

BEFORE THE  
CALIFORNIA ENERGY COMMISSION

In the matter of, )  
 )  
Preparation of the ) Docket No. 10-BAP-1  
2010 Bioenergy Action Plan )

Staff Workshop  
2010 Bioenergy Action Plan

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

THURSDAY, JUNE 3, 2010  
9:00 A.M.

Reported by:  
Kent Odell

## COMMISSIONERS:

James D. Boyd

## STAFF

John Nuffer  
Garry O'Neill

## Panels:

Chip Clements, Clements Environmental (for Plasco Energy)  
Fred Skillman, Pacific Gas & Electric  
Frederick Tornatore, TSS Consulting  
Phil Reese, California Biomass Energy Alliance  
John Shears, Center for Energy Efficiency and Renewable  
Technologies  
Russ Lester, Dixon Ridge Farms  
Tom Koehler, Pacific Ethanol

Michael Hawkins, Millennium Energy LLC  
Pat McLafferty, Protech GCS  
Paul Relis, CR&R  
Sophia Skoda, East Bay MUD

Chuck White, Waste Management  
Gillian Wright, Southern California Gas Co.  
Kevin Best, Real Energy LLC  
Kimberly Kemp, Pacific Gas & Electric  
Susan Patterson, Gas Technology Institute

Allen Dusault, Sustainable Conservation  
Jim Stewart, Bioenergy Producers Association  
Jim Tischer, California Water Institute/CSU Fresno  
Ted Kniesche, Fulcrum Energy

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

1  
2 JUNE 3, 2010

9:00 A.M.

3 MR: NUFFER: Thank you all for coming. My name is  
4 John Nuffer. I work in the Renewable Energy Office here at  
5 the California Energy Commission. I am the Project Manager  
6 for the Bioenergy Action Plan. And this is the first public  
7 workshop to begin talking about that, the 2010 Plan. Before  
8 I say much more, I would like to introduce Commissioner  
9 Boyd, who will have some opening remarks for us.

10 COMMISSIONER BOYD: Good morning, everybody. It is  
11 really a pleasure to welcome you to this workshop, to see so  
12 many of you. This, the 2010 update of the Bioenergy Action  
13 Plan, but this time we mean it, by gosh. I particularly  
14 want to thank the staff of the CEC Renewables Office. I got  
15 myself maneuvered into -- or tricked into being Chairman of  
16 the Renewables Committee after a lot of years, but actually  
17 that has proven to be a big advantage, as Chair of the  
18 Bioenergy Interagency Working Group, I have had the access  
19 to the resources of the staff of the Energy Commission just  
20 adds implied by the position of Commissioner; but as  
21 Chairman of the Renewables Committee, I have really got them  
22 now, up close, and so I want to commend the staff for the  
23 job they have done. It is now more than just a few of us  
24 who have been at this in this agency for quite some time.

1 The problem is, a lot of you have been at this for a long  
2 long time. So I want to thank John Nuffer and Garry O'Neill  
3 and, frankly, all the others who put on this workshop, we  
4 did it on - they did it on very short notice.

5           You have seen from the Workshop Notice itself the  
6 purposes and what have you, and I think they are well  
7 stated, there are a lot of good questions in there. By  
8 having this a little more under the auspices of a  
9 Commission Committee than in the past, then I get another  
10 Commissioner to have to weigh in on this, and so  
11 Commissioner Weisenmiller, who is the other member of the  
12 Renewables Committee is getting introduced, well, he does  
13 not really need an introduction to this subject, but he is  
14 getting pulled back into the subject, and I welcome his  
15 presence. So, between that and the Bioenergy Interagency  
16 Working Group and all you stakeholders, we have got to move  
17 this topic. And I keep saying the planets and stars are  
18 aligned, but I think they are better now for lots of obvious  
19 national and international reasons than ever before. So,  
20 the only problem we have is shortages of money, and every  
21 little pot of money sitting around, members of the  
22 Legislature seem to think it is their personal bank account  
23 for spending on things other than what we think they want us  
24 to spend them on, so we are going to be struggling there.

1 But we certainly have the best and the brightest here in the  
2 room, the best brains, and for that I am grateful. You are  
3 here to talk about this subject, which I have already  
4 implied, and many of you know it is near and dear to my  
5 heart, I just hope it is not killing me, but it really is  
6 good to see you all, all of you, all of us who have worked  
7 so long over the years on this particular topic. We have  
8 very ambitious goals for developing biomass and the waste  
9 component thereof, as well, as an energy source. We have  
10 had a Governor's Executive Order that has its 20 percent  
11 target, it is integrated into things like our Integrated  
12 Energy Policy Report, it is integrated into the Climate  
13 Action arena, it is integrated into the Alternative Fuels  
14 arena and the Renewables arena, I just hope it is integrated  
15 enough and hopefully you are going to push this in helping  
16 to put together a plan that is really strong enough to push  
17 this in all the directions. Twenty percent of our biofuels,  
18 we have as a goal to come from California fuels stocks by  
19 2010, 40 percent by 2020, 75 percent by 2050, for very  
20 obvious reasons, we need to push that and there are very  
21 good reasons to push that even more. We have made  
22 significant progress, but we have really not made enough  
23 significant progress towards these goals. The State  
24 agencies in question are committed, we continue to work on

1 unfortunate statutory hurdles that are misunderstood or  
2 misconstrued in some areas that some of us will continue to  
3 work on. Last week, I understand several of you  
4 participated in the Board of Food and Agriculture's  
5 excellent program, which focused on the ways the Ag sector  
6 can help and contribute in this arena. A.G. Kawamura has  
7 become a good friend of mine over the years. He has been  
8 here and he has asked me to please come and present at his  
9 event, I just could not do it, just like I am going to have  
10 to apologize to you folks that, after I have stayed here a  
11 while, and then leave. Well, all of you are busy, this  
12 place is so busy, I cannot believe it, and since you did not  
13 go a few blocks away from this building, my reel will reel  
14 me in very rapidly into the events of the day, so I will not  
15 be able to spend the whole day with you. The purpose of a  
16 2010 Action Plan is really to update and to bring to the  
17 fore the actions that are needed and that can be taken now  
18 to achieve greater utilization of all of the waste streams  
19 and other renewable sources for renewable electricity and  
20 renewable biofuels, and what I want to see, what we really  
21 need to see are some very very strong recommendations. As I  
22 have said in several talks, and we have been talking about  
23 this subject quite a bit in the last several months, and as  
24 I have said before, of the 263 new renewable energy projects

1 and you know how high a profile renewables has in the State  
2 and with this Governor, and this Administration, of those  
3 263 new ones that are proposed, that is about 70,000  
4 megawatts, only one project of 100 megawatts is a biomass  
5 project and this is a solar biomass combination, so there is  
6 something wrong with that statistic. We really need to work  
7 on that. So you folks in the room here today are going to  
8 help California change this equation, help us help to make  
9 that change, and we want to work with you and we really need  
10 to work together, I just want to urge that we really come to  
11 a consensus in a standard menu of ideas and a single  
12 mutually agreed upon set of statements that we make in front  
13 of all audiences. One thing that some of us probably find  
14 ourselves tripping over is the words that some of us have  
15 said in one setting that somebody uses against you if you  
16 are the next person to come in the door, so what I really  
17 want us to do is have a consistent message and be sure of  
18 that message, and it means do not break ranks and go after  
19 one little pet part of this, we have got to drag the whole  
20 thing along together, so I urge you all to think about that  
21 as we put together this plan, and afterwards, as we work  
22 together, to communicate to all policymakers, and to  
23 communicate more or less with one voice, and at least one  
24 message on what it is we want to do. So, again, thank you

1 for coming here today. As I said, I am dismayed, frankly  
2 disappointed that I cannot stay for the whole day, I will  
3 stay as long as I can until the calendar drags me off to my  
4 next obligation a little while later this morning. So thank  
5 you very much, and let us all have a successful gathering  
6 and session here today and come up with what we need for an  
7 updated and refreshed Bioenergy Interagency Action Plan, or  
8 just a Bioenergy Action Plan, that all of us, interagency or  
9 not, can work together on. So thank you and have a good  
10 day.

11 MR. NUFFER: Thank you, Commissioner Boyd. Again,  
12 my name is John Nuffer. Let me give you some housekeeping  
13 announcements. As you know, the day is divided into four  
14 panels, two in the morning, two in the afternoon. We are  
15 going to have a break in the morning and a break in the  
16 afternoon, and an hour for lunch. If you need a snack or  
17 lunch, if you go up the stairs, right outside, out in the  
18 lobby, up the stairs, across the patio, there is a little  
19 café. If for lunch you want to go to a restaurant locally,  
20 you can ask one of us for a recommendation. Bathrooms are  
21 out the door, to the left, and right across the lobby. We  
22 have a lot of folks listening on WebEx and on the phone, so  
23 when you are wanting to speak, please fill out a blue card,  
24 take it to one of the staff, and step to the podium so that

1 everybody online can hear you. The WebEx and all our  
2 conversations are being recorded for posterity.

3 I will be a little briefer than I intended to be.  
4 As you know, in 2006, the Governor's Executive Order  
5 required that 20 percent of renewables should come from  
6 biomass. At the time, there was a Bioenergy Interagency  
7 Working Group that existed, that began to put together the  
8 first Bioenergy Action Plan. After a couple of progress  
9 reports on that plan, we found that most of the action items  
10 from 10 State agencies that were involved in that plan were  
11 successfully implemented, although it did not make as much  
12 of a difference as we hoped it might make, and that is why  
13 we are again looking on the Bioenergy Action Plan, this is  
14 an update of the 2006 Plan. We hope that we can get this  
15 new plan to the Governor by the end of the year. November,  
16 we intend to take the plan to the Commission for its  
17 consideration of adoption.

18 Recently, the Energy Commission's 2009 Integrated  
19 Energy Policy Report said that there were still significant  
20 barriers to the development of bioenergy in California. And  
21 this workshop, we hope, will help us learn more about those  
22 barriers and what we can do about them. There are going to  
23 be two public workshops, this one and another one in early  
24 September, the one in early September will be one where you

1 can comment on the Draft Plan that we intend to take to the  
2 Commission later on.

3           This is, as I said, a really long day, and we have  
4 had a lot of interest from panelists who wanted to  
5 participate in this event. It is not going to be a typical  
6 PowerPoint presentation kind of day where we sit and look at  
7 the PowerPoint's. We have intentionally kept the PowerPoint  
8 presentations short so that we can encourage discussion and  
9 debate among the panelists and among the audience. And Dr.  
10 Pam Doughman, who is the Technical Director for the  
11 Renewable Energy Office here at the Commission, will  
12 facilitate the panels to try to encourage discussion and  
13 dialogue. And we also have Dr. Steven Kaffka from the  
14 California Biomass Collaborative, who has graciously offered  
15 to be here today to answer any difficult technical  
16 questions.

17           With that, I will turn it over to Garry O'Neil, my  
18 colleague, who will give us a little overview of where we  
19 are in terms of meeting the 2010 and 2020 goals, and what we  
20 need to do in real terms to meet those goals. So, Gary?

21           MR. O'NEILL: Good morning. I have decided to keep  
22 my presentation incredibly short because we have a very  
23 large first panel, so I am going to rush through my  
24 presentation fairly quickly. This is information that most

1 everybody here is familiar with already.

2           So our bioenergy goals are based on Governor's  
3 Executive Order 606, 20 percent of the RPS must come from  
4 biomass, and we also have a 20 percent of our in-State  
5 biofuels need to be produced in-State by 2010. We have not  
6 met those goals, it is 2010 right now, we are a little bit  
7 short. I estimate that we need about 3,300 gigawatt hours  
8 of additional biopower to meet the 2010 goal, and according  
9 to the progress, the plan needs about an additional 115  
10 million gallons per year of biofuels to meet the 2010 goal.  
11 So the question becomes, how can we meet those goals. So,  
12 in the near term, for the Bioenergy Action Plan, we have  
13 decided to focus on specific areas, things that we can  
14 target to bring things online in a timely manner. So, for  
15 the near term goals, we believe that the focus areas should  
16 be on restarting idle capacities; these are facilities that  
17 have already been constructed, steel is in the ground,  
18 bringing these plants back on line, at least for the  
19 biofuels, that there is enough capacity that is then idled,  
20 that we could bring on line to meet the 2010 goal.  
21 Additionally, for the biopower, there are idle biomass  
22 facilities, a lot of these have shut down in the 1980s, I do  
23 not know what the actual condition of these are, but  
24 according to the biomass collaborative and some information

1 that I got from the Biomass Center Geo-Alliance, there are  
2 approximately 10 facilities that are idled, some of those  
3 can come back on line. Some of those have been shut down  
4 recently, within the last couple of years. So there is  
5 possibility for bringing those back on line.

6 Also, expanding the role of existing biomass plants  
7 is a possibility, adding boilers at existing plants, co-  
8 firing the coal plants with woody biomass, that is a  
9 possibility at low percentages. We will have a speaker here  
10 who will explain a little bit more about that. Co-digestion  
11 of food and waste, digesters at wastewater treatment plants,  
12 and things like that. And also, in order to meet the near  
13 term biopower goals, we will need to bring new facilities on  
14 line by 2012 to meet the 2010 goal.

15 For the long term goals, we need to focus on  
16 building new plants. We also need to focus on building more  
17 efficient cost-effective biomass resources using mixed fuel,  
18 mixed use plants, kind of what we are calling diffuser-like  
19 co-digestion, digesters, wastewater treatment plants, things  
20 like that. We need to be smarter about the way we are using  
21 our fuel. We also need to work on commercialization of all  
22 of the emerging technologies that are out there so that we  
23 can get more commercial-ready fuel efficient, cleaner  
24 burning plants on line. So, for the 2020 goal, those are

1 the focused areas that we need. There is enough feedstock  
2 out there to meet the 2020 goal for both biofuels and  
3 biopower. The feedstock technical potentials are from the  
4 biomass collaborative, and these are technical potentials,  
5 not economic potentials, so the actual amount of fuel that  
6 we could actually economically get to may be a lot lower.  
7 There is also, from one of the Energy Commission Reports  
8 from Commode [phonetic], there is roughly about 150 to 300  
9 megawatts of co-digestion potential in California at  
10 wastewater treatment plants, so that is another opportunity  
11 for us for 2020.

12 So in the 2009 IEPR process, we found out that there  
13 was a lot of barriers to developing bioenergy in California.  
14 This is a list of kind of broad-based barriers that we came  
15 up with through those workshops from the stakeholder  
16 comments. There is a lot of regulatory and permitting  
17 issues, mostly in the timeliness and the cost, and also for  
18 financing, there is uncertainly for regulations and  
19 permitting. If the developer cannot show a financial agency  
20 that they can get permitted, they are not going to get  
21 financed. There are also costs associated to meeting  
22 pipeline and air quality standards. Again, the inability to  
23 obtain project financing, this goes beyond just economic  
24 reasons, renewables have historically had a 30 percent

1 failure rate mostly due to project financing, and then there  
2 is feedstock sourcing, it is mostly costs, but competition  
3 and sustainability also do play a role. And then, once  
4 again, we do need to commercialize all of these emerging  
5 technologies that are coming forward to help meet our goals  
6 because a lot of these technologies can actually help meet  
7 the air quality standards that are out there.

8           So, for the 2010 Bioenergy Action Plan, we developed  
9 five strategies that basically mirror those barriers that we  
10 came up with on that previous slide. I am not going to read  
11 through these, they are in the handout, but basically this  
12 is how we are going to frame the Action Plan. We are going  
13 to come up with action items that are going to fit within  
14 each one of these strategies, and so that is what we have  
15 asked everybody here to comment on and provide input, to  
16 help us fill out this Action Plan, and to provide action  
17 items for the state agencies to work with for new ideas.  
18 And if you have any written comments, we are asking that any  
19 written comments come to us by Wednesday, June 9<sup>th</sup>. We are  
20 on a very tight schedule, so that is why we are asking for  
21 comments to come in fairly quickly. This will be a lengthy  
22 - we will have a longer process, so if comments do not come  
23 in by then, we will accept them, but to get them on public  
24 record, we would like them by June 9<sup>th</sup> so that we could get

1 started on this Action Plan. And with that, I am going to  
2 return it to John Nuffer.

3 MR. NUFFER: Thanks, Garry. I failed to mention two  
4 really important things. First, in case of emergency,  
5 please follow me out the door and around the building over  
6 to the park across the intersection. And the second thing  
7 that I failed to mention is that the Energy Commission is  
8 not doing this alone, we are doing this with nine other  
9 state agencies, the Air Board, Cal EPA, the Resources  
10 Agency, the Department of Food and Agriculture, Cal Fire,  
11 the Department of General Services, Cal Recycle, the Public  
12 Utilities Commission, and the Water Resources Control  
13 Boards. So it is a collaborative effort among a lot of  
14 agencies that will be working to gather closely so that we  
15 can fit things together, so that what we come up with makes  
16 sense. So with that, I will turn it over to Pam and maybe  
17 call the panelists up, the first panel, please.

18 MS. DOUGHMAN: Okay, to the panelists, when you are  
19 speaking, it looks like you need to press where it says  
20 "push." To the audience, if you have not already filled out  
21 a blue card, go ahead and do that, and if I could ask Brian  
22 to stand up, and Perry and Julia, please stand up, if you  
23 could hand your blue cards to one of these three staff  
24 people, you can do it throughout the day. We will use that.

1 We will have a Court Reporter. We also are recording this  
2 through the WebEx, and so we will use the blue cards to make  
3 sure we have your name and affiliation correctly included in  
4 our transcript. And also, you can give the Court Reporter  
5 your business card. Okay, so it looks like it is staying on  
6 without me holding the button, so I will not have to hold  
7 the button all day today, so that is good.

8 Our first panel, we will be focusing on getting new  
9 biopower generation on the grid. We have handouts in the  
10 back and, among the handouts, we have the questions for this  
11 panel and for all the other panels. So what I would like to  
12 do is have the panelists introduce yourselves and go ahead  
13 and provide any opening thoughts you may have on these  
14 questions that we have for this panel. And just to  
15 summarize, the questions are: What actions can agencies do  
16 to best address the following barriers to bringing new  
17 biopower generation on line: difficulties in obtaining  
18 reliable and affordable feedstock materials, a lack of  
19 commercialization of emerging technologies, high cost of  
20 pollution control equipment, and advanced solid generation  
21 technologies needed to meet best available control  
22 technology air pollution requirements, lengthy permitting  
23 and interconnection requirements, and difficulties in  
24 obtaining financing? Also, two, second question: What

1 statutory changes may be needed? Third question: What  
2 indicators, such as megawatt hours, should be used to  
3 measure progress in bringing new biopower generation on  
4 line?

5 Okay, so why don't we just go ahead and start with  
6 the far end there, actually. Do you have a name tag? Okay,  
7 so please go ahead and introduce yourself.

8 MR. TORNATORE: Yes, my name is Fred Tornatore with  
9 TSS Consultants. We are a consulting firm that specializes  
10 in bioenergy projects.

11 MR. SHEARS: My name is John Shears. I am with the  
12 Center for Energy Efficiency and Renewable Technologies. We  
13 specialize in renewables policy and clean alternative  
14 transportation fuels.

15 MR. REESE: My name is Phil Reese. I am the  
16 Chairman of the California Biomass Energy Alliance, which is  
17 the trade group of the solid fuel biomass plants operating  
18 in California today.

19 MR. SKILLMAN: And you said a five-minute opening,  
20 is this when you want it now, or is this introduction?

21 MS. DOUGHMAN: Well, I guess we can do  
22 introductions, and then we will do the opening.

23 MR. SKILLMAN: Okay. Good morning. My name is Fred  
24 Skillman. I work with Generation Interconnection Services,

1 we are part of PG&E, Pacific Gas & Electric Company. We  
2 help customers and also utility-owned generation, we help  
3 bring that on line.

4 MR. CLEMENTS: Good morning. My name is Chip  
5 Clements. I am with Clements Environmental Corporation. I  
6 am the small CEC. I am also, I think, the garbage guy on  
7 the panel here, so I am going to be talking about the  
8 conversation of municipal solid waste either to power, and I  
9 think this afternoon you are going to hear about fuels. I  
10 am sitting in for the guys from Plasco Energy Group, which  
11 is one of the thermal conversion technologies, and I will  
12 talk a little bit about them, and also the broader - the  
13 entire field of the thermal technologies, a little bit about  
14 the biological, but I think this afternoon you are going to  
15 hear more about the biological conversions.

