fuels. The project will help a  
25 coordinated effort that supports the successful

1 introduction of alternative fuel vehicles and the  
2 development of a robust market for alternative fuels,  
3 including hydrogen, bio fuels, natural gas, and  
4 electricity.

5 This will be accomplished by conducting a  
6 strategic assessment of the barriers to and  
7 opportunities for regional adoption of alternative fuels  
8 and by developing and implementing a targeted outreach  
9 program in the region designed to promote alternative  
10 fuels and surmount the most critical barriers.

11 If approved, the Energy Commission will provide  
12 \$300,000 of Alternative and Renewable Vehicle and  
13 Technology Program funds. The agreement includes  
14 matched funding of \$60,000 provided by the Redwood Coast  
15 Energy Authority.

16 Staff is requesting Commission support and  
17 approval of this proposed grant award. I'll be happy to  
18 answer any questions. Thank you for your time and  
19 consideration.

20 And Jerome Carman from the Redwood Coast Energy  
21 Authority is also on the line for any questions.

22 CHAIR WEISENMILLER: Okay. Do you have any  
23 comments or statements?

24 Commissioners, any questions or comments?

25 COMMISSIONER MC ALLISTER: I just want to

1 congratulate The Redwood Coast Energy Authority for a  
2 lot of good work done, and just more broadly because I  
3 think it's a great resource for a historically  
4 underserved area of the state in working together with  
5 local governments and working with utility, and I think  
6 they're doing quite a bit of good stuff. So  
7 congratulations on that.

8 COMMISSIONER HOCHSCHILD: Move the item.

9 COMMISSIONER MC ALLISTER: I'll second it.

10 CHAIR WEISENMILLER: All those in favor?

11 (Ayes)

12 CHAIR WEISENMILLER: This item passed  
13 unanimately. Thank you.

14 Let's go on to Item 11, Motiv Power Systems  
15 Incorporated. And this is a grant of \$1,655,594, and  
16 this is ARFVTP funding. And Brian Fauble again.

17 MR. FAUBLE: Thank you. I will also be  
18 presenting this resolution today. I am presenting for  
19 your consideration approval of Agreement ARV-13-010 with  
20 Motiv Power Systems Incorporated to repower United  
21 Parcel Service and the United States Postal Service  
22 medium-duty pre-EPA 2010 walk-in vans with Motiv's  
23 electric powertrain.

24 Motiv Power Systems Incorporated, headquartered  
25 in Foster City, applied for funding under the Emerging

1 Fuels and Technologies Office used medium-duty electric  
2 vehicle repowered demonstration grant certification PON  
3 13602.

4 The purpose of this solicitation was to fund  
5 demonstration projects that convert used medium-duty  
6 gasoline and diesel vehicles to all-electric drives.  
7 Medium-duty vehicles are defined as having a gross  
8 vehicle weight of 10,001 pounds to 26,000 pounds.

9 The project will repower up to seven UPS and  
10 USPS medium-duty pre-EPA 2010 walk-in vans with Motiv's  
11 electric powertrain.

12 The goal of this project is to move large --  
13 I'm sorry -- truck fleets beyond electrically powered  
14 pilot projects into electric repowered mass adoption by  
15 providing economic performance and reliability data  
16 collected during an on-road operation for 24 months.

17 The project will demonstrate 100 miles of range  
18 in typical use, over 50 percent maintenance cost  
19 reduction when compared to non-repowered similar  
20 vehicles, the ability to go up steep hills, acceleration  
21 and handling comparable to or better than pre-repowered  
22 vehicles.

23 The project will eliminate 9,600 pounds of  
24 nitrogen oxide and hydrocarbons, 236 pounds of  
25 particulate matter, and 160 tons of carbon dioxide based

1 on California and GREET models.

2 If approved, the Energy Commission will provide  
3 \$1,655,594 in Alternative and Renewable Vehicle and  
4 Technology Program funds. This agreement also includes  
5 \$1,844,400 of match funding in cash and in-kind work.

6 Staff is requesting the Commission's support  
7 and approval of the proposed resolution for this  
8 proposed grant award.

9 I will be happy to answer any questions. Thank  
10 you for your time and consideration.

11 CHAIR WEISENMILLER: Thank you.

12 Commissioners, any questions or comments?

13 COMMISSIONER MC ALLISTER: I want to just ask a  
14 little bit about the evaluation here because this  
15 project has some, you know, I think, important and  
16 interesting market development goals for proving cost  
17 effectiveness and taking it to the next level, you know,  
18 and scaling it down so we're making it clear that this  
19 is for mass adoption.

20 So what's the expectation after the 24 months  
21 of the content of that AR report will be generated to  
22 move past market readiness?

23 MS. ALLEN: I'm Jennifer Allen. I'm the  
24 supervisor for the unit. The goal of these projects  
25 under this solicitation was to provide the Air Resources

1 Board with the on-road data and reliability data that  
2 they needed, and also assurances of warranty for  
3 repowering. That will allow them to consider these  
4 vehicles for HVIP incentives, and that it would be  
5 a significant boon to UPS, USPS, and FedEx in looking at  
6 these vehicles.

7           They look at these vehicles as a means to allow  
8 them to stabilize their fuel costs because, you know,  
9 the electricity prices are stable. Right now it is very  
10 difficult for them to plan into the future with the  
11 volatility price -- volatility of the prices for diesel  
12 and gasoline. And so for them there is a -- that in  
13 itself is a huge economic incentive, but they need the  
14 additional incentives associated with HVIP in order  
15 to make these a little bit more cost effective to either  
16 replacing the diesel engine or going out and buying a  
17 new diesel vehicle.

18           And so it's sort of a -- we had the Air  
19 Resources Board involved with the solicitation because  
20 they would like to see -- they were looking to us to  
21 provide them with the data that they need in order to  
22 consider these vehicles.

23           MR. MC ALLISTER: So we're not expecting sort  
24 of a grantee to produce a report or produce a report ourselves, but rather,  
25 I take it, these resources are -- data collection is

1 relatively costly and intensive, so that's a big part of  
2 the effort that is going into the soliciting for this  
3 project?

4 MS. ALLEN: It is a huge part, yes.

5 CHAIR WEISENMILLER: We're then passing it over  
6 to the ARB or working with them together?

7 MS. ALLEN: We're working with them. We're  
8 working together on this. They were also part of the  
9 review for the proposals.

10 MR. MC ALLISTER: Thanks.

11 CHAIR WEISENMILLER: Any other questions or  
12 comments?

13 COMMISSIONER MC ALLISTER: I'll move the item.

14 COMMISSIONER SCOTT: Second.

15 CHAIR WEISENMILLER: All those in favor?

16 (Ayes)

17 CHAIR WEISENMILLER: Item 11 passed  
18 unanimously.

19 Item 12 is being held, so let's go on to Item  
20 13. I guess we're now segueing from ARFVTP funding to  
21 ECAA funding.