16 MR. KOEHLER: My name is Tom Koehler with Pacific  
17 Ethanol, and I am going to be talking about biofuels on this  
18 panel because of a scheduling issue. I appreciate the  
19 flexibility.

20 MR. LESTER: My name is Russ Lester. I am the owner  
21 of Dixon Ridge Farms, and we also have had a successfully  
22 running biomass gasifier operation for walnut shells  
23 conversion into producer gas which is used for heating, as  
24 well as electricity which is used for processing our

1 walnuts.

2 MS. DOUGHMAN: Okay, well, I just want to mention  
3 that there is a lot of opportunity for co-locating biofuel  
4 and biopower, and there are cross-cutting issues between  
5 using municipal solid waste to generate electricity, and  
6 using biomass materials that have not entered the waste  
7 stream, as well. So I think there could be some interesting  
8 dialogue having a mixed group of people here today. So why  
9 don't we go ahead with opening remarks?

10 MR. TORNATORE: And I get to start, good. I will  
11 not be repeating anybody, then. As I said, I am with TSS  
12 Consultants, and we do a lot of bioenergy projects  
13 throughout the Western United States and even some in  
14 Southeast United States, so we have a way of looking at the  
15 way other states have done projects that handled biomass,  
16 and how they deal with biopower and power plants. And my  
17 comments are really going to focus more on sort of project  
18 specific because that is what I do every day, have my  
19 projects that I work on every day and the problems that I  
20 run into with those. My role in most of the projects is  
21 either on the resource assessment side, and then, in large  
22 part, on the environmental permitting side. So the first  
23 and foremost issue always is the fuel availability. Fuel  
24 must be more than technically available, as Garry said, it

1 needs to be economically available, and that would lead to  
2 probably a much lower number, but that really needs to be  
3 done, that site-specific due diligence, grade research  
4 assessments are key to get done, and financing those and  
5 paying for those is always difficult because it is the very  
6 first step in a project. Also in dealing with our projects,  
7 one needs to consider all the environmental issues, not just  
8 air. In particular, I think one that is overlooked is water  
9 supply and water discharge, particularly if you are using  
10 direct combustion steam cycle, you are going to generate  
11 cooling water discharge that is not going to be able to just  
12 go to the nearby stream, of course, it is going to need a  
13 permit, or it is going to need to go to some type of a  
14 system that can be costly for small-scale projects, so that  
15 always needs to be considered. Then, also, land use. Even  
16 siting in an industrial area, or an old Brownfield site may  
17 be problematic for biopower because, even though it might be  
18 industrially zoned, you may not be able to produce  
19 electricity within that zone without a Conditional Use  
20 Permit, which opens up a whole gambit of permitting issues,  
21 in particular CEQA and the possibility of having to do EIRs.

22 Another one, community support, is critical, but at  
23 the same time, you want support, but you also need to  
24 identify those that might be opposed to your project

1 upfront, know who they are. There are a lot of, as you have  
2 probably seen in the newsletters and in the press, there are  
3 a lot of biopower projects out there that are now garnering  
4 opposition from local groups, regional groups, and national  
5 public interest groups. That leads to biomass development  
6 communications. I know the audience here is well aware of  
7 the benefits of biomass development, but with opposition to  
8 biopower, there is a lot of misinformation starting to  
9 appear out in the world, and I think that needs to be  
10 countered, I think CEC needs to work closely with the U.C.  
11 Extension Program to do a more complete job of information  
12 transfer to the public.

13           Then, my final one is, there needs to be a bold  
14 resolution of carbon neutrality. We need an overarching  
15 policy statement of what carbon neutrality is in relation to  
16 biomass, and it needs to be vetted by all the State agencies  
17 so there is one definition that we can all go by; there are  
18 bits and pieces floating around with the different agencies,  
19 that it really needs to be pulled together. The whole idea  
20 of carbon neutrality and biomass is starting to get pushed  
21 back from certain public interest groups that do not agree  
22 with it. And that is all I had to sum up in my opening  
23 statement.

24           MR. SHEARS: Thanks, Fred, that is actually a

1 perfect lead-in, so what I am going to talk about, I am  
2 going to go maybe a little bit off script. I was invited  
3 here as someone that works with an organization, but also  
4 works closely with community and environmental health  
5 organizations. I will have comments on both biopower and  
6 biofuels, and since this is a biopower panel, I will limit  
7 my comments today to that. I would just like to remind  
8 everyone that, as it relates to the biopower target, which  
9 is pegged to the RPS goals, my understanding was that the  
10 RPS in its formative phase was originally underpinned by the  
11 goal of improving air quality. Well, today, within the  
12 post-AB 32 world, we now use a climate lens through which we  
13 view a lot of policy. I think the air quality goals still  
14 are a part of the RPS, and the challenge has been, a long  
15 time now, for biopower, as everyone knows, are the  
16 challenges associated with the emissions performance on that  
17 air pollution side for those facilities. So the challenge  
18 has been - and the benefit that was perceived, my  
19 understanding was that there is a lot of available resource.  
20 With SB 705, the Center for this 2003 law being passed,  
21 there was a push to make available what normally would have  
22 been a wasted resource through open Ag burning, a lot of  
23 California's agricultural biomass resources for biopower  
24 processing. But there is a also a lot of construction waste

1 and the like, which is also used and may not necessarily be  
2 locally sourced. So, in reference to that, I also want to  
3 just highlight the fact that, in the RES eyesore [phonetic]  
4 that was released by the ARB, just before 5:30 last night,  
5 in their environmental analysis, they only look at trucking  
6 emissions, assuming that trucks only cover a radius of about  
7 80 miles from the biopower facility; that is not necessarily  
8 where a lot of the materials are coming from, you know, the  
9 materials could be coming from much more distant locations,  
10 certainly the Delano Covanta facility is bringing in a lot  
11 of materials from the South Coast. So community groups have  
12 concerns about emissions associated with the diesel traffic,  
13 let alone the emissions performance of biopower facilities.  
14 And, of course, the challenge is, as Fred was noting, and we  
15 all know, the economics are difficult to make the facilities  
16 be able to pay for the rigorous types of pollution control  
17 devices that the community groups and the health groups  
18 would like to see on the facilities, and there is some  
19 debate about, you know, certain air districts having  
20 stricter criteria than others, and how feasible those  
21 criteria are for the development of facilities going  
22 forward. If anybody has been following the Air District's  
23 rule development, they had their Smoke Management Rule,  
24 which basically recommended a delay on finalizing on SB 705

1 implementation, which is of some controversy because it  
2 leaves, still, a substantial amount of resource out in the  
3 field to be burned, reducing air quality, that could  
4 potentially be sent to biopower plant facilities. My  
5 understanding is that this is not something that is viewed  
6 as controversial just by community environmental health  
7 organizations, but also by some in the biopower industry, in  
8 the valley. With respect to the permitting facilities,  
9 either as repowering from coal to biomass, or for co-firing,  
10 and for the one facility that Jim mentioned in his  
11 introductory talk, the San Joaquin 1 and 2 hybrid solar  
12 thermal facilities, community health organizations in the  
13 Valley are very concerned with how the Air District has gone  
14 about permitting those facilities, and especially the use of  
15 SO<sub>x</sub> credits to generate offsets for particulate matter. So  
16 this is a focus that the community has taken a deed on, and  
17 the industry in the Valley will, you know, continue to be  
18 under heightened scrutiny. Part of it is not only just  
19 because of biomass, but because of other related facility  
20 activities such as the Hydrogen Energy California projects  
21 and the contribution to the inventory in the Valley, in the  
22 face of SIP targets. So I would just finalize by again  
23 making the recommendation that I made back when the 2006  
24 process started up, which was that, I think, you know,

1 whether it is feasible to do this for the 2010 Plan, or  
2 maybe something for going forward, I would again recommend  
3 that your energy working group include representatives from  
4 the health community and environmental organizations, such  
5 as occurs with the Public Health Impact Assessment Process  
6 that is going on at the ARB, and with the Sustainability  
7 Working Group that is looking at biofuels issues, etc. So I  
8 think that would help and would go to also address some of  
9 the issues Fred raised in terms of education, etc. So with  
10 that, I will finish.

11 MS. DOUGHMAN: Before we move on, can I just ask you  
12 to name or forward in your written comments specific groups  
13 that you think should be involved, specific community health  
14 groups?

15 MR. SHEARS: Sure. I would need to consult and just  
16 consult back with them, because I am just representing their  
17 concerns, share some concerns, but do not necessarily agree  
18 with all of their concerns.

19 MS. DOUGHMAN: Okay, thank you. Go ahead.

20 MR. REESE: As I said, I am speaking for the  
21 operating solid fuel biomass power industry in California.  
22 I was allowed one slide for my PowerPoint, and that is it up  
23 there. There are 33 operating plants today, as shown by the  
24 red dots. There are other dots up there that indicate

1 either idle, that is closed plants, and some open dots that  
2 indicate the large number of plants that once existed, but  
3 no longer do. The 33 plants today are spread across 19  
4 different counties in California, they generate about 600  
5 megawatts of base load power and consume about 6 million  
6 tons a year, 6 million bone dry tons of waste wood or wood  
7 waste, and the industry generates between 2,000 and 2,500  
8 direct jobs, including those who are in the fuel supply  
9 infrastructure. Of the 33 plants, 27 of them are under  
10 contract with PG&E, the six others are under contract to  
11 others, and in terms of megawatts, PG&E buys about 75  
12 percent of the generation from the solid fuel biomass  
13 industry. The plants are all operating under contracts of a  
14 variety of types, but I think it is completely accurate to  
15 say that every one of those contracts is marginally  
16 economical, they are all starvation-level contracts, which  
17 brings us back to a point about the fuel. The fuel is a  
18 major part of the operating cost of a biomass plant,  
19 anywhere between a third and half, and the issue is not  
20 whether or not there is enough fuel to power the existing  
21 industry, or to provide for an expansion, the question is,  
22 as Commissioner Boyd said, a shortage of money. How much  
23 fuel can you afford to go get?

24           There are several things that have recently

1 happened, several things that are happening, or going on  
2 now, and a number of things that may or will happen in the  
3 future that will make the existing plants even more fragile.  
4 There are several plants that are right now deferring  
5 maintenance, waiting for some of these uncertainties to  
6 clear up, one way or the other. Now, for anyone in the  
7 engineering business of a power plant, deferring maintenance  
8 is the first step of a death spiral. On the brighter side,  
9 there are four distinct mechanisms by which the Governor's  
10 Executive Order could be met, or just more broadly, the  
11 existing industry could grow and deliver a greater number of  
12 megawatt hours to the grid. Garry listed those in his  
13 opening remarks and I will be glad to answer questions or  
14 talk about those, if you want. The single biggest hurdle  
15 for the industry today is the thing set in legislation  
16 called the Market Price Referent. It is the price of  
17 electricity from a modern combined cycle very efficient gas  
18 plant, and it is a de facto upper limit on what will be paid  
19 for biomass power, that is the single biggest limit.

20           Now, under the RPS, or in related bilateral  
21 contracts, the various retail providers have actually signed  
22 16 contracts, of which one, the first one, back in 2002,  
23 which was a back pressure steam generator involving  
24 absolutely no additional biomass combustion, that is the

1 only one that has come online, and those of us in the  
2 industry believe that the number of the remaining 15 that  
3 will actually come on line is zero. The problem is that the  
4 contracts they have are insufficient to build a new plant.  
5 So this was 16 new plants. I am not speaking of the  
6 restarts, earlier. I think I would let it go at that and  
7 wait for some questions.

8 MR. SKILLMAN: Again, good morning. My name is Fred  
9 Skillman with Pacific Gas & Electric Company and the role  
10 that I have at PG&E in generation and interconnection  
11 services is, in a broad sense, to get customer-owned  
12 generation paralleled with our grid. And so, quite often,  
13 on a daily basis, we are faced with the challenges of just  
14 that simple objective in getting generation parallel to the  
15 grid. We operate in an environment that it is critical that  
16 there is some harmony between the policies that are in  
17 place, the regulatory decisions that are made, and the  
18 internal, if you will, to the utility, the interconnection  
19 policies and practices. We have to ensure in the  
20 interconnection services that the objective of bringing  
21 generation online is done in such a way that we ensure safe  
22 and reliable operations, not only to our grid and our  
23 assets, but also the customer's assets. Our fundamental  
24 objective is to support generation coming to the grid, and

1 do it in such a way that is mutually beneficial. To do  
2 that, though, we have to be able to operate within, again,  
3 the policies, the regulatory framework, and the internal  
4 practices in terms of how we actually bring a generator  
5 online. The optimism that I have is that, over the years,  
6 the balance between policy, regulatory, and interconnection  
7 practices, I have seen quite an improvement in terms of  
8 moving towards more collaborative approaches because,  
9 clearly, the opportunities that exist to have programs in  
10 place that fundamentally, at the bottom line, are attractive  
11 to customers, PG&E's customers, customers like Mr. Lester,  
12 want to promote these type of technologies not just for  
13 their own operations, but for a much larger purpose. And to  
14 support that, we have to be able to do that in such a way  
15 that is consistent with the codes, the regulations, and the  
16 internal practices. Clearly, in my view, in dealing with  
17 interconnections for the last several years, there are  
18 opportunities in all areas. And so I would, again, in terms  
19 of the aspect of this particular introduction, and to try  
20 and stimulate thought, keeping in mind the customers'  
21 objectives, that they want to bring these generators online.  
22 As a utility, we want to support that and we need and must  
23 support that within the codes and regulations that exist.  
24 So, as we move forward, as stakeholders in all these

1 different arenas coming together and working on  
2 collaborative approaches, to change and modify and grow the  
3 policies that we have in the State of California, so that we  
4 as the State can be leaders, true leaders, in terms of the  
5 growth not just in greenhouse gas initiatives, renewable  
6 initiatives, but then specifically bioenergy initiatives, as  
7 well. I look forward to that. So, thank you.

8 MR. CLEMENTS: Again, my name is Chip Clements with  
9 Clements Environmental Corporation. I have spent a long  
10 career working in trash, but really the last 10 years I have  
11 focused on these conversion technologies, primarily the  
12 conversion of post-recycled municipal solid waste to either  
13 power or to fuels, and you will hear a lot about the fuel  
14 conversion aspects this afternoon, so I will focus more on  
15 the electricity side. You will see the slide up there, this  
16 is the Plasco Energy Demonstration Plant in Ottawa, and the  
17 reason I put that up there is it is really the only  
18 commercial scale demonstration project we have in all of  
19 North America that takes MSW, converts it thermally into  
20 electricity that is running, it is about a 100-ton per day  
21 facility, so it represents one wine [phonetic], so to speak,  
22 of their plant. I can talk some more about that later, but  
23 the key thing about Plasco and the other conversion  
24 technology vendors is they have seen California as the

1 golden land, like a lot of us have in the past, too, but the  
2 whole vision of that is really being tarnished now by some  
3 of these challenges. And, in fact, some of the companies  
4 have already given up on California, and we obviously do not  
5 want that to happen. So I can talk a little bit about that  
6 and answer the questions later.

7           The reason the conversion technologies has so much  
8 emphasis on those is they really represent a nexus of three  
9 very powerful forces that are encouraging their development,  
10 1) is the zero waste movement, which a lot of you have heard  
11 of in the cities, they are adopting, and we are well on our  
12 way to achieving that, being led by the Cal Recycle  
13 Department here in Sacramento; the second one is our drive  
14 for renewable homegrown energy, which is stronger than ever,  
15 obviously; and the third one is global warming. So with the  
16 three of those forces all supporting these technologies,  
17 that has been a very strong driver. Now, municipal solid  
18 waste is the one feedstock that people will pay you to take,  
19 so it is very different than some of the other plants where  
20 this feedstock issue is really a concern. And right now,  
21 the numbers are anywhere from \$50 to \$80 per ton, and very  
22 soon in the future, I think we are going to see \$100 per ton  
23 numbers that you can be paid to take this residual solid  
24 waste, that is a very different dynamic on the feedstock

1 side. Right now, as a reference, we are landfilling about  
2 35 million tons of MSW every year in California, alone, so  
3 it is a huge feedstock reservoir.

4           What I will talk about just a little now is some of  
5 the challenges that these technologies are facing, and as I  
6 mentioned before, there are two broad categories, the  
7 biological type conversion technologies which are primarily  
8 digestion-based, those tend to be focused more on source  
9 separated organics, like our food waste, our green waste,  
10 although there are technologies that can process MSW with  
11 front-end separations, it is primarily focused on that. The  
12 thermal technologies are more focused on the residual MSW,  
13 converting that to power or fuel, and those are the ones  
14 that are facing the greater challenges. The digesters have  
15 been essentially supported by the environmental groups, they  
16 are supported by Cal Recycle who is actually doing a  
17 programmatic EIR for digestion, which will be a big  
18 advantage in developing those. But I am going to focus more  
19 on these thermal conversions, which are things like  
20 gasification pyrolysis-type technologies.

21           So the biggest challenges now to the deployment of  
22 these technologies in California is 1) the existing  
23 statutes. They are very convoluted and confusing, one, but  
24 they also have very restrictive performance standards such

1 as zero emission performance, things that are basically  
2 unachievable by anybody. These technologies are currently  
3 defined as disposal, rather than as recycling or diversion,  
4 and third, it is a very confused field about whether they  
5 are going to qualify for renewable energy credits or not,  
6 and as far as the economics are concerned, that is an  
7 absolutely crucial piece, we need that renewable energy  
8 value, or it is going to be extremely difficult to put these  
9 facilities in. A second challenge is the environmental  
10 groups by and large view these thermal conversion  
11 technologies as just another form of incineration, which  
12 they are not, but that is the perception, so there has been  
13 a lot of opposition and a lot of antagonism between the  
14 industry and the environmental groups, and I think that is  
15 one area we really have to work hard on to find some common  
16 ground, to be able to move ahead, and the industry is  
17 working very diligently on that right now. A third factor  
18 has been historically our cheap landfills, we probably have  
19 the cheapest landfills in the world as far as our big urban  
20 areas, still, although that is changing very rapidly. It  
21 has already changed quite a bit in Northern California and  
22 in Southern California with the closure of the Puente Hills  
23 Landfill, which was the biggest landfill in the country  
24 coming in three years, or two and a half years, now that is

1 going to change the dynamics there, so I do not think that  
2 is quite as much of an economic deterrent anymore. The  
3 permitting, as was mentioned earlier, is very difficult. It  
4 is a question and I think the three main issues that were  
5 mentioned before, the cost of it, the duration, we are  
6 thinking it is going to take three years to permit one of  
7 these things, forget about starting construction or any of  
8 that, you are talking three years just to get through the  
9 convoluted permitting process. And the last one is just the  
10 uncertainty about whether we are going to be able to get  
11 these permits. But I think that can be helped with some  
12 changes in the statutes that I will mention, just briefly.

13           So when you add all of these together, that is why  
14 we are sitting here in this country with no commercial  
15 reference plants, not a single commercial plant that is  
16 converting MSW to either power or fuel, and so that has been  
17 a deterrent, we do not have anything to point to. The  
18 problem is we want to develop those, but it has been so  
19 difficult to get them in that we cannot even get the  
20 demonstration plants built to be able to prove the  
21 performance and that type of thing.

22           So I think the bottom line that I mentioned before  
23 is some of these vendors have already given up on California  
24 and they are going to places like Nevada, Mississippi, and

1 so on. I think you saw in some of the big Department of  
2 Energy money that was given out to the cellulosic ethanol  
3 companies, they are all located in other states, and so on,  
4 just because they are beginning to view California, although  
5 it is the promised land as far as all the feedstock, and so  
6 many other positive things, that it is so difficult to do a  
7 project here that they are getting discouraged. And I will  
8 be glad to answer questions on the formal questions that  
9 anyone has during the rest of the conversation. Thanks.