22 No. 13 is Graton Community Service District.  
23 This is a resolution for a loan of \$222,300, and this is  
24 ECAA funding. Joseph Wang, please.

25 MR. WANG: Good morning, Commissioners. My

1 name is Joseph Wang, and I'm the Project Manager with  
2 local assistance in the financing office in the  
3 Energy Efficiency Division.

4 Graton Community Service District has applied  
5 to our ECAA loan program for a \$222,300 loan to install  
6 a new energy efficient effluent pump with a variable  
7 speed control to improve the energy efficiency at the  
8 wastewater treatment facility.

9 The current constant speed, 100 horsepower  
10 effluent pump is designed to meet the peak flow demand in  
11 the summer even when there is low demand, the pump is  
12 still operating at a fixed speed and the excess effluent  
13 flow is piped through a bypass line and returned to the  
14 sump pump.

15 When this bypass happens, a significant portion  
16 of the pump energy is wasted. Subsequently, the  
17 district conducted a pump test to verify the volume of  
18 the effluent flow and the return flow to the sump pump.  
19 The test confirmed that approximately 75 percent of the  
20 effluent water was bypassed and returned to the sump  
21 pump. This test proved that the existing pump was  
22 oversized and has no ability to control or reduce the  
23 flow to reduce energy consumption.

24 An engineering study was performed and  
25 recommended that the existing 100 horsepower pump be

1 replaced with two smaller 30 horsepower pumps with  
2 variable speed drive controls. By reducing the pumping  
3 speed at the low load period, the new pumps can  
4 eliminate almost all of the bypass flow back to the sump pump  
5 and save a significant amount of energy.

6 The new pump and VSD retrofit is expected to  
7 reduce about 40 kW in electric demand and 115,000  
8 kilowatt hours annually.

9 The total project cost for the recommended  
10 project is estimated to be \$222,300. The estimated  
11 annual energy cost savings for this project is about  
12 \$19,007 with a simple payback of 11.3 years.

13 This efficiency measure is also expected to  
14 reduce greenhouse gas emissions by over 79,250 pounds  
15 annually.

16 The staff has reviewed the study and concur  
17 with the recommendation and would like to recommend the  
18 approval of this loan.

19 COMMISSIONER HOCHSCHILD: What is the term of  
20 the loan?

21 MR. WANG: This one will be a 13-year loan, but  
22 they can borrow.

23 COMMISSIONER MC ALLISTER: Fifteen years?

24 MR. WANG: Yes. The maximum payment term is 15  
25 years.

1           COMMISSIONER HOCHSCHILD: I mean, I would just  
2 say that I think that we have picked already a lot of  
3 the loading being approved. I actually personally like  
4 seeing this project -- you know, it's a 11.3 years  
5 payback. I think it's very important to fund this kind  
6 of stuff, and it is, I think, another reason why the  
7 program is here to do precisely this kind of stuff.  
8 It's not loading improved, but it does save energy over  
9 the life cycle of the project.

10           MR. WANG: You had a question, Commissioner?

11           MR. MC ALLISTER: Yeah. I'm willing just to  
12 chime in. This is a loan that gets repaid and the  
13 economics are totally there for the recipient.

14           And I really enjoy having an engineer give  
15 these presentations on occasion. We get the full story,  
16 right? I mean, a variable speed drive for a pumping  
17 application at a variable load is just a no-brainer good  
18 thing to do from an engineering perspective.

19           So this is clearly a good project in putting --  
20 doing this retrofit, this upgrade, is a good management  
21 practice for the water district; so I think we should be  
22 happy to help that infrastructure shift.

23           And I agree with Commissioner Hochschild that,  
24 you know, longer payback stuff is still cost effective  
25 over the life, cycle.

1           So if we can figure out the financing, which in  
2 this case we have the ECAA program, thank goodness, then  
3 it's just a win-win all the way around.

4           So thank you for the information.

5           Move Item 12 -- sorry. Move Item 13.

6           COMMISSIONER HOCHSCHILD: Second.

7           CHAIR WEISENMILLER: All those in favor?

8           (Ayes)

9           CHAIR WEISENMILLER: Item 13 passed  
10 unanimately, so let's go on to Item 14, which is City of  
11 Morgan Hill. And this is another ECAA project. And  
12 this is a \$750,000 loan. Amir Ehyai, please.

13           MR. EHYAI: Thank you, Chairperson. Good  
14 morning, Commissioners. My name is Amir Ehyai, and I am  
15 with the Energy Efficiency Division.

16           The City of Morgan Hill had previously  
17 converted approximately 40 percent of its streetlights  
18 to LED technology. The city is now requesting a loan  
19 currently at one percent interest for \$750,000 from the  
20 Energy Commission to replace the remaining 2,097  
21 streetlights with LED.

22           Once completed, this project will reduce annual  
23 energy consumption by an estimated 872,861 kilowatt  
24 hours of electricity, saving the city \$116,672 annually.  
25 This represents a 73 percent reduction in energy use over

1 the incumbent technology, which is high-pressure sodium.

2 The total project cost is estimated to be  
3 \$885,717, and the city anticipates receiving \$168,575 in  
4 utility rebates.

5 Staff has determined that the loan request is technically  
6 justified and meets the requirements for an  
7 Energy Commission loan.

8 I'm happy to answer your questions, but just a  
9 quick note that may be of interest regarding previous  
10 streetlight projects that have been funded by the ECAA  
11 loan program: Since 2009, the Energy Commission has  
12 awarded 30 loans totaling approximately \$45 million to  
13 local jurisdictions seeking to convert their  
14 streetlights.

15 These projects represent energy cost savings of  
16 approximately \$4.5 annually and a reduction of 38  
17 million kilowatt hours of electricity per year. This is  
18 equivalent to 13,200 tons of greenhouse gas emissions  
19 reduced each year.

20 With that, I request your approval. And I'm  
21 happy to answer your questions.

22 COMMISSIONER HOCHSCHILD: Just a quick  
23 question. What portion of streetlights in California  
24 are still high pressure sodium?

25 MR. EHYAI: That's a very good question. And I

1 researched that just briefly before this. I apologize.  
2 I wasn't able to come up with that number just yet; but  
3 it is a question of interest, and I can look into that  
4 further and get back to you.

5 COMMISSIONER HOCHSCHILD: Just ballpark? Do we  
6 get like 70 percent or something?

7 MR. EHYAI: I really don't know.

8 COMMISSIONER HOCHSCHILD: Or do we know what  
9 the LED penetration has been so far, roughly? We're  
10 still very much in the early stages of LED; right?