10 MR. KOEHLER: Okay, Tom Koehler, and I am with  
11 Pacific Gas & Electric. The reason I am not going to be in  
12 this afternoon's panel is because it is my mother's  
13 birthday, she is 81 today, and I am going to go celebrate,  
14 it is most likely her last, she has cancer. But she has a  
15 saying, "there are four keys to life, which is show up, pay  
16 attention, tell the truth, and let go," and so I was  
17 thinking about today's panel on the Energy Commission and I  
18 actually think the Energy Commission does a great job in all  
19 of that, in that respect. The Energy Commission has showed  
20 up, is there, both the staff and the Commissioners, paying  
21 attention, telling the truth, and often times had to let go  
22 in some arenas. So in terms of where we are at, in terms of  
23 biofuels, I think we actually have done quite well. We have  
24 these five plants that have been built, steel in the ground,

1 \$500 million, not "we" as a company, but as a State. There  
2 is a lot of research and development going into a variety of  
3 feedstocks, so today's ethanol is corn in the state and we  
4 need to understand that the ethanol plants here are not  
5 driving the corn, the corn is already here, it has been here  
6 to feed the animals, so the ethanol plant is integrated into  
7 that system and is adding value to it. So we have further  
8 to go, but it is a great start. And Jim talked about  
9 staying together, and I think that is part of showing up, we  
10 really need to stay together and there needs to be a kind of  
11 can do attitude on all of this. And your remarks, I think,  
12 are very relevant. There is a lot of kind of dart throwing,  
13 and how we can kill a certain industry, or a certain  
14 project, as opposed to, "Guys, we really have severe  
15 challenges to face, and how can we roll up our sleeves and  
16 get it done?"

17 I want to talk about some very specific regulatory  
18 issues in terms of biofuels and this relates to the biofuel  
19 that is on the ground today and the biofuels that we are all  
20 hoping will be around tomorrow, which is basically markets.  
21 We need open markets because, right now, the market is  
22 closed. It is closed in the gasoline at 10 percent, which  
23 we basically hit as a country, so if we want to go to more  
24 fuels, different feedstocks, etc., we need to get beyond 10

1 percent. It is closed in - a related topic - it is closed  
2 in most of the cars, so it is a closed market for the  
3 vehicles because the vehicles can only take 10 percent, so I  
4 guess I have three very specific policy suggestions that I  
5 think, from a biofuels market basis, we should all  
6 aggressively roll up our sleeves; one is FFVs, there is no  
7 reason why every car in this state or this country should  
8 not have the flexibility to run on something other than  
9 petroleum, and in California there are some issues with the  
10 Air Resources Board, you know, there are air quality issues,  
11 put it that way, but those can be resolved and they need to  
12 be, and so we need to really find out exactly what is  
13 preventing the car companies from doing this, how can we  
14 creatively get around that hurdle? But it first of all  
15 needs to be a goal. We need every car to be a FFV that is  
16 using gasoline. Second, we need blender pumps that really  
17 give the consumer the power of choice and let the consumer  
18 dial in how much renewable fuels they want. So, you know,  
19 open this up, unleash the power of the consumer. FFVs,  
20 blender pumps. Do that. Third is, starting today, we need  
21 to have a new RFG, an RFG4, that allows for the use of  
22 renewables from E10 to E30 or 40, whatever it is, and if we  
23 do all three of those things, it is an integrated policy  
24 package that opens up the market to all kinds of renewable

1 fuels from a whole host of different feedstocks. Tell the  
2 truth, I think the Commission has done a great job of that  
3 and we need to continue to tell the truth, and there are a  
4 lot of misconceptions about corn ethanol, it has been  
5 totally vilified. It is not true. And today it is a great  
6 driver, I would say it has been on the vanguard of the  
7 renewable transportation fuels industry, and we need to tell  
8 the truth about it. And indirect land use is one of those  
9 issues, there is new science out there and that needs to get  
10 revisited and looked at with the new Purdue Study. And we  
11 need to support agriculture because we are not going to get  
12 to our bioenergy goals without really embracing and  
13 supporting the ability to grow all sorts of things in this  
14 country and in this State. So I guess I will just leave it  
15 there.

16 MR. LESTER: Thank you again for inviting me here.  
17 I am not really going to go through the PowerPoint, or even  
18 most of that at all. But what I wanted to mention is that,  
19 that PowerPoint, as well as one I gave last week to the  
20 State Board of Food and Agriculture, as well as a 10-page  
21 paper I wrote at the beginning of this year in terms of AB  
22 1969 Feed in Tariff, what I think should be changed about  
23 it, as well as Rule 21 metrics, what I think should be  
24 changed about that, are available. I made them available to

1 the CEC here. My question is, right off the bat, is I was  
2 asked to come here about a week ago after the State Board  
3 meeting. Why am I here? I mean, I only have 17 kW solar  
4 right now, I only have a gasifier that produces 50 kW of  
5 electricity, I am a blip, you know? Why am I here talking  
6 about this? And I guess the reason why that I can think of  
7 is that I represent, I think, probably, in my opinion, one  
8 of the most promising areas of renewable power generation  
9 that can be achieved in a very short time period, and I will  
10 get to some of the issues involved with that in just a  
11 minute. Why I say that is because our energy is produced  
12 on-site, the fuel is produced on-site, it is a byproduct of  
13 agricultural production, it is a non-edible food source, it  
14 is something that we have a lot of in the State of  
15 California. We do not have to provide a massive  
16 infrastructure to move this energy around, most of it can be  
17 consumed on-site, and as a consequence, it can actually be  
18 very very efficient because we are using - it is combined  
19 heat and power - and we are using every single aspect of  
20 that energy that we possibly can in our process. The other  
21 thing is, unlike mega-projects, the siting and the  
22 permitting of this, because we already have the impacts of  
23 the processing, is relatively minor. It does not take much  
24 to put one of these plants in a part of a plant. We do not

1 have the infrastructure costs of moving the material to the  
2 biomass plant, our shale moves basically about 150-feet, so  
3 it is not a major issue that way. As a consequence, we can  
4 be more economical. What our problems are is - let me  
5 finish a little bit more - our efficiency, we have actually  
6 increased by about 35 percent and we produce about 25  
7 percent of our processing energy right now. So, as a  
8 consequence, we produce about 40-45 percent reduction of our  
9 energy usage for our plant just in three years. Okay, that  
10 is the promise. The promise is actually - our goal is to be  
11 completely 100 percent self-sufficient by 2012, okay? So,  
12 in other words, we have already met the 2020 requirements,  
13 we will exceed those before 2020 comes through, except for a  
14 few little issues, and what I am going to talk about mostly  
15 today is there is the emission issues that we need to deal  
16 with, and the funding issues, and some of these will be  
17 talked about by other folks, more, but I am talking about  
18 the interconnection issues that we have faced with our power  
19 plant. Little did I know when I embarked on this goal that  
20 that would be the biggest difficulty of all. We have a  
21 relatively large commercial scale utility connection. To  
22 me, it seems like basically producing the power on-site and  
23 reversing that, or at least lowering that amount that comes  
24 through that meter, should be relatively easy. That is not

1 true, it is the farthest from what I ever thought we would  
2 have. For two and a half years, we have been trying to get  
3 interconnected. The only reason we have been able to be  
4 successful with reducing and producing our own on-site  
5 renewable energy is because we basically isolate ourselves  
6 from the grid. This makes us less efficient and obviously  
7 does not benefit the grid. Now, the reason for that is  
8 because we have a combined solar and biomass operation and  
9 the reason why that is a problem is because the law prohibit  
10 both of those to be connected to the same meter - really  
11 dumb. There is no difference in the electricity that comes  
12 from one from the other, bottom line is the electrons are  
13 electrons are electrons, and the source of the fuel should  
14 not be one of those things that prohibit the  
15 interconnection. The other major issue is that the rules  
16 that allow interconnection of biomass make it so  
17 prohibitively expensive to do so, and are so ambiguous, that  
18 we have no idea what we face. And in order to find out what  
19 we face, we have to pay upfront a \$5,000 interconnection  
20 non-refundable fee to find out what kind of interconnection  
21 requirements we are going to have, as well as what it is  
22 going to cost us, as well as what we are going to get paid  
23 for the MPR. I do not know about you, but most business men  
24 like me have a problem not getting a free estimate of what

1 it is going to cost to get your car fixed, or something like  
2 this. That is something we in our country have a pretty  
3 good idea that we think is a good idea to encourage business  
4 to occur. These are rules that are in the PUC Code and that  
5 are in the various regulations that PG&E, which is our  
6 provider, have. They have known about these regulations for  
7 many years. My understanding is back to 2006. They also  
8 understand that there has been this conflict, this Catch 22,  
9 as I call it, back to 2006. We have been working on it  
10 since 2007, the fall of 2007. We have not gotten anywhere,  
11 not one step forward, in fact, we spent thousands of dollars  
12 trying to work around the issue and we have not. So, so  
13 far, our only solution is basically to pull loads offline,  
14 which is a loss not only for PG&E, but is actually a loss  
15 for everybody, and we also have been generating our own  
16 power, which at less efficiency. The real simple solution  
17 to this is to get rid of the differences between the Rule 21  
18 that metering and the AB 1969. And we have two laws that  
19 are enacted, but are not on the books yet because the PUC is  
20 reviewing the actual regulations of those, and that is AB  
21 920 and SB 32, that actually solve some of these problems  
22 that I had mentioned, there are a lot of these problems  
23 besides just the ones I mentioned, by the way. But the  
24 reality is, what really should happen in order to make it

1 seamlessly possible for small distributed renewable  
2 generators to do what we need to do is to get rid of the  
3 differences altogether and have one program that deals with  
4 interconnection, and makes it very similar to the solar  
5 program; in fact, I have heard people talk about that why  
6 don't we just put biomass under solar along with the other  
7 four renewables, our three renewables that are on net  
8 metering? That would be a real simple solution, and it  
9 would be done - it could be done, and it should be done, in  
10 a very short time period. We already do this for solar, so  
11 why not do it for all the other biologicals that we have  
12 available to us, instead of somehow categorizing them into  
13 different categories, and making it very complex so that you  
14 have to hire a lawyer or a consultant in order to go through  
15 the process? So that is the bottom line, basically, is that  
16 we are going to achieve our goal if we have to pull all of  
17 our electricity offline, we are going to do this, and we can  
18 do it, we have the capability, we have the technology. To  
19 me, it is just absolutely absurd that we cannot do this and  
20 benefit society, as well as ourselves, and that the only  
21 thing standing in our way realistically as far as  
22 interconnection are some rules that really are very outdated  
23 and archaic and confusing and should be eliminated.

24 MR. SHEARS: Okay, I just wanted to - not to take us

1 too far off topic, but just respond to some of the issues  
2 raised by Tom.

3 MS. DOUGHMAN: For the people on WebEx, would you  
4 state your name?

5 MR. SHEARS: Oh, sorry, this is John Shears on the  
6 panel with Center for Energy Efficiency and Renewable  
7 Technologies. You know, I respect that, because of the RFS2  
8 goals, we have this blend wall limit issue, you know, the  
9 national industry is going to produce more than 10 percent  
10 equivalent that can go into the gas tanks. The problem is,  
11 even if we could make all the cars FFVs, there are issues  
12 that go outside of just the vehicle fleet. And it goes to  
13 reliability, not just air emissions. So a lot of the  
14 industry outside of the vehicle industry is very concerned  
15 about, you know, whether the EPA will raise the limit to 15  
16 percent as was requested by Growth Energy recently. Going  
17 forward, California right now, the ARB is in the process of  
18 developing the next generation of Low Emission Vehicle  
19 standards, LEV3, and that will require all vehicles going  
20 forward from about 2016 to be super ultra low emission  
21 vehicles, and right now no FFV, no manufacturer will admit  
22 or even condone the concept of a SULEV FFV, although a lot  
23 of independent engineers think the vehicles could be  
24 produced, and then there is also the issue of the legacy

1 fleet. There are solutions to possibly increasing the  
2 ethanol limit, and that includes using other biofuel blend  
3 stocks like biobutynol and the like to keep the vapor  
4 pressure down, but it is a very complex issue area, and so I  
5 would just like to recommend caution on how we proceed on  
6 that, and indeed CERC [phonetic] and certain other  
7 organizations filed comments on the EPA Docket on this and  
8 recommended just due diligence and proper research.

9           On the indirect land use issue, the ARB's expert  
10 work group, Dr. Wally Tyner, who was the author of the Argon  
11 National Lab Study that Tom is referring to with regards to  
12 indirect land use, he is a member of that expert work group,  
13 and the expert work group is taking into consideration the  
14 report that they produced for Argon Lab, and Dr. Tyner is  
15 with Purdue University. So I just wanted to quickly, not to  
16 take us too far off topic.

17           MS. DOUGHMAN: Thank you. Go ahead. Do you have  
18 more comments?

19           MR. SHEARS: Yeah, and then, to go back to bio-  
20 power, the one thing that I wanted to mention, but other  
21 people talked about it, is I think in terms of going  
22 forward, and again, I recognize it is an expensive  
23 technology, but when we talk about projects like the hybrid  
24 Solar 1 and Solar 2 projects, which are using combustion

1 approaches, my understanding from talking to people in the  
2 industry in Europe is, when they do these types of projects  
3 in Europe, they actually - the developers have moved over to  
4 gasification because of better emissions performance  
5 control, again, recognizing it is an expensive technology.  
6 And I just want to tee up conceptually maybe a path to  
7 progress in that, in terms of allowing, you know, industry  
8 to work to develop a comfort level with community,  
9 environmental, and health organizations, I am wondering if  
10 there might be some way to develop a strategy where we, you  
11 know, the Energy Commission and the other agencies, support  
12 gasification projects using biomass - what are to perceived  
13 to be clean biomass feedstocks, that can show some  
14 relatively good emissions performance as sort of an initial  
15 step. I know this is difficult to coordinate with the  
16 business plans and the strategic plans of industry, but in  
17 terms of a state strategy, sort of starting off with  
18 projects that use fairly benign, fairly clean feedstocks,  
19 showing that those technologies can work and then bringing  
20 in these more meddlesome feedstocks. My sense is that there  
21 is an opening here where some of the opponents of these  
22 projects, at least when it comes to, you know, when we are  
23 looking at cleaner biomass feedstocks, there may be a  
24 willingness to consider that. Again, economics, as always,

1 are a concern. But I just wanted to propose that.

2 MS. DOUGHMAN: Go ahead.

3 MR. LESTER: If I can address that, the technology  
4 we use, by the way, is pyrolysis, and it gasifies the walnut  
5 shell, which is an agricultural byproduct which, as by  
6 definition, because it is a food grade fuel stock, or  
7 byproduct, it actually is that clean fuel that he is talking  
8 about, and agricultural produces an incredible array, we use  
9 walnut shells, but there could be almond shells, or there  
10 could be prune pits, there can be olive pits, all these  
11 things can be gasified, and then you get into the digestion,  
12 as well, and there are all kinds of things. This why I say  
13 that I think I represent this small little portion that  
14 actually has a very very high potential, these feedstocks  
15 are already there, we are already producing them, they are  
16 clean with the technology like we are using, for example, we  
17 meet all and exceed all of the air emission standards as  
18 they current stand, let's hope that they do not change, so  
19 that is not an issue. The issue, going back to what the  
20 problem is, is what I just mentioned, the interconnection  
21 issue and the costs thereof, and the emissions cost because  
22 basically the emissions folks consider every single new type  
23 of feedstock a new fuel, and so you have to hire a  
24 consultant and do all the testing for emissions, on other

1 words, ours cost about \$30,000 to get our permit to operate,  
2 to just do emissions. If I had taken a propane engine,  
3 which is what we have, and run it on propane, it would have  
4 cost me about \$300 or \$400. So there is a real  
5 inconsistency here in terms of what it costs me to do what I  
6 do on the same engine if I was using fossil fuels and  
7 polluting the atmosphere. So I think those are the two main  
8 issues that we have, is that the cost of these two things  
9 basically put this out of reach as far as economics are  
10 concerned.

11 MS. DOUGHMAN: Chip Clements.

12 MR. CLEMENTS: Yeah, I will just add on to that, I  
13 think the gasification of wood chips and things like that is  
14 already well proven, we have plants, if I am not mistaken,  
15 in the U.S. and around the world that already gasify those  
16 kinds of feedstocks. The real big game is when we get into  
17 these waste materials and that conversion, so that is really  
18 what we are talking about, and where it is more difficult,  
19 and I do think where we have some way to go and finding the  
20 common ground, so I think that, to go back to just gasifying  
21 wood chips does not get us that much further than I think  
22 what we already know and, you know, let's move on to the  
23 materials that are going into the landfills right now and  
24 deal with those.

1           MR. SHEARS: Yes, I recognize that, but in terms of  
2 the community here in California, they are not familiar with  
3 it, they do not trust it, and part of that is especially  
4 when it comes to municipal waste, you know, I have spoken  
5 about this at other venues with the same - many of the  
6 people in the room have heard me talk about this. In the  
7 past, industries may be over-promised what could be  
8 delivered in terms of environmental performance, and got a  
9 black eye from that, and that black eye still has not healed  
10 as far as the community health organizations are concerned  
11 because there is still this distrust about gasification and  
12 pyrolysis, in general, so part of it is trying to develop a  
13 strategic pathway and recognize that there is a difference  
14 between state agencies adopting a policy and a strategy vs.  
15 what industry needs are.

16           MS. DOUGHMAN: Anyone else on the panel like to add  
17 anymore comments? Go ahead, Chip.

18           MR. CLEMENTS: Well, this is sort of a different  
19 topic, but I did want to mention, and this is regarding  
20 things like permitting and the main hurdles into getting  
21 these first conversion technologies in the state, and that  
22 is this extremely important legislation that is being  
23 proposed called AB 222 by Assemblyman Adams and  
24 Assemblywoman Mah, which would streamline and clarify the

1 permitting pathway for the thermal conversion technologies,  
2 which is one of the big uncertainties now, is can we even  
3 get through this process, so clarify those definitions,  
4 eliminate the definitions of things like zero emissions and  
5 impossible performance standards. It would clarify that  
6 these facilities would receive the renewable energy credit  
7 for the biogenic portion only of the waste, so it would not  
8 include plastics and fossil fuel derived part of the  
9 feedstock. And that bill has been held up in the Senate  
10 Environmental Quality Committee, and that committee is going  
11 to have their second hearing on this by the end of this  
12 month, so there is a big effort right now to support that  
13 bill and get it through on behalf of the industry, and that  
14 would really, I think, as I said, clear the path for these  
15 first projects to be able to be developed, and the vendors  
16 would feel more secure that they are going to be able to get  
17 through the permitting process so that they can meet the  
18 requirements. And the bill does specify that these  
19 facilities would have to meet every environmental standard  
20 in the state at the highest levels, and this bill is  
21 actually supported by the California Energy Commission, Cal  
22 Recycle, and the Air Resources Board, altogether wrote a  
23 support letter, so there is a lot of support going forward  
24 and we are really hoping, if this goes through, you know, by

1 the end of this month, that will really make a difference.

2 I just wanted to mention that.

3 MR. KOEHLER: Yeah, I will just say, listening on  
4 the bioenergy, it is also the same challenges on the  
5 biofuels which is kind of silo mentality, where you use one  
6 issue to stop a project, but if you took a step back and  
7 looked at, okay, this project you are talking about, or this  
8 particular industry here or there, it is for society - is it  
9 a good thing? Absolutely. Then why are we going to let an  
10 silo mentality of an emission here kill it? And I think  
11 there are tradeoff's, I mean, nothing is so simple, and we  
12 have to kind of look at the big picture and, so, John, like  
13 on the FFV issue and the LEV, that is a good example, and I  
14 view that as a great opportunity to make that LEV standard,  
15 make the FFV's work, understand why these car companies  
16 right now cannot, understand what that actual increment is,  
17 and understand also that if we do not have it, we are going  
18 to have a very hard time making our Low Carbon Fuel Standard  
19 work because the Low Carbon Fuel Standard basically says we  
20 need to have about 30 percent penetration of renewable  
21 fuels. So we just have to get away from silo thinking. We  
22 just have to do it.

23 MS. DOUGHMAN: Anymore comments from the panel?  
24 Lester?

1           MR. LESTER: Yeah, just one last one is that it has  
2 taken the solar industry about 40 years to get to where they  
3 are as far as market penetration and ease of installation  
4 and ease of interconnection. It took the biogas from dairy  
5 digesters six or seven years to get to where they are, and  
6 they still are not fully interconnected and have that ease.  
7 My suggestion is that these timeframes are entirely too  
8 long. Obviously, we will not meet any of these goals if we  
9 take 40 years to have biomass, have the ease of installation  
10 and interconnection, and profitability that solar enjoys  
11 today. So, I think it is also behooving to us that we step  
12 up the pace a little bit to simplify things a lot and not  
13 make these so complicated. What I am talking about are not  
14 things that we step on emissions regulations, or  
15 environmental quality, we do that every - I mean, every day  
16 of my life, that is what I worry about, that is the whole  
17 goal of my operation is to improve the environment. So I am  
18 not talking about stepping on those things, I am just  
19 talking about making them so that they are able to be  
20 workable and solvable economically, as well as the  
21 timeframe, and then the interconnection issues, those should  
22 be done real easy because they really are not that  
23 complicated and we already have a great example of how to do  
24 that with the solar industry, as well.