11 CHAIR WEISENMILLER: We had retrofitted, I'm  
12 going say, like 18,000 under our -- now, whether that's  
13 cumulative -- I was going to ask how many you had.  
14 Well, ECAA had retrofit. But, again, you know, a lot of  
15 these -- obviously you've got a mixture at some point.

16 I guess we could ask in terms of utilities how  
17 many streetlights they own which are not converted at  
18 this point.

19 COMMISSIONER MC ALLISTER: The utilities own --  
20 and there's also a period of ownership. The utilities  
21 own some of them, and that's a different ball of wax  
22 involving jurisdiction involving many of them -- and  
23 that's only talking about for the projects today.

24 COMMISSIONER HOCHSCHILD: I would be interested  
25 if we'd just track that roughly statewide where we are

1 in the transition, if you're able to come up with those  
2 numbers to upgrade. Thank you.

3 CHAIR WEISENMILLER: But do you know how many  
4 -- you talk about the savings, but do you know how many  
5 streetlights have -- LED streetlights have been  
6 installed under the ECAA program?

7 MR. EHYAI: I can find that out. I've got a  
8 summary here for you, but I don't have the number of  
9 what that's representing.

10 CHAIR WEISENMILLER: Right. It sounds  
11 interesting. Any other questions or comments?

12 COMMISSIONER HOCHSCHILD: Move the item?

13 CHAIR WEISENMILLER: Let's see if there's any  
14 other questions or comments first.

15 MR. MC ALLISTER: Yeah. I would also just  
16 point out that from a -- you know, we all know that the  
17 LEDs are coming on quickly. They're getting better, you  
18 know, daily, it seems like; but, you know high pressure-sodium  
19 are actually relatively efficient. They just are --  
20 they don't render color and they have all sorts of  
21 issues. They have -- they can't have high maintenance  
22 cost. You know, HID in general will kind of have that  
23 issue, but LED just provides much better light.

24 You know, you walk into a parking lot with LED  
25 lighting and you can actually find your car because, you

1 know, they're not all gray. Right? Anyway, that's a  
2 big benefit.

3 I did notice -- also some insight on the  
4 different costs per unit for different projects that  
5 come into ECAA I think would be good, because sort of on  
6 the surface if you do the numbers, you know, it varies  
7 quite a bit.

8 You know, this project has a certain cost but  
9 others you find out are higher or lower depending on the  
10 particulars of the project. So maybe some insight on  
11 that, either one of the items. We have a couple of  
12 other LED streetlight items coming on. So if staff could  
13 comment on that.

14 MR. EHYAI: I can follow up on that as well,  
15 certainly.

16 COMMISSIONER MC ALLISTER: Great. So I'll  
17 second. Or did you move?

18 CHAIR WEISENMILLER: Motion, please. We're on  
19 Item 14.

20 Commissioner MC ALLISTER: I'll move to move Item 4.

21 COMMISSIONER HOCHSCHILD: Second.

22 CHAIR WEISENMILLER: All in favor?

23 (Ayes)

24 CHAIR WEISENMILLER: Item 14 has been passed  
25 unanimously.

1           Let's go on to Item 15, County of San Diego.  
2 This is ECAA again, and it's a \$1,560,000 loan. Adel  
3 Suleiman, please.

4           MR. SULEIMAN: Good morning, Commissioners. My  
5 name is Adel Suleiman. I am with the Energy Efficiency  
6 Division. Before I start, I would like to point out one  
7 minor typo in this document, line 4. It currently reads  
8 "\$100,000" in initial cost savings. The correct amount  
9 is "\$180,000." I apologize for this inaccuracy.

10           The County of San Diego is one of the leading  
11 counties implementing energy efficiency and renewable  
12 energy projects in California. Since 2002, the county  
13 has been awarded approximately \$6 million in loans from  
14 the Energy Commission to install energy efficiency  
15 measures and photovoltaic systems in multiple city and  
16 county-owned facilities.

17           This new loan request of the \$1.56 million will  
18 be used to retrofit approximately 2,000 streetlights.  
19 It shifts from different types of technology, like HPS  
20 and Mercury Vapor, and we attribute it to LED.

21           Implementing this project will save the county  
22 approximately \$180,000 in annual savings. The LED  
23 fixtures would provide a much better reliable system and  
24 improve public safety. These retrofits will also remove  
25 an estimated 494 tons of greenhouse gas emissions.

1 San Diego Gas & Electric Company, the serving  
2 electric utility to the county, is contributing  
3 approximately \$72,000 in cash incentives for this  
4 project.

5 Energy Commission staff evaluated and  
6 determined that this loan request is technically  
7 feasible and meets all requirements for a loan under  
8 the Energy Conservation Assistance Act, ECAA.

9 Staff is seeking your approval on this item,  
10 and I will be happy to answer any questions you might  
11 have.

12 CHAIR WEISENMILLER: Any questions or comments?

13 COMMISSIONER MC ALLISTER: So, you know, as to  
14 the extent the first one had, you know, a per unit cost  
15 of about 400-some dollars, someone had not quite double  
16 that. What's the difference between the technologies  
17 that are being installed, you know, here in the County  
18 of San Diego versus Morgan Hill or any other projects  
19 that might have a lower cost?

20 MR. SULEIMAN: Some counties contribute to the  
21 cost. The biggest factor is wattage. Some cities have  
22 many major streets and build commercial or major  
23 projects. That also is a factor. Labor to install this  
24 is a factor in a busy city like San Diego versus a  
25 smaller town.

1 MR. MC ALLISTER: So 200 watt versus 100 watt  
2 or 80 watt or something like that?

3 MR. SULEIMAN: Yes. And also different  
4 manufacturers also, they developed. I remember six,  
5 seven years ago we approved the first LED for the city  
6 of L.A. That was very expensive. And prices, they came  
7 down quite a bit, especially after the ARRA projects.

8 COMMISSIONER MC ALLISTER: Well, great. It's a  
9 nice perspective to have. I mean, this market is  
10 developing so fast. I'll move Item 15.

11 COMMISSIONER DOUGLAS: Second.

12 CHAIR WEISENMILLER: All those in favor?

13 (Ayes)

14 CHAIR WEISENMILLER: Item 15 is also approved  
15 unanimously.

16 Let's go on to Item 16, City of San Marcos.  
17 And this is again ECAA funding, and it's a \$1,100,000  
18 loan. And Mr. Suleiman again.

19 MR. SULEIMAN: Thank you, Chairman. Good  
20 morning everyone. My name is Adel Suleiman. I'm with  
21 the Energy Efficiency Division.