1 MS. DOUGHMAN: So, by the example, you are thinking  
2 of the California Solar Initiative, SB 1?

3 MR. LESTER: Yes, something similar to that, and  
4 obviously, interconnection issues are - when I got my solar  
5 system, it took about a week to get the permit to  
6 interconnect. That is what it should be for all kinds of  
7 renewables, as well, I think.

8 MS. DOUGHMAN: Anymore comments from the panel?  
9 Tom.

10 MR. CLEMENTS: Go ahead.

11 MR. KOEHLER: Just one other comment is, in terms of  
12 health, one of the major public health issues, in my view,  
13 is lack of jobs, and that affects public health in a big  
14 way, and so when we are talking about public health issues  
15 and how it all relates to whether we can do projects that  
16 have been talked throughout this table, jobs is a major  
17 public health issue.

18 MS. DOUGHMAN: So just could you add the link that  
19 you see between jobs and biomass and biofuels?

20 MR. KOEHLER: Yeah, the link is that these projects,  
21 if every one of these projects that people are talking  
22 about, or that Fred is working on, and on the biofuels  
23 front, there is no question in my mind that, if they go  
24 forward, society will be more healthy, there will be jobs

1 created, we will get off - we will start the path to wean  
2 ourselves from fossil fuels, it is just a win-win situation.  
3 And so I like Russ' thing, is "get rid of stupid rules."

4 MS. DOUGHMAN: Chip, did you want to add something?

5 MR. CLEMENTS: Yeah, I was just going to mention one  
6 thing about financing these projects, we have not talked  
7 about that too much. It is an interesting phenomenon, you  
8 know, a lot of the money now has flowed out from the  
9 Department of Energy and other sources of grants for these  
10 conversion technology projects, but one of the down sides of  
11 this that I am actually hearing from the people at Plasco,  
12 for example, is the financial markets now will not fund your  
13 projects unless you have a grant already. So the name of  
14 the game is to go out and try and get a grant or, you know,  
15 low interest funding, or something, and be able to come to  
16 them and say, "Look, you are only going to have to finance  
17 half the project, not the whole one." So it has been a  
18 strange way that has turned. But I think, and Paul might  
19 talk about this, this afternoon, too, is some of our  
20 projects in Southern California going ahead, you know, are  
21 looking for some grant money now, and it is not a huge  
22 number, but just enough initially to be able to make these  
23 projects move ahead, so I think anything we can do, you  
24 know, as a State or whatever, to give these projects a

1 boost; remember, we are very early in the development of  
2 these technologies. That is another thing, this is not, you  
3 know, oil refineries have been around 150 years and are  
4 perfected. These are emerging and new technologies that  
5 have made huge strides in the last few years, but I think  
6 that type of support is also very critical.

7 MS. DOUGHMAN: Why not you go first?

8 MR. TORNATORE: Since we were talking about  
9 financing and stuff, I wanted to also bring up the type  
10 financing market and the need on the projects now to  
11 actually have their permits in hand, not going along nicely  
12 with an agency and thinking you are getting a permit, but  
13 actually having the permit in hand is becoming a requirement  
14 for the banks to finance, and it has stymied some of my  
15 projects in California because we are in a CEQA process,  
16 EIRs take a while to do, the banks are saying, "We'll wait  
17 until you actually have the Use Permit in hand." So, that  
18 is causing some difficulties because, you know, there is  
19 construction financing to do other things, to develop the  
20 projects that are not getting funded because the permits  
21 actually are not in-hand.

22 MS. DOUGHMAN: John.

23 MR. SHEARS: Yeah, I had a question which relates to  
24 the challenge that Russ and other small power producers face

1 and my understanding is a lot of the sort of Byzantine  
2 aspects of this relate to utility wanting to be assured that  
3 it can maintain grid reliability and schedule, you know,  
4 keep track of scheduling, etc. Am I correct in that  
5 impression?

6 MR. SKILLMAN: For the benefit of those on the  
7 phone, this is Fred Skillman with PG&E. The deeper dive  
8 into the issues whether we experience those issues with Mr.  
9 Lester's project, or other similar project, you know, the  
10 deeper issue is, again, not just the rules within the State  
11 of California construct, but also Federal Energy Regulatory  
12 Commission, as well. That is not something that has been  
13 mentioned or pointed out here today, but when we talk about  
14 some of the issues that have been expressed here in terms of  
15 simplifying the interconnection procedures, the costs of the  
16 interconnection procedures, who pays those costs, these are  
17 things that are borne from the tariffs, themselves. The  
18 frustration that customers have, that have experienced, for  
19 example, like in Mr. Lester's case, a PV, a relatively small  
20 PV, which would be considered like the standard net energy  
21 metering, the processes, the amount of market penetration  
22 has led to standardization that has allowed those processes  
23 to be very simply implemented, and, again, the cost issues  
24 are delineated within PUC tariffs in terms of exemptions.

1 When we talk about other types of generators, Mr. Lester  
2 pointed to the 1969 legislation that led to feed-in tariff;  
3 now, we start talking about power purchase agreements, FERC  
4 regulation, and, you know, this is also an apparent conflict  
5 where we have the PUC's role in terms of what it is trying  
6 to promote, then we have FERC, and what it is trying to  
7 promote, we have a single customer at a single facility that  
8 just is inundated with the mess of different rules, not  
9 being able to have estimates provided at no cost. These, I  
10 believe, are real issues, they need to continue to be  
11 pointed out until the day where fundamentally the codes and  
12 the regulations at both FERC and PUC are designed in such a  
13 way that a customer can see a clear path to get their  
14 generator online. The bottom line why generators are not  
15 online such as these biosystems that we have been talking  
16 about is clearly because the bottom line - bottom bottom  
17 line - is that the customers who would implement these  
18 systems, who make the decisions to pursue the capital  
19 investment, just simply are inundated with conflicting rules  
20 and with high costs. The regulatory issue fundamentally  
21 will then have to address cost allocation, cost shifting,  
22 you know, we from a societal perspective, who is going to  
23 pay. We know there is a cost; fundamentally the question  
24 is, who is going to pay for it? Over time, do we implement

1 policies that try to stimulate markets? That is a part of  
2 the role of state policy makers, that they have. And  
3 clearly, for those of us who have been in the industry for  
4 many years, even when we go back to the PERPA days in the  
5 '70s and '80s, we see that the bottom line there and what we  
6 are experiencing today and potentially the risk that we are  
7 experiencing today, it could be, as Yogi would say, déjà vu  
8 all over again. If we do not get also the market to take  
9 advantage of its role to leverage its knowledge base, to get  
10 products and services that are cost-effective for the  
11 masses, then we will experience the same thing we  
12 experienced 40 years ago. And this will be, again, another  
13 test in futility. You know, we have got to get real. We  
14 have got to have customers that have choices, but to do  
15 that, it fundamentally stems from - and I will say it this  
16 way, taking the other approach - the utility is not taking  
17 the role to finance these technologies, to finance these  
18 markets, the utility is operating its business. And from a  
19 fundamental perspective, the costs that are incurred are  
20 either borne by the customer walking in the door saying they  
21 want to put a generator on the line, or it is borne by the  
22 ratepayers. Okay? So, again, it is a great debate, but the  
23 real traction and the opportunities is in all areas: we need  
24 to work collaboratively, we need to have policymakers,

1 regulators, and stakeholders in market and industry, to work  
2 together to try and eliminate these barriers.

3 MS. DOUGHMAN: Can you just clarify when you were  
4 referring to PERPA, what was the problem that you want to  
5 avoid?

6 MR. SKILLMAN: Well, you know, before I was in PG&E  
7 in the early '80s, I was part of the great whirlwind in  
8 PERPA and the late '70s, early '80s, great whirlwind in  
9 terms of 100 percent tax credits that PERPA offered. And,  
10 you know, at the time, we were building out, developing wind  
11 farms throughout the Tehachapi, Altamont, Pacheco Pass,  
12 etc., and the reality was that a lot of the commercial side  
13 was driven by the tax credits that were made available. But  
14 the fundamental problem was that there was too much - I do  
15 not want to over-exaggerate, but there was a significant  
16 number of systems that just flat out did not work. Okay?  
17 So they may have achieved their purpose of stimulating  
18 credits for their customers, but it did not serve much to  
19 really promote the industry in the long term because, you  
20 know, I think at the end of the day, again, if the  
21 technology would only crank down to kilowatt hour, it may be  
22 good for the customers that needed that tax credit, but it  
23 was not really good for the industry. You know, here again,  
24 we are even at a point where we see, and it is yet to be

1 seen, we may not know for another several years, 2016, to  
2 see whether or not the California Solar Initiative will  
3 actually be successful in being able to drive towards not  
4 just a significant amount of PV installations, but, again,  
5 being able to fundamentally - and there has been progress,  
6 so, in balance, I want to give credit, but fundamentally  
7 having the markets being able to be sustainable because they  
8 are able to provide projects and services that are  
9 affordable. Okay? So that is fundamentally the point, we  
10 are still at a point with PV that there is no guarantee, we  
11 are in such a wave right now of tax credits at the Federal  
12 level, of incentives at the State level, there is no  
13 absolute certainty that this will be sustainable, as well.  
14 It all looks really good right now because it is really good  
15 right now, but the proof in the pudding will be in another  
16 10 years.

17 MS. DOUGHMAN: Okay, I think John wants to have the  
18 last word, and then we need to go to the public input.

19 MR. SHEARS: Yeah, I recognize there is FERC, and  
20 FERC is shifting its policies perspective on renewables  
21 issues. I just want to add one other bit of conceptual  
22 space to this discussion and I think as it particularly  
23 relates to the small power producers, and I do not think it  
24 has really been brought into this context, it is something

1 that we are closely engaged in, and that is the development  
2 of California's Smart Grids. And part of the solution, I  
3 think, going forward, recognizing the challenges of all the  
4 unique types of projects that the utilities and schedulers  
5 have to deal with is, you know, if the hope for the future  
6 of the Smart Grid - again, I think there is potentially a  
7 lot of hype, so we will have to see how we all work  
8 together, but I would recommend, you know, to those out  
9 there listening who have an interest in some of these issues  
10 to explore what is going on nationally and in California on  
11 the development of our concept of the Smart Grid and how  
12 that can help integrate these types of projects.

13 MS. DOUGHMAN: Okay. I believe we have a question  
14 from the Advisor to Commissioner Boyd. I think the question  
15 is for Russ.

16 MR. LESTER: Yes, it is. This is Russ. This is for  
17 Sarah Michael. And she basically asked, "Is the resolution  
18 to the interconnection barriers facing something that should  
19 come through legislative regulatory changes? And have any  
20 specific actions been proposed?" Actually, I think it has  
21 to come through a combination of things. First of all, let  
22 me just say something real quickly in terms of, what I am  
23 talking about are those entities that can generate power  
24 that basically does not require any grid changes, in other

1 words, small generators. And that is why I think they have  
2 the highest potential, because it does not require a major  
3 power line coming from Nevada across, you know, in sensitive  
4 environmental spots. We are talking about the  
5 infrastructure that is already there, that is already  
6 capable of handling this power in reverse modality. And so  
7 there actually is no requirements for the utilities to  
8 actually construct anything because, for example, there is  
9 400 kW that comes into my plant and so therefore I can  
10 produce almost 400 kW going the other direction, even though  
11 I do not really want to do that, I just want to produce what  
12 I need on-site and to have that interconnection. The other  
13 thing is that, you know, if you do that right now with  
14 solar, you could do that. I mean, it is not problem, you do  
15 that without interconnection costs, you do that without a  
16 massive study, you do that without anything. If I wanted to  
17 put a total capacity in solar, I could do that with very  
18 little problems the way it is now. When you get to biomass,  
19 which actually produces, in our case, is up 93 percent of  
20 the time, so, in other words, the grid is more stable  
21 because of the power that we produce, as opposed to solar,  
22 which is only up maybe 20-25 percent of the time, so that  
23 you have grid instability, it actually helps the grid,  
24 instead of hinders the grid, especially when you web the two

1 together, so we take care of our peak power with the solar,  
2 which is when our freezers work the hardest, and then we  
3 have the base load taking care of the biomass, and that  
4 actually works a beautiful marriage. In answer to the  
5 question, I think that actually most of these things could  
6 be done regulatory. As Fred talked about, most of these  
7 issues are developed out of the tariff. The tariff is  
8 developed by PUC. So, therefore, I think it could just be a  
9 regulatory fix at this point in time. You also have new  
10 laws, AB 920, and you have SB 32, that are also law, that  
11 they have to institute soon, hopefully sooner than they are  
12 talking about - they are talking about a year from now,  
13 maybe more, to institute those two laws. And those can  
14 actually - the way they are written, at least the way I read  
15 them -- is that they can do what I was suggesting having  
16 done for small renewable generators and, again, that is  
17 already law that we do not need to pass. However, there are  
18 additional things, I think there are people who are willing  
19 to carry the law, it is just a matter of the will and for  
20 basically the powers that be to allow those laws to carry  
21 forward. But I think the time is right to have these  
22 changes to be done. I think the examples are already there  
23 with a lot of the - solar is not just - that meter does not  
24 just cover solar, it covers wind, it covers dairy biogas, it

1 also covers hydrogen, so it is already there as an example,  
2 as a framework to basically put other things upon. So I  
3 think we can do those a lot simpler than enacting great laws  
4 and policy.

5 MS. DOUGHMAN: Okay, last word from Fred and then we  
6 need to open it up to public comment.

7 MR. SKILLMAN: Fred Skillman, PG&E. Just to build  
8 on Mr. Lester's comment there, and I agree with his comment  
9 there in terms of the regulatory action. You know, specific  
10 to the biomass, again, to point out to this group, again  
11 specific to the industry that the participants here today  
12 are focusing on, even at the legislative level, you know,  
13 folks may be familiar that Public Utility Code 2827.9,  
14 specifically, as it pertains to the NEM bio [phonetic]  
15 opportunity, which again was really more, if you will, a  
16 design specific to the dairy farmer and to anaerobic  
17 digestion-type systems, because it is that Code 2827 that is  
18 the jurisdiction for net energy metering. Well, you know,  
19 the point that I wanted to make, two points I wanted to  
20 make, 1) that code expired for that particular opportunity  
21 for folks in the industry to take advantage of, it is no  
22 longer available, it expired at the end of last year. You  
23 know, Mr. Lester's pointing out the small generators, which  
24 is clearly one of the demographic segments of the market, in

1 general, and I agree with just about every point that he  
2 raised in terms of the simplicity that it should have.  
3 Proliferation, you know, that the utility is seeing is  
4 coming in a whole variety of types of forms and, really, the  
5 point is that when we have an industry, a consumer that is  
6 looking at installing these biosystems, but they have to  
7 fall into a particular mold, or a channel in terms of, well,  
8 am I going to be able to qualify under Public Utilities Code  
9 2027, or 399? It is simply a nightmare. Mr. Lester, you  
10 know, oftentimes suggests, and I think rightly so, you know,  
11 an effort to take the entire gambit of codes and regulations  
12 and kind of lay it all out and choose all the favorable  
13 ones, if you will, you know, the ones that support the  
14 industry, and let's discard all the ones that are only  
15 barriers to proliferating these types of technologies. It  
16 is a strong suggestion. But the will to make that happen  
17 rests at all levels, we all have a stake in trying to move  
18 this forward, and it is only with the support of our  
19 policymakers, our regulators, the stakeholders, whether it  
20 is utility or market players in the development arena, that  
21 it is going to eventually happen. But we have to have the  
22 will to drive to that objective.

23 MS. DOUGHMAN: Okay, I want to thank the panel, but  
24 now we need to have some time for public comments and

1 questions. I have a number of blue cards here. The first  
2 is from Patrick Holley from Covanta Energy.

3 MR. HOLLEY: Good morning. I hope the microphone is  
4 working okay. Very interesting to be here and have an  
5 opportunity to speak. I would like to start by introducing  
6 myself and our company. My name is Patrick Holley with  
7 Covanta Energy. We operate six biomass facilities in  
8 California, two waste to energy - municipal solid waste to  
9 energy facilities in California, Stanislaus and Long Beach,  
10 and operate 40 of these facilities around the nation - very  
11 successfully, within emissions standards and net greenhouse  
12 gas negative. So we are part of the solution, our industry,  
13 our biomass industry here in California is part of the  
14 solution to our renewable energy needs. But I would like to  
15 just address a couple of comments that have been made and  
16 then raise a few concerns. First of all, we have a number  
17 of regulations that are impending, one of which is an EPA  
18 rule called the MACT Hammer, and when it comes around,  
19 perhaps in a year or two, if it is fully implemented, many  
20 of the existing facilities that you see on Phil Reese's  
21 chart earlier in the day will no longer be operating. The  
22 standard imposes a retroactive MACT. And many of the  
23 existing renewable facilities in California will be offline.  
24 We currently contribute about 17.5 percent of total

1 renewable power in California. The San Joaquin Valley Air  
2 Pollution Control District recently issued a rule that  
3 allowed continued open burning of certain crops, which we  
4 have proven are feasible and economically viable as wood  
5 fuel for the plants in the valley. If they were not  
6 economically viable, why did Covanta Delano receive over  
7 30,000 tons of citrus wood last year? This is economically  
8 viable for the farmers, and it reduces emissions  
9 tremendously in the Valley. We are part of the solution to  
10 the Valley's air pollution dilemma. Our industry provides a  
11 reduction of 3.75 million tons of greenhouse gas emissions.  
12 We avoid the open burning of 1.5 million tons of Ag wood.  
13 So my point with the MACT comment is that plants will be  
14 lost, this is an EPA rule, we all need to get on board to  
15 help comment in regards to this, it is a very adverse rule  
16 that is retroactively setting the new BACT [phonetic]  
17 standard for plants that are permitting and operating within  
18 their current permit limits. Secondly, with regard to the  
19 APCD rule in the Valley on open burning, we are working  
20 cooperatively with Earth Justice and with the Air District.  
21 As part of the solution to these issues in the Valley, our  
22 plants operate reliably, safely, we have made great capital  
23 investments in these plants over the past few years, and we  
24 would like to see them viable in the future. And a couple

1 of these issues, perhaps Mr. Reese could expand on, the  
2 impact on fuel cost of new development, the imposition of  
3 the MACT Hammer, perhaps Mr. Reese could expand on those.

4 MR. REESE: Okay. I will respond directly to the  
5 ones Pat suggested. The MACT Hammer means Maximal  
6 Achievable Control Technology, and it is aimed at reducing  
7 or minimizing the emissions of hazardous air pollutants. It  
8 proposes to impose direct limits on hydrogen chloride  
9 mercury and dioxins, and then limits on particulate matter  
10 and Carbon Monoxide with those latter two representing  
11 surrogates for certain other hazardous air pollutants. The  
12 proposed levels at which the MACT would be set cannot be met  
13 by virtually any stoker grade [phonetic] plant in  
14 California, and since those limits apply during start-  
15 up/shutdown and upset conditions, they may not be achievable  
16 by even the fluidized beds. The second thing Pat asked  
17 about is tied back to my earlier statements about the fuel  
18 being a substantial part of the operating cost. Now, bear  
19 in mind, the fuel is free, we just pay to collect it, and  
20 chip it, and truck it to the plants, and then push it around  
21 with big yellow machines so that it gets into the boilers.  
22 The plants are at their upper limits on fuel affordability,  
23 as things stand today - affordability under their existing  
24 contracts. I also mentioned that there had been 16

1 contracts by the various retail providers in connection with  
2 the RPS. New plants will require new and additional fuel,  
3 that will engender what we feel will be unsustainable  
4 competition for biomass fuel at the price levels that plants  
5 can afford. For example, I mentioned that things have  
6 recently happened, they are happening now, and will happen.  
7 The things that are going on right now, one of them is  
8 repowers of the existing coal-fired plants into biomass  
9 plants, and the scale of our industry, a 50-megawatt coal  
10 plant and conversion to biomass, is a new big biomass plant  
11 with 300,000 or 400,000 tons per year fuel requirement. If  
12 a contract along those lines at a viable level for the  
13 refueling or repowering of the coal plants is led by a  
14 retail electric provider, that means that the new plant will  
15 be outbidding existing plants for fuel, and the likely  
16 result is you get a new 50 megawatt plant and three 25s go  
17 out of business because they cannot afford the fuel; that is  
18 an issue that is currently ongoing at the moment. There are  
19 five 50 megawatt coal plants in California and six coke-  
20 fired plants, all of which are considering repowering to  
21 biomass. I said the problem is not that there is not enough  
22 fuel, the problem is that there is not enough fuel available  
23 at a price the plants can pay for it. If the new plants are  
24 given a price that they can pay for it, existing plants will

1 not be able to. There has got to be a cost adjustment and,  
2 to go right back to what Jim Boyd said at the beginning, it  
3 is a matter of money. Now, to expand a little bit on Pat's  
4 question area, recently, well, until recently, the biomass  
5 plants in California and all over the country were eligible  
6 for a production tax credit. You get a tax credit if you  
7 generate, just like the wind and geothermal and solar plants  
8 are. For the existing biomass plants, that production tax  
9 credit ended at the end of last year. That was a  
10 substantial blow to the economics. The thing that recently  
11 happened, again, was the market price referent. SB 14 last  
12 year started out with two objectives - make a 33 percent RPS  
13 instead of the current 20, and instead of having gas-fired  
14 price be the benchmark for renewable energy costs, it  
15 suggested replacing the gas-fired price as a cost  
16 containment mechanism by the cost containment mechanism that  
17 has been used for decades on conventional generation, and  
18 that is a finding by the PUC that the cost is just and  
19 reasonable. Well, FD14, as it made its way through that  
20 building across the street got so tangled up with  
21 deliverability and out-of-state renewables counting in  
22 California that it ended up with the entire renewable  
23 industry opposing it, and it was vetoed by the Governor. So  
24 we had the market price referent still in law and it is a de

1 facto ceiling on new renewable prices. Today, some of the  
2 biomass plants pay for their energy at what is called a  
3 "short run avoided cost;" in layman's terms, that is the  
4 price for electricity from gas. Gas is very cheap these  
5 days, and with the increasing discoveries and viability of  
6 recovering shale natural gas, the price these plants receive  
7 is likely to remain quite low. Those plants now are  
8 operating part time because, as many of you know, if the  
9 price of electricity is X, it is not a flat X, during peak  
10 periods it is something higher, and during off-peak periods,  
11 it is something lower. Some of the biomass plants are,  
12 contrary to good engineering practice, operating as peaker  
13 plants, operating at the high-priced electricity prices.  
14 Pat mentioned the burn ban postponement, that is a  
15 recommendation by the San Joaquin Valley PUC that is likely  
16 to be ratified by the Air Resources Board. The biomass  
17 industry continues its attempts to offer itself as a  
18 solution to what to do with those Ag materials, both the  
19 feasible and the economic. We have to see what the Air  
20 Resources Board comes up with. Senator Flores does not want  
21 the burn ban to be postponed. What will happen, or may  
22 happen in the future, the biomass industry is subsidized by  
23 this Energy Commission to prevent it from shutting down  
24 during off-peak off-price hours, because the Energy

1 Commission about 10 years ago recognized the value to  
2 California of consuming that waste wood and not putting it  
3 back into the waste stream. That subsidy ends at the end of  
4 next year. The funds for that come from ratepayers. There  
5 is a line on your electric bills called the "Public Goods  
6 Charge," really quite small, but with a lot of ratepayers,  
7 it ends up with a fairly significant subsidy. And then,  
8 just to summarize a whole bunch of individual areas into one  
9 loop, how is biomass and biomass combustion going to be  
10 treated under the Global Warming Solutions Act of 1996 in  
11 California with respect to a cap-and-trade program, and the  
12 requirements for allowances, possibly? How is it going to  
13 be treated under the Waxman-Markey Bill, or whatever Federal  
14 energy bill gets passed? Is biomass, a) going to be treated  
15 as renewable? Is it going to be considered sustainable?  
16 Will it be required to provide allowances to offset its  
17 greenhouse gas emissions? That is a huge area of  
18 uncertainty that, if everything goes sideways, would make  
19 the industry as we know it in California unsustainable. And  
20 my last comment here is going to be, for those of you that  
21 subscribe to the global warming theory, for every ton of  
22 biomass that one of our plants uses as fuel, there is a true  
23 net net reduction in greenhouse gas emissions of about  
24 eight-tenths of a ton. There are numerous scientific

1 demonstrations of that, the Public Utilities Commission has  
2 firmly documented that in one of its decisions, the Pacific  
3 Institute has a study that goes through all of the  
4 calculations - and when I say "true net net," I mean the  
5 emissions from the diesel trucks carting the trucks that  
6 carry the chips around, have been considered, and the like.  
7 The industry has been attempting to monetize that negative  
8 greenhouse gas profile without success, so far. So the  
9 Energy Commission could really help us there.

10 MS. DOUGHMAN: Can I just ask you to follow-up on  
11 that last point? Are you talking about greenhouse gas  
12 emission offsets under a cap-and-trade for fuel and waste?

13 MR. REESE: Yes. If it turns out that the biomass  
14 industry is not included in the cap-and-trade program, then  
15 anything we create would be eligible as an offset. You  
16 cannot get offsets from a regulated cap-and-trade --  
17 industry, I guess you would say. But if we are not included  
18 in a cap-and-trade program as a regulated source, then the  
19 potential exists that our creation of allowances would  
20 result in a marketable commodity and a revenue stream to  
21 offset some of these other difficulties. We have been  
22 working on that for quite some time, have not made much  
23 progress yet, except that I believe it is scientifically  
24 accepted that there is a net net reduction.

1 MS. DOUGHMAN: Okay, so let's see, the next person  
2 is John Menke from the State Water Board.

3 MR. MENKE: Thank you. I am John Menke. I work  
4 with the State Water Board and am a participant on the  
5 Bioenergy Interagency Working Group and the Biomass  
6 Collaborative. And I expect I will be involved in the  
7 rewriting of the Bioenergy Action Plan. What I wanted to  
8 make now is a comment on how this panel is functioning and  
9 how our Bioenergy Action Plan is currently written. There  
10 has been a lot of specifics here, people are talking about  
11 specific projects, specific statutes, they have not gone  
12 ahead and named specific agencies or individuals, but they  
13 probably could. If you look at the Action Plan, it is full  
14 of generalities, it has got no specific goals, no number of  
15 megawatts, or million gallons of fuel that are supposed to  
16 be achieved, it has got no names, there is nobody in that  
17 document responsible for doing anything, and that is where  
18 we really have got a problem. We need to take the specific  
19 issues and problems identified by people in this panel, and  
20 people in this room, get them addressed through the working  
21 groups, and our Action Plan should be the mechanism that  
22 says who we are going to do that, but right now, it does  
23 not. So today, as we go on and talk about the problems, we  
24 also need to keep thinking about what are we going to put in

1 our Action Plan to make sure that the problems are addressed  
2 and we come up with solutions to those problems. I do not  
3 want to waste anymore time right now, so that will do it for  
4 me. Oh, one thing I do want to mention - I take it back -  
5 we have talked about in our working groups the concept of a  
6 website, a site where people could bring these kinds of  
7 projects and identify them and talk about the specific  
8 problems that are ongoing, then the regulatory agencies  
9 could go to that website and try to make their comments and  
10 actually get resolution to some of those problems, so I have  
11 been pushing for three years to get such a website  
12 established. We have talked about it in both those groups,  
13 and yet it is not functioning. And so, as part of the  
14 Action Plan, I would like to see a website implemented.

15 MS. DOUGHMAN: Okay, thank you. We have -

16 MR. LESTER: Could I just comment on that? There is  
17 a suggestion of having a clearinghouse ombudsman, actually,  
18 the State Department of Agriculture has considered that, and  
19 as part of the - what is the new organization, it is Go.Gov  
20 or something like that, or Gov.ed, or whatever it is, to  
21 create that position, to actually try to get a clearinghouse  
22 with this information and problems. So I think it is a  
23 great idea.

24 MS. DOUGHMAN: Okay, next we have a question from

1 the WebEx phone, Ross Buckingham with the California  
2 Bioenergy.

3 MR. BUCKINGHAM: Hello, can you hear me?

4 MS. DOUGHMAN: Yes.

5 MR. BUCKINGHAM: Thank you and good morning. My  
6 name is Ross Buckingham from California Bioenergy. We are a  
7 developer of biogas projects and looking at that sector of  
8 bioenergy studies for over four years. I think everybody  
9 knows that California is the number one area today  
10 [inaudible].

11 MS. DOUGHMAN: Oh, I need to read it, okay. For  
12 Chip Clements: "What are the secondary and tertiary impacts  
13 to existing waste and recycling supply chains and markets if  
14 waste, MSW or not, starts to be gasified or pyrolyzed?  
15 Could you state clearly why gasification and pyrolysis of  
16 MSW should be considered recycling?"

17 MR. CLEMENTS: Yeah, this is Chip Clements. That is  
18 a very good question, and that is the reason that, you know,  
19 this AB 222 that I mentioned specifically has the wording in  
20 there that the waste stream must be processed and subjected  
21 to recycling at the maximum extent feasible before the  
22 residual waste would go into any of these conversion plants,  
23 so we are not just taking straight MSW and putting it in, it  
24 has to go through processing. Most of these vendors are

1 looking at having MRFs either at the front end of their  
2 system or they will be taking the residue from MRFs, which  
3 is a Material Recovery Facility. So they actually  
4 supplement the existing recycling hierarchy and existing  
5 recycling structure that is out there already, and I think  
6 that has been one of these areas that has been  
7 misunderstood. I know there is a feeling in the  
8 environmental community that, once these black boxes go in,  
9 everyone is going to forget about recycling and just sort of  
10 chuck all their waste into these and let the system do its  
11 thing, but they are literally being designed and are meant  
12 to go into operation as sort of the end of pipe, taking the  
13 actual residual after our systems have recycled, composted,  
14 and so on. So what we are really looking to divert is the  
15 material that is going into the landfills after our program,  
16 so that is just 35 million tons, or maybe it will be less in  
17 the future if we are even more successful at recycling. But  
18 they are really meant as a compliment to the existing  
19 recycling systems. And if you look at Europe as a good  
20 example, you can look at a correlation, and the countries  
21 that actually have the highest recycling rates also actually  
22 have the highest energy rates from these conversion  
23 technology plants, as well, so the two can go side-by-side,  
24 and I really want to emphasize that point, and maybe that is

1 a common ground we could move ahead. And for me, taking our  
2 waste organic material that is going into landfills and  
3 converting that either to electricity - renewable  
4 electricity, or renewable fuels, is one of the highest  
5 recycling types of things you can do, and that is more of an  
6 attitude in Europe, they put a very high value on their  
7 energy, we have actually put a lower value on our energy  
8 here, but I think if you look at what is going on on the  
9 planet now, what is happening with our fossil fuels,  
10 everything from what is going on in the Gulf of Mexico  
11 onward, the idea that we could take waste materials and  
12 convert those either to fuels or to power and offset fossil  
13 fuel, to me, is a very high level of recycling, and it is  
14 something we should really be looking forward to. And I  
15 realize there are disagreements there, that some of the  
16 recycling community really feels like we need to make a  
17 bigger effort to either recycle or compost, you know,  
18 everything that is out there, which I believe is impossible,  
19 but we want to do that to the maximum extent that makes  
20 sense, and then convert the rest of it to energy.

21 MS. DOUGHMAN: Okay. So let's see, thank you. And  
22 now I believe I have one more comment. There was someone  
23 who was on the WebEx, but had to leave. I just wanted to  
24 read her question for - sorry? I am going to go ahead, yes.

1 Okay. Her name is Anne Kramer and she is an advocate for  
2 State Banks. She works in cooperation with Community Banks  
3 and Credit Unions to fund projects. She said that North  
4 Dakota is the only state that has a State Bank, it is 90-  
5 years-old and very successful. She says North Dakota has  
6 the lowest unemployment and has surplus and budget, not a  
7 deficit. And she would like to add, also, that there are  
8 currently groups working in California to establish a State  
9 Bank, not just for energy, but also to help California from  
10 impending bankruptcy. So I guess, does anyone on the panel  
11 have any comments?

12 MR. SHEARS: I am all in favor in avoiding  
13 bankruptcy.

14 MR. LESTER: But again, you know, it is interesting  
15 because without some of these other changes, I have filled  
16 out a few grant applications and, actually, one of the  
17 requirements before the grant application goes in is to have  
18 an interconnection agreement. Okay? And to have your  
19 emission licensing already done. Well, you cannot do that,  
20 it is backwards, so an even ditto -- or an even bigger ditto  
21 for the banks. There is no way the bank is ever going to  
22 fund anything like what I do, or any of these other  
23 gentlemen, under the current standards that we have because  
24 we cannot get those interconnection agreements frequently in

1 advance of the project, and we certainly cannot get  
2 emissions in advance. And we also do not know if emissions  
3 is going to be pulled out from underneath us in the future  
4 as the standards change. What bank would be stupid enough  
5 to loan me money for that?

6 MS. DOUGHMAN: I guess I just have a quick follow-on  
7 question. Are there other entities that are providing  
8 similar services, such as low interest loans, or loan  
9 guarantees, in California?

10 MR. REESE: It is possible to get authorization for  
11 the issuance of tax exempt bonds for funding, but the  
12 requirements to get that authorization are at least as  
13 though as Mr. Lester was talking about, you have to have all  
14 the I's dotted and T's crossed ahead of time.

15 MS. DOUGHMAN: Okay. Is there anyone else in the  
16 room that has a blue card, or would like to speak? Scott  
17 Smithline?

18 MR. SMITHLINE: Yes, correct. My name is Scott  
19 Smithline. I am in the environmental group, Californians  
20 Against Waste, and you know, I have got a lot of comments I  
21 would like to make, and this is probably not exactly the  
22 appropriate forum, but since AB 222 has been mentioned, and  
23 some of the recycling groups and environmental groups, I am  
24 sure some of those comments are directed at us, as we have

1 been a primary advocate in opposition to AB 222. And I do  
2 not want to take this opportunity to go through the  
3 legislation, obviously it is not the appropriate forum, but  
4 just to keep things positive, I will say I do think there  
5 are opportunities for common ground, and given the list of  
6 things that I have heard here today, I think I am just going  
7 to highlight those areas. I think the first area I would  
8 like to highlight is permitting. We believe that there are  
9 restrictions on permitting by refineries as they are  
10 currently being called, or thermal conversion technology  
11 facilities that are probably inappropriate in existing Code,  
12 and we have communicated with the author of that  
13 legislation, Anthony Adams, that we believe there are  
14 opportunities to work on that and I think there are  
15 opportunities to work together on true and fair pricing for  
16 disposal to landfills, where we have common ground. And  
17 then there is a whole host of other issues that I think we  
18 probably do not have common ground, and probably have a lot  
19 of work to do to define the terms that we are using because  
20 I hear a lot of things being said today that are  
21 characterized in a way that I would not agree with, and  
22 until we can define terms and talk about what we are really  
23 talking about here, I think we are going to continue to be  
24 at odds on some of these other issues, and so I have put

1 myself out there as an advocate and a representative of  
2 Californians against waste as someone who is willing to have  
3 these conversations with anybody who is interested. So,  
4 thanks.

5 MS. DOUGHMAN: Okay, thank you. Is there anyone on  
6 the phone or on the WebEx that would like to comment? No.  
7 Okay, well, we have run a little bit long, but I think we  
8 had an excellent discussion and I want to thank everyone.  
9 So thanks very much. [Applause]

10 I think we are going to have to - people will just  
11 take their own break, if you do not mind, so we can push  
12 through to the next panel. So I would like to invite the  
13 second panel to come up here. We need to finish two panels  
14 before lunch.

15 [Pause at 11:20 a.m.]

16 [Resume at 11:30 a.m.]

17 MS. DOUGHMAN: Okay, I would like the panelists  
18 first to introduce yourselves and then, after the  
19 introductions, we will go through again and you can give  
20 opening thoughts regarding the questions for the second  
21 panel. First, let me read the questions for the second  
22 panel: The topic for this panel is opportunities for mixed-  
23 use and mixed-fuel bioenergy facilities. The first question  
24 is, what actions can agencies take to support the

1 development of mixed-use and mixed-fuel bioenergy  
2 facilities, including co-digestion, co-firing, co-location,  
3 including those three, and other ideas that you may have?  
4 And we have a number of subtopics here, including there is a  
5 programmatic EIR currently under development, actually,  
6 there are two programmatic EIRs for co-digestion; other than  
7 those, are there additional opportunities available to  
8 streamline the permitting process for anaerobic digestion  
9 facilities at wastewater treatment plants and other  
10 locations? And regarding co-firing, there are two coal-  
11 fired electric utility generation facilities in California,  
12 are currently co-firing with biomass, and plan a full fuel  
13 switch in the near future. Can this be replicated at other  
14 in-state coal-fired generation facilities? And regarding  
15 co-location, what policies can best advance co-locating  
16 bioenergy facilities to take advantage of opportunities to  
17 use the waste of one process as a fuel source for another?  
18 There are other sub-questions on the list, as well. So with  
19 that, could you go ahead and introduce yourselves?

20 MS. SKODA: Sure. I am Sophia Skoda and I am with  
21 the East Bay Municipal Utility District. We are a water and  
22 wastewater utility district located in the East Bay, serving  
23 1.3 million water customers and about 650,000 wastewater  
24 customers. And I work with the Wastewater Group with our

1 Resource Recovery Program, which is essentially co-  
2 digestion, so for a long time, since 1985, we have been  
3 digesting municipal sludge for production of methane and  
4 electricity, and with our Resource Recovery Program, have  
5 been working with materials like FOG and food waste for co-  
6 digestion.

7 MS. DOUGHMAN: So just to clarify, FOG is?

8 MS. SKODA: Fats, oils and grease from restaurant  
9 interceptors, thank you.

10 MR. RELIS: Should I just do the larger intro or -

11 MS. DOUGHMAN: Oh, just your name and then we will  
12 go back.

13 MR. RELIS: Paul Relis, CR&R.

14 MR. McLAFFERTY: I am Pat McLafferty with Protech  
15 GCS.

16 MR. HAWKINS: Michael Hawkins with Millennium  
17 Energy.

18 MS. DOUGHMAN: Okay, so now if you have opening  
19 comments, or if you have a slide that you need us to bring  
20 up, let us know.

21 MS. SKODA: I do not have a slide, but I am here  
22 today to share with you all a little bit of the perspective  
23 of a wastewater - a publicly-owned treatment works  
24 wastewater facility. And I will just make a few comments in

1 regards to two areas, so one is regulation, and the other is  
2 feedstock. So in terms of regulation for co-digestion, you  
3 know, we do not fit nicely inside of the existing  
4 regulation, and so I think from our industry perspective, we  
5 just want to remind folks in all the different regulatory  
6 areas, air, land, water, that we actually exist to protect  
7 public health and the environment, that is our reason  
8 d'être, or whatever you want to call it. So we are heavily  
9 regulated. And so we want to sort of share with you that,  
10 if there is kind of a desire to want to encourage co-  
11 digestion, that you might want to look at POTWs a little bit  
12 differently than, say, stand alone digester project on a new  
13 sort of a site.

14 MS. DOUGHMAN: Can you - I am sorry, you threw an  
15 acronym in there - for the Court Reporter?

16 MS. SKODA: POTW, Publicly Owned Treatment Works.

17 MS. DOUGHMAN: Thank you.

18 MS. SKODA: And then, from the feedstock  
19 perspective, I think two comments, sort of things like  
20 banning food waste and green waste from landfills, as  
21 Alameda County did recently, those types of things do  
22 increase availability of feedstock. We have been working  
23 with folks in the East Bay and the Bay Area to bring in  
24 food, and those types of regulations do increase the amount

1 of feedstock. Another thing that I would like to speak to  
2 just briefly is things like the new Senate Bill 1007 that  
3 has been introduced by Senator Kehoe with regards to fats,  
4 oils and greases, the FOG that I mentioned earlier, so that  
5 is not fog that rolls in across the Bay Bridge, but that  
6 rolls in on trucks right now and to our treatment plant. So  
7 the Fats, Oils and Greases have been identified by the EPA  
8 as the number one preventable cause of sanitary sewer  
9 overflows, and keeping those materials out of our sewers,  
10 both decreases the incidents of sanitary sewer overflows and  
11 enables us to increase more renewable energy production at  
12 facilities like ours. So this bill that is being introduced  
13 is the perfect example of the kind of regulation that would  
14 increase the amount of that material that would be  
15 available, the part of the bill that I am specifically  
16 speaking to you is the portion that would require  
17 manifesting of the FOG, so once it is pumped out at a  
18 restaurant, it would be required that that material be  
19 tracked until its destination. So, materials like that  
20 could be banned from a landfill, let's say, and instead,  
21 used for renewable energy production. In terms of this kind  
22 of manifesting, we know that those kinds of regulations do  
23 increase the amount of feedstock available, the City of  
24 Sidney does have a manifesting program, and after they

1 introduce that manifesting program, the amount of material  
2 that was being tracked and pumped grew dramatically over the  
3 kind of self-reporting or other program that had been in  
4 place prior to that. So those are our, I think, from a  
5 wastewater industry perspective, ones speaking to regulation  
6 and kind of cross-regulatory sort of areas, and then,  
7 secondly, in terms of feedstock, looking at ways to increase  
8 the amount of feedstock, diverting them to much better and  
9 higher uses, from our perspective.