22 Before I start, I would like to point out  
23 another minor typo on this item. The last sentence  
24 currently reads "\$5,000 in rebates." The correct amount  
25 is "\$50,000." Again, I apologize for this inaccuracy.

1           The City of San Marcos is the seventh large  
2 city in the San Diego area located in the north county.

3           This loan request of \$1.1 million is to  
4 retrofit the city's 2200 streetlights from High Pressure  
5 Sodium to LED.

6           This project is intended to reduce energy usage  
7 and cost, while further demonstrating the local  
8 government's commitment to sustainability.

9           This retrofit will save the City of San Marcos  
10 approximately \$100,000 annually in energy costs. LED  
11 fixtures will provide a better quality of light, as  
12 mentioned, be a more reliable system, and improve public  
13 safety. These retrofits will also remove an estimated  
14 34 tons of greenhouse gas emission.

15           SDG&E, the serving electric utility to the  
16 city, is contributing approximately \$50,000 in cash  
17 incentives for this project.

18           The Energy Commission staff evaluated and  
19 determined that this loan request is technically  
20 feasible and meets all requirements for a loan under the  
21 Energy Conservation Assistance Act, ECAA.

22           I am seeking your approval on this item, and I  
23 will be happy to answer any questions you might have.

24           COMMISSIONER HOCHSCHILD: Just one quick  
25 question. I do know LEDs are more efficient. I didn't

1 know it was this much more. This was 67 percent  
2 reduction in energy from High Pressure Sodium to LED?

3 MR. SULEIMAN: Yes. It also depends on the  
4 wattages.

5 COMMISSIONER HOCHSCHILD: But for equivalent  
6 amounts of light, is that about right?

7 MR. SULEIMAN: Sounds about right.

8 COMMISSIONER HOCHSCHILD: Well, that's higher  
9 than.

10 COMMISSIONER MC ALLISTER: So if a significant  
11 amount of those are mercury vapor, then that the jump  
12 would be bigger for the high pressure sodium. I have  
13 delved into that, and the analysis that the staff does  
14 on these projects is pretty -- they really count the  
15 widgets quite well, so I have confidence in that.

16 I also wanted to point out that, you know, the  
17 San Diego region has done some good work on street lighting and  
18 the procurement process of street lighting. The City of  
19 San Diego in particular has done some sort of  
20 street-to-street comparisons of different technologies  
21 and evaluations of those and really been through a long  
22 process to get stakeholder involvement and might choose  
23 what kind of fixtures they want, taking efficiency into  
24 account but also the community and the quality of the  
25 light and everything into account, the service

1 agreements that they have, the technology details, longevity, you know, all  
2 that kind of thing and sort of -- I think -- I don't  
3 know that the City of San Marcos has sort of directly  
4 engaged in that process, but I think that learning has  
5 been valuable.

6 MR. SULEIMAN: On Sixth Avenue by Balboa Park  
7 in San Diego they had like a one-and-a-half-mile stretch  
8 they installed different technologies: One is HPS, one is induction,  
9 one is LED, and different manufacturers' LED. The person I worked with --  
10 he's since joined the county -- and all the cities  
11 around in that area participated in that survey at night, and I  
12 was there myself. The first night was for technical people;  
13 second night, like I mentioned, for the people who live  
14 in the area. And they were given the information about  
15 which of the sessions you like better, see better, and  
16 they acted upon that.

17 COMMISSIONER MC ALLISTER: It's really a great  
18 example. And, you know, I know the Commission has been  
19 involved. I think really think it's great. Thank you  
20 for your presentation on that.

21 And Tom Cartier, obviously he's a stalwart in  
22 the San Diego region, and he's done a lot of good work.  
23 So thanks for the presentation.

24 COMMISSIONER SCOTT: I think it's really neat  
25 to hear about that, the whole process in terms of

1 picking out the light bulbs and which lighting is  
2 appropriate. Good public input.

3 So I'll move this item.

4 COMMISSIONER MC ALLISTER: Second.

5 CHAIR WEISENMILLER: Okay. All those in favor?

6 (Ayes.)

7 CHAIR WEISENMILLER: This item passed  
8 unanimately. Thank you.

9 MR. SULEIMAN: Thank you.

10 CHAIR WEISENMILLER: Let's go on to Item No.  
11 17, which is Trustees of the California State  
12 University. And this will be Raquel Kravitz to walk  
13 through this.

14 COMMISSIONER DOUGLAS: And before we take this  
15 up, I've got a disclosure to make. I currently am an  
16 adjunct professor for U.C. Davis King Hall School of Law  
17 where I teach a Renewable Energy Law class. And I'm not  
18 recusing myself from this item, but I do want to just  
19 disclose that relationship.

20 COMMISSIONER MC ALLISTER: I'll follow suit  
21 here on Items 17b. (1) and (2). I serve with UC Davis  
22 but not with King Hall where my wife is a professor. So  
23 I have no conflict and am just disclosing, not recusing.

24 Also, for 17b. (1) and (4), it looks like, UC  
25 Riverside. So, anyway, UC Riverside, but not King

1 Hall. I'm not recusing, just disclosing.

2 COMMISSIONER DOUGLAS: And I just said Item 17,  
3 but it's the same items as Commissioner McAllister.

4 CHAIR WEISENMILLER: Please come forward.

5 MS. KRAVITZ: Good morning, Commissioners. My  
6 name is Raquel Kravitz from the Research and Development  
7 Division for the Energy and Efficiency Small Grants  
8 Program, Natural Gas and Transportation Natural Gas.

9 With me today is Jamie Patterson. He's the  
10 team leader in our office.

11 I would like to begin by first making a  
12 correction on Agenda Item 17b.(1). The second sentence  
13 should read: "If successful, this project could  
14 potentially save California natural gas customers  
15 between 8,500 and 40,000 million cubic feet of natural  
16 gas."

17 For Item 17 staff seeks of the seven highest  
18 ranking grant proposals totaling 982,998 from the Public  
19 Interest Energy Research EISG solicitation 13-03 Natural  
20 Gas and Transportation Natural Gas.

21 There are five projects totaling 680,358 under  
22 Natural Gas and two projects totaling \$299,640 under  
23 Transportation Natural Gas. These grants were  
24 competitively selected and capped at \$150,000.

25 For solicitation 13-03 Natural Gas and

1 Transportation Natural gas, here are the breakdowns:  
2 There were 18 proposals that were received for  
3 consideration; nine passed the initial screening and  
4 advanced technical review. From the technical review  
5 there were seven that exceeded the score and new  
6 advances program technical review. And from the program  
7 technical review, the same seven proposals are being  
8 recommended for funding.