10 MS. DOUGHMAN: Great, thank you. Paul.

11 MR. RELIS: Okay, my name is Paul Relis. I am  
12 Senior Vice President of CR&R, we are a waste recycling and  
13 trying to be in the renewable energy business. Just a few  
14 words about the company and our perspective on this forum  
15 here today. We serve about 2.5 million customers for the  
16 communities in Southern California, so we are a distinctly  
17 Southern California focused company. We operate almost  
18 exclusively within the South Coast Air District, so that is  
19 a whole world, a different world from other parts of the  
20 state, although it seems to be becoming more of an  
21 interblended world. We have an extensive infrastructure  
22 that we built up over the 25 years of transfer stations,  
23 material recovery facilities, compost facilities,  
24 construction and demolition facilities, in support of the

1 State objective of maximizing diversion from landfill. And  
2 so you are talking about companies that have a background in  
3 materials handling and processing, and I want to underscore  
4 that because that is an important dimension to the feedstock  
5 side of the interface with alternative energy. I have been  
6 leading our effort for about 10 years to identify  
7 technologies that would work both in our State Regulatory  
8 System and cost-effectively. And that has led us to adopt  
9 an anaerobic digestion approach to our future, and we  
10 entered into with several other companies, Siemens, with a  
11 foreign company named Arrow Ecology, and another foreign  
12 company from Sweden, Purac, to propose to the City of Los  
13 Angeles and L.A. County a anaerobic digestion system in  
14 response to requests for proposals that they issued, and  
15 went through an elaborate 2-1/2 year evaluation process. So  
16 we are now looking to build for the city a first anaerobic  
17 system of 150 tons a day with the interface of municipal  
18 solid waste, and that project would be under a 20-year  
19 contract with the City, and then we have an MOU, Memorandum  
20 of Understanding, with Los Angeles County to one of three  
21 companies identified for alternative technology, co-located  
22 at - and that is one of the subjects here, at a material  
23 recovery facility and transfer station. So we are very much  
24 in the swim as we move forward. But the question has come

1 up, what are the barriers? What are the challenges? And I  
2 will both speak to the specific questions that were raised  
3 and add a few of my own, if you do not mind.

4 First of all, you have to understand, we are looking  
5 at technologies that probably want to be in the cost range,  
6 I am just going to say this is a very wild range of numbers,  
7 from \$60.00 to \$120.00 a ton. If you are in Orange County  
8 today where one of our operations is located, we operate in  
9 the \$30.00 a ton landfill environment, so you heard - I  
10 think Chip was mentioning earlier - that landfill rates are  
11 going up, but not necessarily in certain places, in certain  
12 contexts, and we never know, even with the anticipated high  
13 cost of rail haul in Southern California to the remote  
14 desert sites, just what is that going to play out, and will  
15 other landfills open and be bringing those rates down? So  
16 we are trying to figure out a technological path ahead that  
17 is definitely of a higher cost structure, but one which is  
18 facing a still fluid market. And we do not have the  
19 advantage, say, that the Europeans do. Why are there so  
20 many digesters in Europe? Well, they have landfill bans of  
21 organic waste and they have greater than \$100 a ton tipping  
22 fees, and sometimes much greater, so just right there, it is  
23 so fundamentally different than the marketplace that we  
24 operate in. So, then, what does it take to begin a new

1 industry? So I will say a few words about that. We could  
2 do one of two things, California could do what England did  
3 and put a tariff on landfill, they were actually fairly  
4 backward until about five years ago, and they decided they  
5 wanted to reduce the amount of waste going to landfills, so  
6 they put a heavy tariff on it. Australia has a tariff.

7 MS. DOUGHMAN: So by "tariff," you mean like a tax?

8 MR. RELIS: Yes. Now, that is very unpopular, but  
9 that is what they have done, and that creates an immediate  
10 market for alternatives. The second thing that can happen,  
11 which is more in the California history, I used to be a  
12 member of the California Integrated Waste Management Board,  
13 now Cal Recycle, I am still not used to that title, but I am  
14 getting used to it, one of the interesting things is, and  
15 one of the ways I think it may happen in California, is we  
16 are looking to get California to a 50 percent recycling  
17 rate. We had some enforcement mechanisms at the Board. And  
18 then there was a certain amount of peer pressure - I would  
19 call it peer pressure - there was a mandate and peer  
20 pressure, and that has brought us to over 50 percent  
21 recovery rate today, without, and on the basis of, an  
22 essentially unfunded mandate. So local governments bore the  
23 price of implementing these new programs. My thinking is,  
24 and this is to be tested, is that when one or more, several,

1 technologies are proven, and that they tie into a higher  
2 diversion rate, then this sort of logjam over technology  
3 will begin to have a new funding impetus because the cities  
4 and counties that are familiar with implementing AB 939  
5 would be looking at just a next logical next step. So that  
6 is another path.

7           But in the mean time, there are a number of key  
8 issues, one is funding. That is going to come up from  
9 everybody under every circumstance. So, under that case,  
10 you need one of two things, grants, or you need early  
11 implementers. You do not really need loans so much, you  
12 just need to take down the cost of building these first  
13 projects, so the grant programs of the Energy Commission and  
14 other agencies remain very very critical to pursuing this  
15 and the encouragement of local governments who are early  
16 implementers to be able to be rewarded in some way for that  
17 role. I do not want to specify here what those rewards  
18 would be.

19           In terms of a couple of other, the co-location  
20 factor, I think L.A. County was very wise to look at co-  
21 locating facilities. We already have collection system, as  
22 someone noted, I think Chip noted, it is paid for. We do  
23 not have to create a whole new infrastructure to build a  
24 system to bring the waste in, that is built and it is paid

1 for, and we get paid for the materials. So at least we have  
2 an increment of value, which may be difficult to come by in  
3 other venues. And we have an environment where the  
4 materials are being processed, so adding an AD System in our  
5 case, onto that, makes a lot of sense, and we just want to  
6 make sure that, in this statewide new regulatory effort  
7 underway, that we do not overly complicate the system  
8 because a lot of these facilities are technology-specific  
9 and site-specific, and it is very hard to get your head  
10 around all the permutations. So if the Water Board has  
11 concerns, we want to know what the performance issues are.  
12 If soil products are concerns, what are those, so that we  
13 have the performance base. And I would really urge that we  
14 stay performance-based on that.

15           So I have covered the grants, the co-location. We  
16 believe that there is a very big potential interface for  
17 achieving the most difficult task, which is liquid fuels to  
18 power transportation, and that is why we have put a lot of  
19 emphasis on producing biomethane from the biogas. We run a  
20 fleet of our own of 140 alternative fuel vehicles and that  
21 is growing rapidly with fueling stations, so we had entered  
22 into a discussion and now a relationship with Shell to wield  
23 that energy, and through pipeline, assuming we can overcome  
24 some of these interconnect challenges, which is the point I

1 will probably just conclude with now, the interconnect  
2 piece.

3           It seems unnecessarily complex to us, cumbersome,  
4 and costly. For small projects, it is a real barrier. And  
5 we would urge the Energy Commission, the Public Utilities  
6 Commission, Cal Recycle, to get your heads together with the  
7 utilities and help us address that, so we are not so on our  
8 own. It is time to develop clear standards. And I say all  
9 this against the backdrop and the whole discussion here. I  
10 come from Santa Barbara. I was a student at U.C. Santa  
11 Barbara when the oil spill occurred. Those kinds of issues  
12 are very much on our minds again today when you look at the  
13 Gulf and you say, "We have a lot of complicated issues to  
14 resolve, but these are petty compared to that backdrop."  
15 What we have learned is our ecosystems are under threat, our  
16 lives are under threat, depending on where we live, and the  
17 fossil fuel agenda is being pushed into evermore challenging  
18 environments like 5,000 feet deep. So we may have  
19 differences of opinion here over, oh, this much emission  
20 from this technology, but these are - we have to keep all of  
21 this in perspective; against that backdrop, there should be  
22 many possibilities and they need to happen now. That was 40  
23 years ago that the Santa Barbara oil spill - and the images  
24 that I am seeing are almost identical to what we experienced

1 when that happened, so no progress on that front. So, thank  
2 you.

3 MS. DOUGHMAN: Okay, thank you. Pat.

4 MR. McLAFFERTY: Good morning. I am with Protech  
5 GCS. We are a water treatment company that is in Dixon,  
6 California. For the last decade, Protech has been working  
7 in response to the Clean Water Act, dealing with storm water  
8 cleanup, using advanced water treatment system in that  
9 arena. Recently, in the past 12 months, Protech has started  
10 to look at dealing with wastewater cleanup, as well. So,  
11 fundamentally, we are taking similar technologies that we  
12 have used in the storm water side, and moving them over and  
13 adapting them. But frankly, as a friend of mine pointed  
14 out, we have done it in a bit of a cowardly way. We did a  
15 bit of a study and said, "You know, this is a tough road,  
16 you want to do dairy digesters? That sounds tough. You've  
17 got this interconnection thing, you've got permitting, good  
18 grief, we need a friend." So Protech went over to the  
19 Department of Agriculture in California and allied with the  
20 Department, and we did that under a Memorandum of  
21 Understanding that created a circumstance in which CDFA  
22 became the lead for assisting us through the permitting. We  
23 have had, certainly, other friends in that process in the  
24 state, as well, but they have done a great job of that. We

1 also understood early on that we needed to have a friendly  
2 utility to work with us, so we went to Merced Irrigation  
3 District, home of many dairies, and they are a Signatory,  
4 and then we selected three dairies that are also signed with  
5 us on these MOUs. So, in that context, we then decided to  
6 take a look at what technology would work best. Protech  
7 technology, because it was borne in the idea of construction  
8 sites that are big and small, one acre to hundreds of acres,  
9 is modular and scalable, so we felt that that would work  
10 well. So what we have done is combined modular, scalable  
11 technology. We use anaerobic digestion, aerobic digestion,  
12 and growth of algae to clean water. In that process, we  
13 create a number of byproducts. And those byproducts are  
14 organic fertilizer, the algae can be pressed and used as a  
15 biofuel, we find that that is a little prohibitive, so what  
16 we have done at this point is basically valued that algae as  
17 a very high grade fertilizer, organic, again. We have a  
18 number of other streams of revenue, water, Title 22 water,  
19 since we are cleaning water to very high standards. Water  
20 has remarkable value in California. And in addition to  
21 that, we have electricity, renewable electricity from the  
22 process.

23           Using that multitude of revenue streams, and by the  
24 way, there are other things that are kind of interesting,

1 just to give you a quick look at the technology, one of the  
2 things that we do is we sequester the exhaust gas coming off  
3 a gen-set and, in order to do that, we need to pull out the  
4 NO<sub>x</sub> and the SO<sub>x</sub> that are on it. We found out that we can get  
5 500 gallons a day -- we are talking about a 3,000 cow dairy  
6 here - 500 gallons a day of 60 percent Nitric Acid, by  
7 simply removing the anno wax [phonetic] from the exhaust  
8 stream, from a complying gen-set, making it remarkably  
9 cleaner. And you may know that nitric acid is a very  
10 valuable commodity, so we have created again a series of  
11 revenue streams. That has allowed us to move into  
12 financing. We took a look early and said, "You know, this  
13 is such good public policy that the State has got to be  
14 giving us money." I mean, Obama is giving the state money,  
15 the state has got to give us money, and it did not work. So  
16 we spent about a month on that and said, "We really need to  
17 go to the private sector." So we are now using about 60  
18 percent debt financing, we have got a number - actually,  
19 three major banks who have given us conditioned commitments  
20 for that financing. And we are looking to the dairies and a  
21 number of other investors to work with us on the equity  
22 side. It has been a relatively attractive sell for us  
23 because we have an IRR of between - on very small dairy -  
24 like 1,500 count dairy, about 15 percent, and on larger

1 dairies, it is about 30 percent. And the interesting thing  
2 about that IRR is that it uses conservative assumptions, it  
3 does not use the Investment Tax Credit, it uses no subsidy,  
4 except we are allied -- thanks to the Treasurer's Office --  
5 with the Pollution Control Authority, and we have not valued  
6 any emission credits or nutrient credits, reduction credits  
7 that may come from the process. So we have tried to build a  
8 system that worked as a business. And in that, we also  
9 looked at the permitting issues, at how we could create  
10 something that would really work for us. Permitting - and  
11 when we also say "interconnection" - and one of the things  
12 that we looked at was the difficulty in dealing, in some  
13 cases, with the investor-owned utilities. We have heard  
14 some difficult stories and we did not want to go there, so  
15 we allied with a Muni utility whose incentive is to assist  
16 its own customer, the dairy, and to interconnect biogas  
17 projects. So we felt their incentives were right and in  
18 line with us, so we have been really delighted with the  
19 cooperation out of Merced Irrigation District, plus they  
20 like clean water, so it is kind of a neat twofer on that  
21 side.

22           In terms of the CEQA process thing, at this point,  
23 we believe we have got California Department of Food and Ag  
24 General Counsel agreeing with us, that we are exempt from

1 CEQA at this point, under the exemptions that exist in the  
2 General Dairy Order and are called out from the Regional  
3 Water Board, so we think we are good there, we are working  
4 with the Local Planning Department to finalize an exemption.  
5 The water permit, we believe that we are under the General  
6 Dairy Order, we are not decreasing salts or increasing them,  
7 but the nutrient balance and salt balance is the critical  
8 issue and our conversations right now with them have been  
9 very helpful. And we are delighted with that. And we are  
10 using a complying gen-set at 8 parts per million NO<sub>x</sub>, it  
11 meets the Air Board's standards, and then we are  
12 sequestering the exhaust stream and we are using those  
13 things to heat the algae ponds, and things like that, so  
14 ultimately I think it is arguable that we have a zero  
15 emission process. Would this be better if we were able to  
16 aggregate waste across the property lines? Yes, it would.  
17 We would have a much more cost-effective approach in certain  
18 cases, anyway. On the other hand, did I want to fight that  
19 battle? No, coward's way out. We just did a scalable  
20 project on a single dairy and we got it to be economical.  
21 Is it good for the State to allow you to aggregate? Of  
22 course, because at some point, when you look at a 500 cow  
23 dairy, or whatever, our model just does not work to that  
24 level. It works a bit larger than that. So we have really

1    tried to avoid the barriers that are of concern and we think  
2    now about a year into the process we have done a fair job of  
3    that.  The next three months will be critical to us and we  
4    will see how it works.  That is all I have got for you.

5           MS. DOUGHMAN:  Okay, thank you.  Michael?

6           MR. HAWKINS:  Thanks, Pat.  Thank you, Pamela.

7    Michael Hawkins with Millennium Energy.  We are an owner and  
8    operator of a 50 megawatt co-generation plant in Kern  
9    County.  For about 20 years, we have burned a combination of  
10   coal and petroleum coke and TDF tires at a capacity factor  
11   of about 92 percent averaged, and we have been able to  
12   generate and produce low cost efficient power for PG&E.  As  
13   a result of AB 32, and others, we discovered that coal in  
14   California did not have a long term future, and the  
15   handwriting on the wall, and it was interesting because, in  
16   the pecking order of fossil fuel, if you will, coal is  
17   probably the black sheep of the fossil fuel list, and so we  
18   decided to transition from being part of the problem to  
19   being part of the solution, and become a renewable biomass  
20   plant, and so renewable energy.  And thereafter, we  
21   discovered that, in the pecking order of renewable fuel,  
22   biomass is the black sheep of the renewable family.  So we  
23   have not moved very far from that standpoint.  But we are  
24   pleased to be perceived, at least, as being part of the

1 solution and we are trying hard to do that.

2           We started the process in 2007, thinking everyone  
3 would just bend over backwards to help us make this happen  
4 since we are shutting down a coal plant and making renewable  
5 energy available to help meet the Governor's objective. We  
6 substantially underestimated the hurdles and challenges,  
7 time, complexity, at all levels, permitting certainly  
8 included. Our original schedule, which we thought was very  
9 generous, called for us to be operational today on 100  
10 percent biomass, and we are one year behind that process.  
11 We have been at it for three years. It is in excess of a  
12 \$50 million investment in an existing plant. We spent \$120  
13 million in 1989 to build this 50 megawatt plant and today we  
14 are going to spend another in excess of \$50 million, so  
15 about \$1,000 a kilowatt. The good news is that a new  
16 biomass plant, if such a thing were to ever get permitted  
17 and built in California, the cost of that plant would be  
18 somewhere between \$3,000 and \$4,000 per kilowatt, so at  
19 least three or four times the cost, which is one reason it  
20 would be difficult to make that happen from a pricing  
21 standpoint. Some of the struggles as to why it took us  
22 longer, the engineering was not the problem, developing a  
23 new Power Purchase Agreement was a challenge, but ultimately  
24 was not the problem, permitting turned out to be the long

1 pole in the tent, from our standpoint, and believe it or  
2 not, we are still not completely done. We are close. And  
3 we think we have substantial agreement by all the regulatory  
4 agencies. We have had no substantial opposition. Everyone  
5 says, "Gee, you're doing a great thing, we really support  
6 it, that's great," however, here are the requirements for  
7 our particular agency or entity, all of which are probably  
8 legitimate, just the combination of all those things  
9 combined, it is a very time consuming, very expensive  
10 proposition. Some of the panelists earlier indicated that  
11 the cost to develop a project is high, I can verify, that is  
12 the case, so you need to have very deep pockets if you are  
13 going to either convert an existing plant, or build a new  
14 one. All of those development costs are typically done on  
15 the balance sheet - equity, cash out of your pocket. We  
16 have not found anyone who is willing to entertain loaning  
17 money or supporting that unless they take a piece of your  
18 company, very high equity rates. So the cost of developing  
19 a plant before you know you have a plant is probably 10  
20 percent of the project on a conversion, it is a pretty high  
21 cost. At some point in the process, after you have the  
22 Power Purchase Agreement and you have completed all of the  
23 permitting, all of the engineering, you have signed fuel  
24 agreements, all of that is done, then you can take that to

1 the financial community and try to find financing. The  
2 current requirements are probably in the 30 percent equity  
3 range, you have to have at least 30 percent equity. We have  
4 discovered that, even though we have an operating power  
5 plant that has no debt, and is in excellent condition, that  
6 that is not considered equity, that there is a phrase in the  
7 financial community that most of you have heard, and that is  
8 called "skin in the game." And a lender does not consider  
9 the fact that you own your house free and clear as "skin in  
10 the game," if you are going to extend your house. So they  
11 want us to put new skin in the game and 30 percent is about  
12 the number, so it is not cheap. We have discovered that  
13 there are lenders, very few of them are domestic, most  
14 domestic lenders have a phrase, they say that they are  
15 capital constrained, which is short for "we don't have any  
16 money to loan right now," but there are foreign lenders who  
17 do business in the U.S. on a regular basis, a few domestic  
18 lenders, but not many. The project absolutely must have a  
19 pedigree and must not have any problems associated with it,  
20 any challenges. If it is a perfect project and has a great  
21 return, there are lenders who will loan against it once all  
22 of the requirements are met.