9 From the seven proposals, the breakdown in  
10 respect to PIER R&D research areas are -- there is one  
11 in natural gas energy efficiency, there's four in  
12 renewable technologies, and two in vehicle technology.

13 Jamie and I are more than happy to answer any  
14 questions that you may have about the second project, or  
15 about the EISG program. Thank you.

16 CHAIR WEISENMILLER: Great. Thank you.

17 Commissioners, any questions or comments? I  
18 would lead off again pointing back the Jim Sweeney and  
19 staff paper on this program, which was an investment  
20 follow-up.

21 COMMISSIONER MC ALLISTER: All good stuff. I'm no longer lead on  
22 natural gas but I was aware of the RFP and some of the activities under  
23 that effort.

24 I want to just -- well, all of these are good  
25 stuff. I mean, getting biomethane kind of

1     figured out.  It's really obviously extremely necessary.

2     So three and four on that one.

3             And then, also I want to point out -- three and  
4     four are natural gas, rather, and then number five are  
5     natural gas also.  Solar water heating, that's the  
6     energy efficiency project.  And getting the cost down  
7     for solar and thermal is really important for  
8     California.  We have a lot of industrial natural gas  
9     going on.

10            At the moment natural gas is relatively cost  
11     effective and solar water heating has always had a hard  
12     are time competing.  But from a greenhouse gas emission  
13     perspective and a local criteria perspective, in some  
14     cases, some areas of the state, it's really important to  
15     figure that out.

16            And I know we've got a lot of pools being  
17     heated with this because of low cost.  We need to get the  
18     residential domestic hot water solar thermal figured  
19     out.

20            So I believe this project could help that  
21     market as well.  I have a long-term interest in that, so  
22     I'm glad to see any step forward because it's been a  
23     long time in coming.

24            CHAIR WEISENMILLER:  As I say, if you get a  
25     chance, you should visit UC Merced, which is located --

1 I saw a film on the larger applications -- I'm not sure  
2 much on the water heating, but it's pretty impressive  
3 what they are doing. And it's interesting because in  
4 the drought context we often think of solar thermal on  
5 the power side, but there's also real opportunities on the  
6 de-sal side, so if we could make that work.

7 So again, certainly, you know, encourage  
8 Commissioners to visit UC Merced.

9 Anyone else with questions or comments?

10 COMMISSIONER DOUGLAS: And I'll move approval  
11 of Item 17.

12 COMMISSIONER MC ALLISTER: Second.

13 CHAIR WEISENMILLER: So all those in favor?

14 (Ayes)

15 CHAIR WEISENMILLER: So Item 17 passes  
16 unanimately.

17 So let's go on to Minutes.

18 COMMISSIONER DOUGLAS: Move the minutes.

19 COMMISSIONER SCOTT: Second.

20 CHAIR WEISENMILLER: All those in favor?

21 (Ayes)

22 CHAIR WEISENMILLER: The Minutes are approved  
23 for February 8. So let's go to Lead Commissioner and  
24 Presiding Member Reports. Commissioner Scott?

25 COMMISSIONER SCOTT: I will start with I got a

1 chance a few weeks ago to go down to the National Fuel  
2 Cell Symposium which was at UC Irvine. It was really an  
3 interesting day. We spent sort of the first half of the  
4 day talking about stationary fuel cells and the  
5 different uses that they have there, including data  
6 centers but also in trying to help with some grid  
7 reliability, enhanced grid reliability.

8           Some of the various customers that use those  
9 stationary -- including Albertsons -- when the lights  
10 went out in San Diego a little while ago, that Albertsons was  
11 running on a fuel cell. And they were one of the only  
12 stores that managed to -- you know, after four hours you  
13 have to throw out all of your food, and they were  
14 actually open all the way through it and didn't have to  
15 throw out any food or anything like that.

16           Talked a little bit about trying to get the  
17 prices down on some of those so that they might actually  
18 be able to be used at some point in homes, as well as  
19 kind of your backup generator. And so it was just neat  
20 to kind of hear about the different applications they  
21 had.

22           Scott Danielson, the professor there, put the  
23 program together and had a very engaging set of  
24 speakers. And so if you have a little extra time, I'd  
25 encourage to maybe pull some of those PowerPoint

1 presentations from that.

2           And then the second half of the day was focused  
3 on the transportation side. We heard from a few of the  
4 OEMs, the auto manufactures, about their different cars  
5 and when they think those cars might be coming. Hyundai  
6 is the one that has the car coming soonest, probably  
7 April or May of this year. They're very excited because  
8 they're actually on the ship in Korea on their way here.

9           We talked a little bit about what the Energy  
10 Commission is doing in terms of helping to fund the fueling  
11 stations.

12           And so it was just an interesting day to bring  
13 together both the stationary side and the  
14 transportation-related side on fuel cells and get a  
15 status update and see what's going on and attempt to  
16 hear from -- Secretary Laird from Natural Resources came  
17 down. Chair Nichols came down. So it was a good day.

18           And then I will follow that on with the  
19 Governor's zero emission vehicle stakeholders summit,  
20 which was just last Friday. Also very well attended.  
21 Lots of excitement and enthusiasm and momentum, which I  
22 thought was terrific. I facilitated a discussion on  
23 fuel cells with \*\*Tyson Eckerle. Tyson Eckerle is the new  
24 -- he's over at the Governor's Office of Business and  
25 Economic Development. It's a position that was funded

1 by the Energy Commission, and his job really to help  
2 with a lot of the permitting that goes on with the  
3 hydrogen fueling stations. And so the first 17, try to  
4 kind of continue moving those forward and get those  
5 constructed and built, and then he'll turn his focus to  
6 potentials that may be funded through our next proposal.  
7 But it was terrific.

8           So he and I had a chance to let folks know that  
9 the Governor's office, the Air Resources Board, the Energy  
10 Commission, CDFR, all of us are kind of working hand in  
11 hand together to continue making progress on this. The  
12 key component is the Governor's zero emission vehicle  
13 goal.

14           Let's see. What else? I mean, I just think it  
15 was a terrific day. Everything went great. Out in  
16 front of the meeting they had a bunch of the different  
17 vehicles that were there, whether they were battery,  
18 electric, plug-in hybrids like the Volt; but they also  
19 had some of the medium-duty trucks as well. The Volt or  
20 electric vehicle was there. The electric vehicles --  
21 International Delivery Truck was there. I know those  
22 are both trucks that the Energy Commission helped fund  
23 through our program.

24           And they had the fuel cell Clarity, the Honda  
25 Clarity and they had the fuel-cell Tucson there as well.

1 And I know that the Chair was there too, so he may have  
2 something that he would like to add.

3 CHAIR WEISENMILLER: I think I wanted to note  
4 that the Hyundai fuel cell car was out front, you know,  
5 so they have at least one year.

6 COMMISSIONER SCOTT: A little bit early. Yeah.  
7 And that was really the message from our fuel cell  
8 conversation. And there were lots of conversations. It  
9 was a full day. There were multiple breakout sessions  
10 that that occurred. But the cars are real. The fuel  
11 pricing and availability are going to -- you know, those  
12 are kind of the three key things that came out as we  
13 were talking.

14 The Governor's office also talked about potentially looking  
15 back at the action plan - the zero emission vehicle action plan to kind of  
16 see how many of the 123 or so items we've picked off. But if there  
17 are other places that we need to add things, tweak  
18 things, they're very open to that to continue moving forward and  
19 making more progress on. So that was really interesting  
20 and fun.

21 And then yesterday I was at the plug-in vehicle  
22 collaborative meeting. That was in San Diego. So I  
23 kind of had a zero mission vehicle theme for the last  
24 few weeks.

1           But one of the most -- well, we always have  
2 really interesting discussions. This brings together  
3 the environmental community, the public health  
4 community, all of the industry players, a lot of the  
5 state agencies; and so you always have -- utilities --  
6 really interesting conversations.

7           But one that I'll highlight for you was in the  
8 morning. We heard from a series of environmental --  
9 Environmental Justice in Public Health presenters, and  
10 they talked a lot about the Charge Ahead Campaign, which  
11 is a campaign to try to also bring a million vehicles, electric  
12 vehicles -- not just passengers but medium-duty and  
13 heavy-duty -- to California's roads.

14           And the importance of making sure that the  
15 incentives can get to a much broader set of folks than  
16 that they're going to right now.

17           But one of the things that was interesting was  
18 -- and I'm not going to get the statistics quite right,  
19 but there was a community in San Diego and there was a  
20 large -- there was a big chunk, maybe 25 or  
21 30 percent -- I'd have to go back and double check the  
22 notes, but of folks who don't have cars at all. And so  
23 it doesn't matter how you design the incentives; that  
24 you don't reach them. And so the transit-oriented  
25 development, putting money into goods

1 movement and also into buses and things that they can  
2 use is really important. And that's one of the factors  
3 that they highlighted while we were there during their  
4 presentation. It was an interesting -- it was a very  
5 interesting day.

6 And then the only other one I would mention --  
7 and maybe I'll let you queue that one up when we get to  
8 your update -- is that we had a great meeting, I think a  
9 few weeks ago, with the Department of Navy and the  
10 Marines.

11 CHAIR WEISENMILLER: I would say the only other  
12 thing I'd mention on the Governor's event was a lot of  
13 kudos to Wade \*Crowfoot and \* Randall Winston who really pulled  
14 that together.

15 COMMISSIONER SCOTT: Absolutely. Absolutely.

16 MR. MC ALLISTER: Well, just a couple of things  
17 really, not a big report. I wanted to just call out  
18 staff and Commissioner Douglas on SB454 and getting that  
19 rolling I think that's been really good stuff. I don't  
20 know if you wanted any comments on that, but I think  
21 that's -- our Appliance Efficiency Enforcement Standards  
22 is moving forward nicely. I think the process we've  
23 followed has been very open but also deliberative and  
24 (inaudible) rather, and it is resulting in a good end  
25 product that's going to lay a good foundation for us

1 going forward with similar types of activities in the  
2 enforcement realm. So I just wanted to mention that.

3 On the 20th we had a speaker from the -- Mark  
4 Cooper from Consumer Federation America. I think it  
5 was quite timely and well done and kind of represents  
6 the engagement of the consumer voice, I think, in our  
7 processes that it hasn't been playing for a while, at  
8 least. And I think in the standards realm consumers  
9 benefit so much.

10 And sometimes our processes, both here at our  
11 commission and the PUC tend to be people that are kind  
12 of in the know and sort of able to engage at that level  
13 in a fairly onerous process, or at least a non -- not  
14 easy to get there and participate and understand the  
15 rules and everything. And I think having a national  
16 organization that does have a membership that is  
17 nationwide and does represent the consumer voice is  
18 really important for us. So that's why I invited Mark  
19 to come out.

20 Also, he's done some quite timely and rigorous  
21 and well-conceived -- both theoretically and  
22 well-implemented practically analysis on the impacts of  
23 codes and standards and something that we, I think, need to  
24 expose our staff and stakeholders to here in California.  
25 So I think that's a good step. I think we can count on

1 their participation going forward in some of our  
2 proceedings. Consumers benefit so much from our  
3 standards. And I think it's not always clear to them,  
4 so we have to do better telling them. But, also, I  
5 think it's not clear to the folks, -- the VIPS that  
6 matter to us, and so we need to be involved and engaged  
7 in those discussions so that we can actually have the  
8 discretion to do what's necessary to unlock those  
9 benefits. So I think that consumer voice is really  
10 fundamental to that dynamic.

11           And then, finally, just a couple of other  
12 groups that I want to give everybody the heads up that  
13 I've been involved in and kind of deepening involvement  
14 in. One is the Pacific Coast Collaborative which  
15 involved and heard of maybe participated in I know that  
16 Chair Weisenmiller has been involved in that coordination at  
17 with the Governor's office and across the states. But energy  
18 efficiency really is probably the main thing. Climate  
19 generally, but within that energy efficiency is probably  
20 the main thing that the CPUC functionally is doing and  
21 coordinating. And it's quite powerful, really.

22           California is by far the biggest state in the  
23 little consortium on the West Coast that includes  
24 California, Oregon, Washington, and British Columbia.  
25 We're obviously kind of a little bit the leader of it

1 because we have such a history in energy efficiency, and  
2 also because we've got, you know, the preponderance of  
3 the population in the collaborative.

4 But I think it does represent broader  
5 leadership than just California, and that's powerful for  
6 the national and continental debate, really, on  
7 efficiency and how we're going to do demand side efforts  
8 and how we're going to meet our climate goals.

9 So having a block on the West Coast I think  
10 sends an even more powerful message, and we're just  
11 California. And the Governor's office obviously is a  
12 big promoter of these relationships, and I think it's  
13 laying a good foundation to bear quite a bit fruit and  
14 to be able to provide thought leadership that actually can have  
15 an impact in a time frame that's reasonable. So I'm  
16 excited to be involved in that. Jeanne Clinton over at  
17 the Governor's office is also very involved. She's a  
18 real gem in that arena.

19 And then, finally, I wanted to just mention  
20 NASEO, the National Association of State and Energy  
21 Officials. I went on the board about six months ago,  
22 and they are involved in some really interesting  
23 discussions, I think, that will help us both in form and  
24 promotion in some cases, and national discussions, but  
25 also learned from some of the other member states.