23           The first three questions any lender will ask have  
24 to do with fuel - fuel, fuel, and fuel - that is a primary

1 concern. And transitioning from a coal plant to a biomass  
2 plant typically, in the coal business, a long term fuel  
3 contract is 20 years, and you know what the quality of the  
4 fuel is, you know what the BTUs are, you know what the  
5 moisture content is, you can do core samples, you know where  
6 it is, you know exactly what it will cost 10 years from now,  
7 it was a major change for us to contemplate biomass and to  
8 go out and visit biomass suppliers and integrators, and the  
9 transportation issue, and discover that a long term biomass  
10 contract was maybe 60 days, or maybe a year. So the length  
11 and availability of long-term secure fuel suppliers with a  
12 sufficient balance sheet, if someone says, "I will supply  
13 biomass fuel of this quality to you for X period of time,"  
14 there are not very many suppliers that can do that and back  
15 it up with a balance sheet, so if they do not, you know you  
16 have recourse. So lenders tend to frown on that, which  
17 means you have to have more equity.

18           Plants such as ours transitioning from coal, which  
19 contrary to popular opinion, is clean, is efficient, the  
20 boilers run much better to biomass, which is more erosive,  
21 typically higher moisture, has other problems with it, it is  
22 renewable, but has challenges, so a biomass typically has  
23 higher maintenance costs and, in our case, we have the 50  
24 megawatt plant now, and we have to de-rate that to 44

1 megawatts as a biomass plant, so we cannot generate as much  
2 for a variety of reasons, most of them are technical, and I  
3 will be happy to get into that at some point in time.

4           So we see it as a positive move, and we are focused  
5 on it, and on the earlier panel, Mr. Phil Reese indicated  
6 that, of the 16 new plants that were on the books, scheduled  
7 to come online, he did not think any of them would, I am  
8 hoping he is wrong, but at least one, and we are hoping that  
9 is us, not that we want to be the poster child or serial  
10 number one, but there is certainly a great advantage to  
11 having an existing plant and being able to recondition a  
12 current plant. We have current steel in the ground, we have  
13 current permits, and interconnection agreements,  
14 transmission, water, all of those things are in place, and  
15 infrastructure. So repowering existing facilities, we  
16 think, is a good way to go, and it will be successful - not  
17 cheap, but cheaper than other alternatives. And from a  
18 timing standpoint, not simple, but doable.

19           MS. DOUGHMAN: Okay, thank you very much. Do any of  
20 the panelists want to respond to comments from the other  
21 panelists? Do you see any possible connections using the  
22 waste from one of your facilities as input for another?

23           MR. HAWKINS: We have had discussions with several  
24 other suppliers about using waste streams, and we are

1 eligible for that, we are currently permitted, believe it or  
2 not, for coal, petroleum coke, natural gas, TDF, and now  
3 biomass, those are all part of our permit condition. To be  
4 renewable, however, in California, you are limited, you  
5 cannot burn any fossil fuel other than maybe for start-up  
6 for natural gas. The other issue is, from a Federal  
7 standpoint, if you want to qualify for tax credits, either  
8 the Investment Tax Credit or Production Tax Credits, which  
9 drive the industry, they have to be - the amount cannot be  
10 more than de minimus. But there are other biomass fuels  
11 and, from a power plant standpoint, we are interested and  
12 willing to consider those. We have had input from  
13 regulatory entities, however, that we should not include  
14 those fuel streams in our Regional permit application, that  
15 that would complicate and extend the permit requirement even  
16 further. So, looking at biogas, for instance, we are  
17 interested in that, but we were advised by the regulatory  
18 entities not to indicate that, originally, and just permit  
19 for woody biomass, that it was an easier permitting process.  
20 So there would be, from a regulatory standpoint, it would be  
21 helpful if that hurdle was overcome so there were more  
22 opportunities.

23 MS. DOUGHMAN: Do you see the programmatic EIRs  
24 helping in the future for the digesters?

1           MR. RELIS: I am not sure. I think it is too early.  
2 I would reiterate that a lot of these technologies are site-  
3 specific and situational, and somehow the programmatic EIR  
4 needs to have a screening as to having applicability, but  
5 not be overly constraining, unintended consequences.

6           MS. DOUGHMAN: Okay, why don't we go ahead and open  
7 it up for public comment now? I have a blue card from Steve  
8 Kaffka, the California Biomass Collaborative.

9           MR. KAFFKA: Hi. Steve Kaffka from California  
10 Biomass Collaborative. Mr. Hawkins, you talked about a  
11 three-year plus permit process that has been both costly  
12 and, to some degree, uncertain, I presume. What has been  
13 gained from your perspective by that permit process? What  
14 has changed about your project and what has been the public  
15 benefit, if any, from that? And how could that, perhaps the  
16 public benefit of the permit process, including its cost to  
17 the public, as well as to you, be improved?

18           MR. HAWKINS: Well, the public benefit at the end of  
19 the day is that a coal plant is discontinued and a renewable  
20 plant becomes operational, and the renewable energy is  
21 available. From a permitting standpoint, the emission  
22 limits, good for the public benefit, bad for us, I guess, I  
23 will just tell you a short story in answer to that question,  
24 when we went in for the permit application to get permitted

1 as a biomass plant, the Air District and the EPA both looked  
2 at that and said, "That's great, you are going to have to  
3 meet current BACT," Best Available Control Technology for a  
4 brand new biomass plant. And we said, "Okay, what is that?"  
5 So they gave us that limit. And we shared our current  
6 operating data and it became apparent that, as a 20-year-old  
7 qualifying facility coal plant, we were at current BACT for  
8 a brand new biomass plant. And they said, "Well, that's  
9 nice. Where are you operating right now?" So we showed  
10 them the current operating data, and we were operating about  
11 15 percent below average of our permit limits, SO<sub>2</sub>, NO<sub>x</sub>, CO,  
12 and they said, "Well, that's very nice. Thank you for  
13 running well below your permit limits. We're going to  
14 ratchet you down in your new permit to where you have been  
15 running for the last three-year average," and so that became  
16 the new permit limit, so I guess that would be a public  
17 benefit, so we now have a new permit limit well below our  
18 old ones, which unfortunately establishes a new BACT level  
19 for new biomass facilities. So the new facilities will need  
20 to meet those limits, as well. As a result of our  
21 application, we had to go through and do a complete  
22 analysis, we did not have to do a complete EIR, but we did  
23 all the studies necessary for the EIR to obtain a  
24 Conditional Use Permit, so all that has been analyzed and

1 studied and submitted to the County, and to the State, and  
2 to the EPA. We also had an issue with Fish & Wildlife, I am  
3 not sure how much of this I want to get into, but we did a  
4 study - we own about 300 acres that surround our coal plant,  
5 it is in a fairly remote area of Kern County, and we hired  
6 several firms to look at our surrounding area because we  
7 have to build a new fuel handling system next to our  
8 existing plant, because you cannot handle biomass the same  
9 way you handle coal, and the study indicated we had no  
10 endangered species, and the State and the County gave us a  
11 clean bill of health, so go ahead and build your facility.  
12 Fish and Wildlife indicated, however, that because there  
13 were kit foxes in the general area, that they would consider  
14 building our own facility on our own land a taking of  
15 endangered species habitat, and they indicated that we could  
16 not do that without their consent and without us satisfying  
17 their requirements. So much of the delay was involved in  
18 meeting the needs of Fish & Wildlife, and as a result of  
19 that, satisfying EPA so they could issue the PSD Permit. So  
20 that would be another public benefit, I guess, from an  
21 endangered species standpoint, that we have satisfied those  
22 requirements. So, to become permitted today, the scrutiny  
23 is intense, and as a result of that, questions are answered,  
24 the public has a little higher confidence level, and

1 emission limits actually come down. I hope that is  
2 responsive to your question.

3 MS. DOUGHMAN: Are there other people in the room  
4 who would like to comment? Lesli Daniel, Sierra Club.

5 MS. DANIEL: Lesli Daniel, Sierra Club, California.  
6 I would like to state that we support anaerobic digestion in  
7 sealed systems with segregated organics, and we are very  
8 interested in what is going on with the dairy waste, and we  
9 are very interested in what is going on with the FOG, and  
10 supportive of developing those. When it comes to mixed  
11 waste use for AD, we approach this one with support, but  
12 caution, and in that we wish to caution that materials that  
13 are considered waste need to be considered for their highest  
14 best use, so we need to implement the hierarchy before we  
15 consider their energy value, so that would be reduce. We  
16 cannot impair our ability to reduce our waste stream. We  
17 need to reconsider re-use. Lumber is already a large  
18 feedstock for biomass. If it is reusable, we need to be  
19 looking at assuring that material moves into a higher use  
20 and reuse. Recycling? In bio-recycling, we also need to  
21 consider those things that might be historical feedstocks  
22 for biomass. And compost, we cannot undermine the value of  
23 compost as a soil amendment for energy. So we do not have  
24 energy in our waste hierarchy at this time, we need to place

1 it in our waste hierarchy, but it should not be placed at  
2 the top. So to support that, we would definitely support  
3 the clarifying and defining of waste feed stocks, and we do  
4 believe that is a role that the CEC could play. When we  
5 talk about energy plants, we often are talking about scale  
6 and the need for them to run 24/7/365 and that creates, as  
7 Mr. Hawkins has already touched on, issues of supply. In  
8 the world of waste, we call that flow control and we have  
9 concerns about setting up an institutional need for waste,  
10 so we need to take care. It is not that this is not  
11 appropriate for the use of a waste, as I started out in my  
12 statement, we do support this, but we just need to make sure  
13 that the hierarchy is in place, and we need to make sure  
14 that flow control does not become the rule of how we  
15 consume, and how we deal with the discards from our  
16 consumption. And one other important point that has not  
17 really been touched on here, and goes to the definition is,  
18 not all waste streams are suitable for energy production,  
19 particularly in any process that is gasification because of  
20 their contaminants. So when we talk about wood waste, we  
21 have wood waste that is treated with a myriad of different  
22 products, and that needs to be considered and addressed. We  
23 do not have enough research and we certainly have enough  
24 knowledge to have precaution with some of those materials,

1 so that needs to be taken into consideration when we talk  
2 about fuel stocks. So, you know, I think that Mr. Hawkins'  
3 statement about the regulators warning against including  
4 feedstocks in their permit requests is a huge statement, it  
5 represents a huge gap that needs to be closed, and an arena  
6 for the CEC to move that forward. Thank you.

7 MS. DOUGHMAN: Can I ask one quick clarifying  
8 question? You said that energy needs to be placed in the  
9 waste hierarchy, but not at the top, did you mean that it  
10 should be the fifth of the four - placed after the fourth, I  
11 mean?

12 MS. DANIEL: That would be where I would place it,  
13 but it definitely is above landfilling.

14 MS. DOUGHMAN: Okay, thank you. Do our panelists  
15 have any comments? No?

16 MR. RELIS: A lot of big big issues in that  
17 presentation, the hierarchy, the - I just would offer a  
18 couple of observations. About two years ago, I went to  
19 Sweden to see about cleaning up biogas to what we call bio-  
20 methane because Sweden was the world leader. And one of the  
21 interesting things I learned in visiting several plants was  
22 that, in the end relation to, say, food waste and anaerobic  
23 systems, Sweden had a history of having - well, they have  
24 obviously a very high level environmental compliance world,

1 well beyond what we have here. But what they had found is  
2 they felt that you should try to - their conclusion was to  
3 get the energy from the organic stream prior to composting,  
4 it was an interesting - I am just giving this as an  
5 observation - because they were having some difficulties  
6 marketing, even there where they have very rigid separation,  
7 they had all the kinds of problems that anyone who has run a  
8 compost facility anywhere near people have. And from their  
9 perspective, capturing biomethane for green fuel was a very  
10 big priority, a national priority, for weaning themselves of  
11 dependency on fossil fuel from Russia or other strategic - I  
12 mean, there are other issues going on there, but that was  
13 something I had not expected to hear during the visit.

14 MS. DOUGHMAN: I am wondering - I have one thing,  
15 and then you are next - I am wondering if some of these  
16 processes, the waste product, can that be used as a soil  
17 amendment? Can you maybe discuss that a little bit?

18 MS. SKODA: So the bioproduct of anaerobic  
19 digestion, the kind of digestate that comes out of  
20 digesters, I think what Ms. Daniel was speaking about was  
21 that she had sort of talked about the concern of co-  
22 digestion vs. kind of segregated organics, for example FOG  
23 and food waste in a segregated digester. So currently, the  
24 wastewater industry calls the material that comes out of a

1 digester, post-digestate digestive materials, "biosolids"  
2 and biosolids go, for example, in East Bay MUD's case, to  
3 two uses, to land application for non-food crops, and also  
4 that material is used as alternative daily cover by  
5 landfills. Our split varies depending on the contracts that  
6 we are able to obtain. It is actually less expensive for us  
7 to land apply when those contracts are available with  
8 farmers and we want to do that. And our split is, right  
9 now, I think about 60 percent as ADC, and about 40 percent  
10 as land application.

11 MS. DOUGHMAN: ADC is Alternative Daily Cover?

12 MS. SKODA: That is right, that is the word that I  
13 used earlier, thank you for clarifying it again. So those  
14 are the uses, but, yes, they absolutely can be used. And  
15 so, in the case of the segregated material, and I think this  
16 is where Ms. Daniels was going, that might be able to be  
17 used for food crops or as a compost input, or other. One  
18 thing to consider, though, is when it comes out, you know,  
19 it might be a better kind of net use to have it go directly  
20 to land application, rather than having it go into a  
21 composting process where it has to be handled and processed  
22 again, and have all of the inputs go into that kind of a  
23 process. I do not know all of the kind of net energy and  
24 emissions around, you know, the one versus the other, and

1 kind of the value to society, but I think that is where she  
2 was going with that. Also, I just was going to make two  
3 other comments. The first panel and also this panel, the  
4 idea of kind of - or the concept of how difficult it is to  
5 sort of finance these projects, and how do we make that  
6 happen has come up, and I was going to say, nationally, one  
7 of our most successful programs in terms of encouraging  
8 development of an industry has been corn, and the reason why  
9 that has worked so well is, in part, because there are floor  
10 prices for farmers, so just as an energy policy, you know, I  
11 think that everybody is aware of how difficult it is to  
12 develop these programs, and so the concept of, are there  
13 floors for pricing for renewable energy, is it going to be  
14 purely just a market based with the Regs. that are sort of  
15 being reviewed and looked at looked at now, or is there  
16 another mechanism that the State would want to look at? And  
17 the last other comment that I would make is, again, the  
18 difficulty of developing these projects with POTWs, the  
19 Publicly Owned Treatment Works, because we are already in  
20 the works of doing work for our communities, using our  
21 infrastructure as Millennium Energy is doing, for another  
22 use enables us to kind of stretch out those timelines and  
23 work through all of these issues, and so that is a net  
24 benefit that we bring to the table, as well, as we work

1 through regulation and work through permitting, work through  
2 financing, work through all these ideas, and so there is  
3 something that we can bring to the table there. And I have  
4 to say, I admire the hard work of those that do not have  
5 another sort of business that is going on while they are  
6 going through that.

7 MR. HAWKINS: Could I make a comment about that?  
8 With regards to use of the byproduct, for woody biomass  
9 plants, there is a byproduct that is referred to as Ash, it  
10 is like what comes out of your fireplace when you burn wood,  
11 and the uses for that include dairy applications for cattle  
12 and land applications as a soil supplement, there is value  
13 to that. So we sell the product. And transitioning from a  
14 coal plant to biomass, we have been burning about 20-25  
15 percent biomass in our coal plant for about a year as a  
16 blended product, and that has worked well, so coal-firing of  
17 various fuels works, there are technical issues, but  
18 certainly cost issues that can hopefully offset that and  
19 make it worthwhile. And most of these solid fuel plants are  
20 also co-generators, and so we are using steam for some other  
21 beneficial use, it is very cheap, or sometimes free, steam.  
22 In our case, we use that for what is called "enhanced oil  
23 recovery," so there is an oil field that is only viable if  
24 it is receiving steam to get additional oil out of the

1 ground, and if the power plant shuts down, then the oil  
2 field goes away, and you lose all that revenue and jobs. So  
3 the process of doing all these things, the creative aspects,  
4 has an impact on that besides just electricity.

5 MS. DOUGHMAN: Okay, tell me your name again.

6 MR. SMITHLINE: Scott Smithline, representing the  
7 environmental group Californians Against Waste today. One  
8 of Californians Against Waste priority issue areas for the  
9 last decade has been diverting organics from the landfills,  
10 for various reasons, primarily because there is a higher and  
11 better use for that material, and for the last several years  
12 also because of the recognized greenhouse gas emission  
13 reductions associated with diverting that material from  
14 landfills. And I would like to make a blanket statement, we  
15 support anaerobic digestion, but I am not a fan of these  
16 types of blanket statements, I no more can say I disapprove  
17 of gasification than I support anaerobic digestion;  
18 everything is really technology and feedstock application  
19 specific, and I just want to make that clear, but basically,  
20 for the most part, we support anaerobic digestion, and there  
21 are a lot of barriers to anaerobic digestion right now and I  
22 think, if anything can come out of this particular plan, I  
23 think the regulatory field is something that really does  
24 need to be addressed. I mean, if you are trying to develop

1 an AD facility today, you potentially have a Cal Recycle  
2 permit. But Cal Recycle does not really know how to permit  
3 you, they think you are a composting facility, but there is  
4 AD guidance to determine how they are going to permit you as  
5 a composting facility, and I know you have probably had to  
6 deal with that, as has everyone else who is trying to plan  
7 one of these particular facilities. You will need a permit  
8 from the Air Resources Board, there are obviously NOx issues  
9 there. At the same time, those folks who are trying to go  
10 to fuels, you know, the Air Resources Board, you have to  
11 come up with a Low Carbon Fuel Standard pathway for a  
12 dedicated digester of gas, and I do not know why they would  
13 not have come up with one at this point if they are really  
14 committed to this particular technology, there is no reason  
15 - they have one for landfill gas to liquid fuel, but they do  
16 not have one for dedicated digesters, that is something I  
17 have been advocating for, for some time, and it seems a  
18 shame to me that that has not occurred. You will need a  
19 Water Board permit. Both Cal Recycle and the Regional Water  
20 Board are doing a programmatic EIR right now and, for  
21 purposes of full disclosure, I am actually a part of the  
22 team as an independent consultant working to develop those,  
23 but I am not commenting as such right now. And I do think  
24 those will be helpful, frankly. And I hope that they will

1 be. But you will need some Water Board permits and right  
2 now CDFA is basically saying, if you are going to touch  
3 anything that we regulate - meat, poultry, blood, FOG, you  
4 need a rendering permit. Well, that enters you into a whole  
5 other world of hurt because, frankly, if you have a  
6 rendering permit, you are exempt from Cal Recycle as the  
7 composting facility, and I do not know if they are really  
8 going to exempt you, and trying to work your way through the  
9 rendering guidelines as an AD facility is really complicated  
10 because those permit guidelines are really developed for  
11 technologies that generate the heat for upwards of 250  
12 degrees, and many other things that are different from  
13 operating an organics facility. So these things all need to  
14 be addressed and if anything can come out of this particular  
15 process, I hope that these agencies will sit down and try to  
16 work together to try to address these particular things.  
17 Another particular inconsistency I notice is that you are  
18 using your digestate as ADC, but Cal Recycle's current  
19 position is that ADC digestate is not an approved  
20 Alternative Daily Cover, but you are not operating under a  
21 Cal Recycle Permit, so, I mean, there is just an  
22 inconsistency right there that probably needs to be  
23 addressed. So anyways, all of this stuff is really  
24 feedstock and technology specific, we are a big fan of the

1 technology, in general, though, and I hope this helps  
2 promote it. So, thank you.

3 MS. DOUGHMAN: Thank you. Are there other comments  
4 from the audience? Anymore blue cards? Anyone on WebEx or  
5 on the phones? Can you state your name again? It was hard  
6 to hear you. Just checking one more time for any comments  
7 on the phone or through the WebEx?

8 MS. SCHNEIDER: Hi. I just wanted to comment  
9 through the WebEx. [Inaudible]

10 MS. DOUGHMAN: Just go ahead.

11 MS. SCHNEIDER: [Inaudible] [2:45]

12 MR. RELIS: Well, we are doing a lot of testing is  
13 what we are doing because I think the key to all of this is  
14 knowing your feedstocks and the testing and the degree of  
15 separation. We do a water separation system. So it gets  
16 pretty technical, glad to go over that more, but I think it  
17 would probably be too detailed for here. But we are doing  
18 both. From an energy standpoint, digestion is enhanced by  
19 food, not green waste, so food waste is the key to anaerobic  
20 digestion, and then the digestate quality is, in our case,  
21 the degree of separation of the organic fraction from  
22 contaminants.