1           The East Coast, they're doing some interesting  
2 stuff on energy efficiency, on disclosure in a number of  
3 areas that fall in my wheelhouse on energy efficiency.

4           And they're also working on finance. They're  
5 helping market develop for Clean Energy Finance  
6 and sort of looking at what works in other states. And  
7 there are a number of examples that California could  
8 learn from -- D.C. and New York and in some other  
9 places.

10           They're also involved in the EPA discussions  
11 around power plant emission standards, and particularly  
12 existing power plants and the Clean Air Act 11D front. So  
13 I've been working some with the ARB on that, and I'll be  
14 engaging with NASEO to get California's viewpoint into  
15 that discussion, because obviously there's a lot of  
16 differences across states in where the climate  
17 discussion ought to go, as far as where that ought to  
18 go. And we obviously want relatively deep, aggressive  
19 standards, and also to have a relatively open and  
20 transparent process for accountability. And, you know,  
21 not all states agree with that, but certainly NASEO is a  
22 forum for us to get that viewpoint across.

23           And, interestingly, the EPA, sort of in parallel  
24 with some of the emissions standards discussions,  
25 although not explicitly linked, is looking at adopting

1 criteria or standards essentially for how to  
2 characterize energy efficiencies, how to give credit,  
3 essentially, or how to quantify impacts in a uniform way  
4 of energy efficiency programs. So that's obviously  
5 really important to California to get credit for our  
6 aggressive energy efficiency over the years and have  
7 that taken into account in any sort of carbon standard  
8 for our electric system.

9           And we would want that to be rigorous and  
10 relatively -- well, essentially rigorous and allow us to  
11 get the credit that we feel we're due for that. So that  
12 discussion has been linked to the power plant standards,  
13 but it clearly is kind of setting a stage for that.

14           So, anyway, NASEO is keeping us -- certainly  
15 keeping me engaged in those national discussions which I  
16 found very useful. So just a couple of heads up.

17           Thank you very much.

18           CHAIR WEISENMILLER: Great. Thanks.

19           Sort of a number events, most of them fairly  
20 briefly. One of the things I did was -- PG&E has been  
21 really pioneering a gas leak detection technology which  
22 basically looks at the isotope ratio, whether it's  
23 carbon 12 or carbon 13. And it's about three orders of  
24 magnitude more sensitive than the typical approach of  
25 walking along the street with a detection system.

1           So they basically can have a car roll down a  
2 street and identify leaks in the gas distribution  
3 system. And sort of remarkable sensitivity. And even  
4 by looking at isotopes they can tell whether the leak is  
5 actually in their system or, say, from the sewer system,  
6 exactly what the source is.

7           And there are sort of -- I think this was by the  
8 second run of this, or maybe it's the third in terms of  
9 saying, Okay, let's bring out the system, you know --  
10 and again, they're improving each time they go through  
11 and do it.

12           The first one was Oakland, and then this one  
13 coming back to Sacramento about now. But then they also  
14 bring out a crew. And the notion is that when you go  
15 down the street and you identify issues, you then had  
16 the crew work on those issues then.

17           And historically there's sort of a rating  
18 system on how bad the leak is, and so typically you're  
19 dealing with the bad leaks. But with this, since you  
20 have the group concentrated and you pinpoint it, they're  
21 sort of going through basically -- I won't say all the  
22 leaks that they find. Now, whether it's really all is a  
23 question, but really hitting those with the notion of,  
24 again, sending the crews out, go through block by block,  
25 and just sort of fix the system.

1           And then, you know, the obvious question is  
2    "How fast can we do the whole system?" And then you,  
3    know, "How fast would you go back?" Because one of the  
4    things you can do then is go back in public  
5    concentration areas, you know, where you have groups of  
6    public there, and do more frequent updates there to  
7    check for leaks. So, again, it's pretty, pretty  
8    impressive.

9           COMMISSIONER MC ALLISTER: Is it a biological  
10   detection with markers, or what's the --

11          CHAIR WEISENMILLER: No. It's laser based.  
12   And again, what you're doing is detecting the ratios of  
13   the -- well, concentrations and also the ratios. And the  
14   ratios of carbon 12 and 13 is one way of really  
15   determining what the source of carbon is.

16          I certainly will encourage people. You know,  
17   I'm sure Valerie will be happy to set up other tours for  
18   other people, as I said, set as they go through -- she's  
19   smiling in the back.

20          You know, basically, it's pretty impressive  
21   technology and sort of indicative that, you know, PG&E  
22   is trying to, really, on the gas side, and go from -- I  
23   don't know what the right term would be, but not  
24   particularly inspiring, you know, performance to get  
25   much more on top of the class on that. So it's

1 interesting to see it in some indications of progress there.

2 COMMISSIONER SCOTT: Is that something that  
3 they're using right now?

4 CHAIR WEISENMILLER: Yes. As I said, it's been  
5 tested. So, you know, as I said, this is like the -- I  
6 think I was the second, or maybe it was the third; but,  
7 anyway, it was like -- and the stuff is so sensitive.  
8 Originally, it was used much more for -- generally for  
9 greenhouse gas detection.

10 I guess the scientist was driving home and left  
11 the device on and realized when he got home that he was  
12 actually measuring, you know, gas emissions from the  
13 system. So, as I said, it's very, very sensitive.

14 In fact, I guess one of the things that's been  
15 to make sure that it's not, you know, just noise but  
16 really identifying true leaks. So that was interesting.

17 Following up on what Commissioner Scott said,  
18 we had an event in San Diego. I want to say hats off to  
19 Kevin Barker who had the job of working on scheduling  
20 this event, which turned out the first call was Kevin  
21 and about 50 people from the military. (Inaudible) So  
22 we had some more depth there. But, anyway, we had about  
23 30 or 40 members of the military, if that number, with  
24 ChairNichols, Commissioner Scott. We had \*Picker and  
25 \*Florio from the PUC. And, you know, we also had, you

1 know, Admiral McGinn, who's the Assistant Secretary of  
2 the Navy; Steve \*Berberich from the ISO. So we had a  
3 pretty good group of top energy decision makers and  
4 associate staff and had a working session with the Navy.  
5 It was an all-day session, identified the five or six  
6 areas.

7           And also Wade Crowfoot who has been on point in  
8 the Governor's office. But, anyway, we had a working  
9 session and identified six areas of importance to the  
10 Navy and Marines in the state, then set up working teams  
11 going forward on those of state and federal people. And  
12 Admiral McGinn and I, we're having monthly conversations  
13 to make sure we're making progress in those things.

14           Anyway, it's a good example of the partnership  
15 between the military in California on moving forward on  
16 stuff. I think we're going to meet again -- you know,  
17 I'm going to say six months, or whatever; and at that  
18 point, you know, as we flip through the Bagley Keene things, hopefully  
19 they can substitute Commissioner Hochschild or  
20 Commissioner Scott at that stage. But, again, this was  
21 building relationships.

22           So, staff, I think it was pretty productive  
23 activity. And certainly I think they appreciated the high level state  
24 commitment, the working partnership. They haven't quite  
25 gotten the Air Force or the Army banging on their door,

1 but that may, you know, follow some of that.

2 I was going to mention that President Peevey and  
3 I did a joint presentation to the Silicon Valley  
4 Leadership Group talking about innovation and regulation  
5 not this Monday but the week before.

6 Also, Laurie and I and some of the staff went  
7 back to the ARPA-E conference back in D.C. It was -- I  
8 don't think you would use the word "glitzy," but  
9 basically it was a very high-profile event. They're at  
10 year five, you know. In terms of earlier conversation  
11 what some of our accomplishments are, they're at year  
12 five.

13 I mean, obviously the first year or two is  
14 startup. So at this point everyone is looking at them,  
15 "What did you accomplish?" They came in pretty  
16 high-profile game changers, et cetera, and so the  
17 question was "What was there?" I think there were like  
18 3,000 people in attendance. They have an app for it  
19 where you could go through and track who the speakers  
20 were.

21 They had about 300 demonstrations downstairs of  
22 primarily projects they have funded. I would say my  
23 rough guess was about a hundred of those were from  
24 California; so, you know, California has more than its  
25 share.

1           I did a presentation on state programs with  
2   also New York and Massachusetts representatives. So it  
3   was a pretty intense session. As I said, when you  
4   looked at the very high-profile speakers -- Tom  
5   Friedman, et cetera -- it was interesting.

6           David Crane gave one of the talks. And David,  
7   we all think of DGmore on the electric side, and his pitch  
8   was, I guess -- he obviously lives in New Jersey, so  
9   after Hurricane Sandy, he was trying to pick up his  
10   kids, trying to dodge around fallen transmission lines.  
11   He decided that what was more interesting was to build  
12   off the gas system and with DG. And every one of our  
13   houses now have both the electric system and a gas  
14   system touching that last mile of meter. And so he was  
15   saying, Okay, why not look at the gas system as a way of  
16   distributing -- he has a Stirling engine technology,  
17   which that is you put it in your basement and it  
18   provides you heat and power both very efficiently and,  
19   he would argue, more reliably than trying to rely on the  
20   electric system. And it's obviously in the R&D phase at this  
21   stage, or demonstration phase at this stage. So we'll  
22   see how that plays out. But it was interesting. He was  
23   basically putting one of his bets on the DG side of  
24   stuff.

25           Certainly other talks but -- I mean, certainly

1 Laurie would be happy, I'm sure, to spend more time with  
2 people on it too.

3 We also while we were there met with people -- all  
4 science, technology, CQ, DOE -- and tried to build off  
5 of relationships. And, obviously, ARPA-E. We continued to  
6 deepen our relationships on the R&D side.

7 COMMISSIONER DOUGLAS: So I just have two brief  
8 reports. As Commissioner McAllister noted, we had a  
9 workshop jointly on the proposed regulations to  
10 establish an administrative enforcement process for our  
11 Appliance Efficiency Standards implementing SB 454. It  
12 was a good workshop. The staff did a really nice job of  
13 running the workshop and pulling materials together and  
14 getting public comment. It was very well attended. We  
15 got some very constructive and useful comments from  
16 attendees.

17 The comment deadline is March 7th, and so --  
18 was March 7, and so we are looking now to comments and  
19 looking at next steps. We hope to start a formal  
20 rulemaking process later this year.

21 My only other report is that I had the  
22 opportunity to be the dinner speaker at the California  
23 Audubon Board of Director's meeting on DRECP at Furnace  
24 Creek, which was a nice place to get to go. There was a  
25 big storm the day after I got there, so it was a rare

1 opportunity to see one of these big desert storms in  
2 process -- the picture that Laurie ten Hope showed  
3 reminded me very much of that recent experience. I  
4 didn't see downed power lines but, in fact, the Furnace  
5 Creek area did lose power a couple of times the day after the  
6 storm. And so that sort of thing does happen. Anyway,  
7 that's all. I've got.

8 COMMISSIONER HOCHSCHILD: Just real brief. I  
9 think the only highlight worth sharing since we met last  
10 was that I spoke at the education of the Zero Energy  
11 Homes Community in Lancaster which is built by KB homes,  
12 and they are doing absolutely path-breaking stuff. I  
13 saw technologies there I never even knew existed.

14 For example, your shower water, used shower  
15 water, they have a system -- the pipe is wrapped, the  
16 copper, and they recover the heat from the used shower  
17 water to pre-heat water going into the hot water heater.  
18 It cost \$500; you save \$800 a month savings. So very  
19 impressive stuff. Actually, I'm going to ask that guy  
20 to come present as a guest speaker.

21 But I've got to catch a flight. I'm going to  
22 Imperial Valley for a conference. Thank you.

23 CHAIR WEISENMILLER: Thank you. Chief Counsel's  
24 report.

25 CHIEF COUNSEL LEVY: Good afternoon,

1 Commissioners. I'd like to request a closed session to  
2 discuss Item 20f if you please.

3 CHAIR WEISENMILLER: Okay. Executive  
4 Director's report.

5 EXECUTIVE DIRECTOR: Nothing to add.

6 CHAIR WEISENMILLER: Public Adviser's report.

7 PUBLIC ADVISER: Nothing to report.

8 CHAIR WEISENMILLER: So we're going to closed  
9 session. We will return about -- why don't we say 1:15.

10 Any public comment?

11 Okay. We'll return at about 1:15.

12 (Lunch Recess: 12:01 p.m. to 1:16 p.m.)

13 CHAIR WEISENMILLER: We're back on the record.

14 This meeting is now adjourned.

15 (Whereupon the meeting adjourned at 1:16 p.m.)

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REPORTER'S CERTIFICATE

I, Jacqueline Toliver, a Certified Shorthand Reporter for the State of California, do hereby certify:

That I am a disinterested person herein; that the foregoing hearing was reported in shorthand by me, a duly qualified Certified Shorthand Reporter, and thereafter transcribed into typewritten form by means of computer-aided transcription.

I further certify that I am not of counsel or attorney for any of the parties to said hearing or in any way interested in the outcome of said hearing.

IN WITNESS WHEREOF, I have hereunto set my hand this 26th day of March 2014.

JACQUELINE TOLIVER  
Certified Shorthand Reporter  
License No. 4808