23 MS. SKODA: Hi, Ann, it is Sophia, I remember you  
24 from the compost teach-in in Palo Alto, but I think, you

1 know, most people would agree that segregating the organics  
2 and digesting them separately, you know, has potential for a  
3 higher value product at the end. It is kind of an issue of  
4 cost and sort of net benefit, and that is the place where I  
5 think you have to kind of just go into the project and  
6 understand, well, what are our options? So, if it is that,  
7 you know, gosh, if we are able to segregate digestate just  
8 on its own and spend the extra X millions of dollars to de-  
9 water that material separately, and digest it separately,  
10 then what are our options for that product? And how do we  
11 weigh those options for that product vs. the material if it  
12 is together? So, again, that really depends on where your  
13 material is going, so if the material - would your community  
14 and so on feel that it was all right if it was going to a  
15 land application, first as an ADC, for example, but it was  
16 still being co-digested, but you were able to save, you  
17 know, \$30.00 a ton by going that route vs. another route.  
18 So, I mean, I think all these things - it is complicated, as  
19 several people have said, there are a lot of different  
20 options. You are looking at cost, you are looking at  
21 benefits, you are looking at hierarchies of end use. If 80  
22 percent of it is being turned into energy and now 10 percent  
23 of it is going to land application, you know, vs. 100  
24 percent of it going to ADC or maybe there are not enough

1 composting facilities in the area. I mean, I think these  
2 are all the complexities of how we work together with our  
3 communities to figure out what the best way is to go. But,  
4 Ann, you know, you can - I think you have got my e-mail  
5 contact, so I would be happy to talk with you further  
6 offline.

7 MS. SCHNEIDER: Thank you. [Inaudible] [2:48]

8 MS. DOUGHMAN: I am not sure what you mean by  
9 scalability. Do you mean just how much energy, for example,  
10 is coming from the project, that Sophia is talking about?  
11 Is that what you are talking about?

12 MS. SCHNEIDER: [Inaudible] [2:50].

13 MS. DOUGMAN: Thank you. Yes, that helps a lot.  
14 Sophia? Do you want to - do you have any thoughts on  
15 whether it is more helpful to have a smaller amount of FOG,  
16 food?

17 MS. SKODA: Well, since part of my job is to  
18 increase the amount of energy that we are generating at our  
19 facility, I would argue that, you know, we are still local,  
20 that it is all right if a truck is coming from San  
21 Francisco, you know, across the bridge to my facility to  
22 bring its FOG. But, you know, I definitely think that, as  
23 we look broader scale, you know, where is the best and  
24 highest use? And what is the greenhouse gas footprint of a

1 truck driving to the Central Valley? And as we start to  
2 incorporate all of these externalities into our energy  
3 pricing, I think that some of these other types of issues  
4 will resolve themselves.

5 MS. DOUGHMAN: Paul, did you want to add anything?

6 MR. RELIS: Well, I am not involved in POTW's so I  
7 cannot speak to the scale issue there, but from our  
8 perspective, which is a company serving 40 communities, I  
9 guess the first scale issue is, if you have an existing MRF  
10 transfer station, that infrastructure is already in place,  
11 it is in our case. We operate in - I would call it more  
12 regional facilities - so if you took, say, the difference  
13 between handling that material at your MRF transfer  
14 interface vs., say, shipping waste 200 miles round trip to  
15 the desert, that is a big scale difference. And then -

16 MS. DOUGHMAN: So you would ship it for landfilling?  
17 Is that what you are -

18 MR. RELIS: Well, when Puente Hills Landfill is  
19 closed, the plan is to rail haul that waste to a remote  
20 desert site, using both, as I understand it, I may not be  
21 current, dedicated trains and trucks. So that is one scale.  
22 We are trying to keep it not a landfill company, we are  
23 trying to keep it within our system, more of waste equals  
24 food, or how do we use our waste products in a more regional

1 way. But I do not know FOG and I do not know the economics,  
2 but I would suspect, like us, there are just certain scales  
3 that you either can do it, or you cannot. I mean, you have  
4 to get financing and you have to be able to generate a  
5 certain amount of revenues, and if you cannot get that, then  
6 you cannot do the project.

7 MS. DOUGHMAN: I think - oh, go ahead, Sophia.

8 MS. SKODA: The only other thing I was going to add  
9 is, you know, in our industry we have had success with FOG  
10 and others, so there are folks that, actually at East Bay  
11 MUD also, piloted FOG to biodiesel, so taking the Fat, Oil  
12 and Grease material, which is primarily water and a small  
13 amount of oils and greases, so this is different than the  
14 actual fryer grease, so that is the separate material, that  
15 is inedible kitchen grease, as well, but that is actually  
16 more of a pure oil, whereas the fat, oil and grease will be  
17 primarily water with some oil and grease, so we have done  
18 some pilot scale work and we have worked with CARB, but  
19 looking at the emissions from the biodiesel that we have  
20 created, and looking at the economics of whether this is  
21 viable or not. But we have in our industry wonderful  
22 examples, like the City of Millbrae, who has been able to  
23 increase their energy generation by adding a little bit of  
24 FOG to the mix, which is one of the things that Ann was

1 discussing, you know, sort of improving their digestion,  
2 adding food for the bugs, they like that nice well-balanced  
3 mix of yummy things in their tummies, so, yeah, I do think  
4 that, as an industry, we have shown that it is possible to  
5 use a decentralized model, as well, where you have got a  
6 little bit of additional food, and again, it all depends on  
7 the circumstances.

8 MS. DOUGHMAN: Can you give me some idea of what you  
9 mean by a little bit? Is it 1 percent or -

10 MS. SKODA: I think in Millbrae's case, I think that  
11 they are not even getting one truck a day of fat, oil and  
12 grease, so maybe a couple thousand gallons a day of fat, oil  
13 and grease. As a percent, I am not sure what that is. I  
14 think in studies in other parts of the State, adding  
15 somewhere up to, you know - I am not sure, actually, what  
16 the percents are, so I am not going to speak to it.

17 MS. DOUGHMAN: All right, anyone else in the room  
18 that would like to speak? Go ahead.

19 MR. MENKE: John Menke from the State Water Board.  
20 I hope - this is a two-minute comment. When folks are  
21 looking at different facilities for doing these processes of  
22 digestion or composting or waste treatment and the like, it  
23 is really important to focus on mass balance. If you start  
24 out with the material and create it and end up with a solid

1 fraction that has beneficial use, you may end up with a  
2 liquid fraction that has residuals that are problematic. If  
3 you go to a landfill, a landfill is set up to receive waste  
4 and contain that waste, anything that goes in there can stay  
5 there, unless you want to send it out, like biologic  
6 material for a soil amendment. A sewage treatment plant,  
7 again, receives wastewater, they treat it, they have got a  
8 permit to dispose of the residuals, no problem. You create  
9 a centralized facility, take those same wastes in at that  
10 facility, if it does not have a method to dispose of the  
11 residuals, you have got a problem. So they talk about  
12 creating a centralized facility that would, let's say, take  
13 the manure from 10,000 cows, as well as food waste from a  
14 couple of small adjacent communities. If you have the waste  
15 from 10,000 cows, you need 2,000 acres of cropland to  
16 accommodate the nitrogen that remains in the water from that  
17 processing situation, and so it is just kind of a heads up  
18 for anybody dealing with these kinds of facilities,  
19 especially where we are talking co-digestion, combining  
20 waste, and the like. There are definite benefits to sewage  
21 treatment plants and landfills in that they have a process  
22 to dispose of waste; with a new site, you have got to  
23 address that issue.

24 MS. DOUGHMAN: Thank you. Let's see, last call for

1 comments not on the WebEx. Panelists? Okay, well, thank  
2 you everyone. Let's break for lunch and we will meet again  
3 at 1:45 to start with our Panel 3.

4 (Off the record at 12:45 p.m.)

5 (Back on the record at 1:50 p.m.)

6 MS. DOUGHMAN: I think we had better get started, we  
7 have two more panels this afternoon. And I want to make  
8 sure we have time for discussion. So our third panel for  
9 today is on the topic of increasing production of biogas in  
10 California for transportation and power production. And we  
11 have four questions for discussion; the first question is:  
12 What actions could agencies do to best address the following  
13 barriers to bringing new biogas production facilities to  
14 California? And we have listed the five barriers here that  
15 we discussed earlier this morning, 1) difficulties in  
16 obtaining reliable and affordable feedstock materials, 2)  
17 lack of commercialization of emerging technologies, 3) high  
18 cost of biogas clean-up equipment for pipeline injection and  
19 high cost of pipeline interconnection, 4) conflicted  
20 regulations, permitting issues due in part to a number of  
21 issues listed here, conflicting gas quality standards that  
22 constrain biogas development, and 5) difficulties in  
23 obtaining financing. The second question is: What biogas to  
24 electricity conversion or combustion technologies are

1 available to meet California's Air Quality Standards? Are  
2 these technologies commercially or economically viable? The  
3 third question: What indicators, such as cubic feet of gas,  
4 should be used to measure progress, bringing new biogas  
5 production facilities to California? And the last question:  
6 What statutory changes may be needed?

7           So what I would like to do is have each of the  
8 panelists introduce yourself, and then I would like you to  
9 give opening remarks, and then we will just have some  
10 discussion back and forth and open it up to public comment.  
11 So, Susan?

12           MS. PATTERSON: This is Susan Patterson, Gas  
13 Technology Institute.

14           MS. DOUGHMAN: Go ahead.

15           MS. KEMP: Kimberly Kemp with Pacific Gas and  
16 Electric.

17           MR. BEST: Kevin Best, Real Energy.

18           MR. WHITE: Chuck White with Waste Management,  
19 Director of Regulatory Affairs. Waste Management has a  
20 number of landfills and has extensive hauling operations.  
21 We handle about 20 percent of the solid waste between here  
22 and California.

23           MS. WRIGHT: Gillian Wright, Southern California Gas  
24 Company.

1 MS. DOUGHMAN: Okay, great. Susan, do you want to  
2 start with opening comments?

3 MS. PATTERSON: Sure. I just wanted to give you a  
4 two-second description of Gas Technology Institute, or GTI.  
5 We have been around for 65 years, we do contract research,  
6 program management, technical services, and education and  
7 training. We have an 18-acre campus near Chicago. We are a  
8 not-for-profit R&D company. And we have 28 specialized labs  
9 a staff of 250, of which two-thirds of those are scientists  
10 and engineers, PhD level. We have about 1,200 patents and  
11 nearly 500 products that we have licensed. Let's see, I  
12 wish that I had put up there two words instead of all of  
13 that stuff, but the two words that I would put up there are  
14 Renewable Gas.

15 So, in California, we see legislative and regulatory  
16 mandates as some of the key drivers for increasing the  
17 production of biomass and transportation power production,  
18 AB 32, the Low Carbon Fuel Standard, and biomethane comes  
19 out on the top of the heap there, the Governor's Executive  
20 Order that targets the use and production of biofuels and  
21 biopower in California, the renewable portfolio standard,  
22 and the petroleum reduction goals. Renewable Biogas is  
23 methane produced from digesters, animal manure, wastewater  
24 treatment facilities, methane from landfills, and biogas

1 produced from thermo-chemical processes like gasification,  
2 using renewable feedstocks, including forest residues and  
3 agricultural wastes. Renewable Biogas - here is a key - can  
4 be cleaned up and placed in the natural gas pipeline system.  
5 It is being done throughout the country, except in  
6 California, and the technology exists to clean up the gas.  
7 The rationale for renewable biogas: it could use the  
8 existing natural gas infrastructure, natural gas is 25  
9 percent of the U.S. primary energy supply and much greater  
10 than that here in California, and it has a very extensive  
11 and efficient energy distribution infrastructure already in  
12 place. Value: there is an opportunity for substantial  
13 carbon reductions nationally - 124 million metric tons  
14 annually equals 24.8 million cars off the road; it is the  
15 most efficient conversion option for renewable biomass to  
16 fungible energy product, up to 70 percent conversion  
17 efficiencies. It enhances the value of forest and  
18 agricultural byproducts by providing additional markets. It  
19 helps to reduce nutrient runoff issues surrounding manure  
20 management, it is a renewable option for end-use natural gas  
21 applications, and, again, it is the lowest carbon fuel for  
22 transportation. Renewable biogas has the potential of 83  
23 billion cubic feet per year, so it equals - that is about 6  
24 million tons of CO<sub>2</sub> avoided per year, and about 3 percent of

1 California's natural gas use. But there are some barriers  
2 to producing pipeline quality renewable biogas, and we have  
3 heard people talk about this already today on almost every  
4 panel, multiple and duplicative permitting constraints. In  
5 the case of biogas, it is an unfair playing field. All  
6 renewable tax incentives are not equal. And, as an example,  
7 I can tell you that the existing biofuel incentives per  
8 million BTU are \$5.92 for ethanol, \$8.43 for biodiesel, and  
9 \$13.29 for cellulosic ethanol, and there is nothing for  
10 renewable biogas. And I will tell you in a second about  
11 some legislation that I will ask you all to support that  
12 would provide a \$4.27 per million BTU renewable gas  
13 incentive.

14           There are various State and Federal feedstock  
15 definitions, few State and no Federal rules allowing virtual  
16 transmission of renewable biogas through the pipeline system  
17 to meet State renewable energy mandates like the RPS here,  
18 and renewable biogas is not incentivized like renewable  
19 electrons or liquid transportation fuels. And considering  
20 once in the pipeline system, biogas is available for almost  
21 all energy applications, including residential, commercial,  
22 industrial, transportation, and electric power production.  
23 So, some considerations that - some things we would like you  
24 to consider, then, for increasing the production of biofuels

1 is to amend the restrictions of an old old bill by  
2 Assemblyman Tom Hayden from 1988, that would amend the  
3 restrictions in AB 4037, that would allow landfill gas to be  
4 conditioned and placed into the pipeline. We have just  
5 heard that there was a bill to do that, and that was AB  
6 2562, Fuentes, a bill to do exactly that, and it was dropped  
7 in the Assembly in April. So right now, there is nothing -  
8 there is no legislation going forward to help amend an  
9 outdated restriction. And, again, there are currently 26  
10 projects nationally where landfill gas is cleaned and  
11 conditioned and placed into the gas pipeline. The other, I  
12 would encourage you all to support the Federal tax  
13 incentives for the production of renewable biogas, again,  
14 \$4.27 per million BTU. This is House Resolution 1158 and  
15 Senate Bill 306, so contact your elected officials back in  
16 Washington D.C. and let them know that you support these  
17 bills. We hear that, hopefully, if there is an Energy Bill  
18 - they are waiting for a vehicle to get this moving, and it  
19 should be included in the Energy Bill if there is one this  
20 year, and it has got a lot of bipartisan support, so far,  
21 where GTI has been trying to head up that lobbying effort,  
22 and so I encourage you to call your officials. So, in  
23 summary, biogas, renewable gas, other than wind and solar,  
24 it may be the lowest carbon renewable fuel available today.

1 Again, it is referenced in the 2009 Low Carbon Fuel Standard  
2 Report, which determined that it is the lowest carbon  
3 transportation fuel available. It needs a policy that  
4 ensures the virtual movement through the pipeline system for  
5 renewable methane molecule, just like the virtual movement  
6 for a renewable electron, is allowed to assist in meeting  
7 Federal and State renewable energy goals, and lastly, that  
8 it can have a major role in reducing carbon emissions and  
9 meeting renewable goals if incentives compared to those for  
10 other renewable sources are enacted. Thank you.

11 MS. DOUGHMAN: Kimberly?

12 MS. KEMP: Kim or Kimberly is fine, thank you. My  
13 remarks are somewhat more informal, but just to talk a  
14 little bit about PG&E's involvement in biogas or renewable  
15 gas development over the past few years. PG&E has had a  
16 presence in the industry, trying to sort of increase the  
17 understanding of what kind of concerns the pipeline would  
18 have with gas that would be introduced into the system.  
19 Myself, I work in the area of gas quality, I am a Gas  
20 Quality Engineer for PG&E. PG&E in 2008 was able to  
21 successfully interconnect with a biogas project; the project  
22 utilizes dairy waste in an anaerobic digester and  
23 interconnects with our pipeline, one of our local  
24 transmission lines, and the process of getting that

1 interconnection successfully operating was probably, I would  
2 say, a year and a half to two-year process. And one of the  
3 biggest resource requirements during that two years was the  
4 amount of money and attention that was paid to gas quality  
5 requirements, gas quality concerns. And in the end,  
6 obviously we were able to successfully establish the  
7 interconnection, which was good news, and we did a lot of  
8 gas quality testing during the process, and certainly  
9 learned a lot. PG&E participated in a couple different  
10 collaborative studies and also conducted a lot of gas  
11 quality testing on our own for this one particular project.  
12 And in the end, though, where I think the testing that has  
13 been done falls short is that there is really not a good  
14 predictive formula that can be used to start to avoid the  
15 need to conduct some of the testing that we had to conduct,  
16 and that I think a lot of utilities are saying, "Well,  
17 here's the laundry list of tests that we would need to run  
18 on this gas before we would allow it to flow into our  
19 pipeline." So I see it as almost like a next step in  
20 research where you start to look at, okay, for a given  
21 feedstock, we know that this is a certain set of parameters  
22 that would need to be tested for, or controlled, or  
23 scrubbed, you know, the scrubbing equipment would have to  
24 target those particular compounds because of inclusions in

1 the feedstock. So that is really kind of the next step. I  
2 think most of the testing that has been done so far stops  
3 short of that, and it has been, as I said, kind of a blind  
4 laundry list of analyses that are done and for utilities  
5 like PG&E to sort of satisfy ourselves that we have  
6 protected our pipeline integrity, and protected customer  
7 safety, and we have given as much information to the project  
8 developers as possible so that they can move forward with  
9 their project. So, in the future, I think a much better  
10 arrangement will be one that categorizes projects and has a  
11 very limited, or at least a much more limited set of gas  
12 quality requirements for that project to be applied to a  
13 certain project.

14 MS. DOUGHMAN: Great, thank you. Kevin.

15 MR. BEST: Good afternoon. Kevin Best, Real Energy.  
16 So I just took these questions and kind of answered them  
17 right down the line. Should I just start with 1A and go all  
18 the way through?

19 MS. DOUGHMAN: Sure. Maybe you can emphasize the  
20 points you want to make sure that we keep in mind?

21 MR. BEST: Okay, very good. So Real Energy, by way  
22 of background, we are a small developer. We build, own and  
23 operate combined power plants, mostly in California, New  
24 York, and New Jersey. We have built probably more than any

1 other developer to date, but all in, it is about 43  
2 interconnections, so not a large company by any stretch. We  
3 have pioneered a lot of interconnection techniques and  
4 standardization processes, along with Energy Commission's  
5 help over the years, under Rule 21, and some of the comments  
6 I will be making will indicate the success of that program  
7 and how that might help this process.

8           So the first question speaks to feedstocks. We are,  
9 of course, looking for reliable and affordable feedstocks.  
10 We look at concentrated organics in the state, being located  
11 at dairies, sewer treatment plants, food processing and Ag  
12 processing facilities, and MSW facilities. We kind of  
13 define them as either bankable or opportunistic and so the  
14 bankable feedstocks are coming from credit sources with long  
15 term contracts. We know they will be there for a long  
16 period of time. The opportunistic bar, you know, the fish  
17 farmer or the short term seasonal Ag waste, or food waste,  
18 and both are good sources and resources, and we are trying  
19 to merge the two and use them both in a single facility, but  
20 the bankable feedstocks are most important so that we can  
21 finance the facilities. The difficulty comes when you ask a  
22 bank with no money to finance a project based on a feedstock  
23 generator that has no certainty or credit history. Real  
24 Energy has attempted to solve through a business model, we

1 are working through CPCFA to attract private investors to  
2 buy long term bonds, backed by existing long term municipal  
3 MSW contracts with private transfer stations. So this bond  
4 financing has been successful for us in Oregon, we hope to  
5 have success here in California, starting with 30 or 40  
6 small private transfer stations owned by 10 or less small  
7 private companies. We think that an existing plant, once it  
8 is up and running, can then easily accept material that may  
9 be better than MSW in terms of their nitrogen content or,  
10 secondarily, their gas content, from non-credit feedstock  
11 providers, by bumping a little MSW waste until the extension  
12 is initialized or approved, based on the balance sheets of  
13 that facility. 1B, I would rephrase a little bit, I do not  
14 think we are suffering a lack of commercialization, biogas  
15 developments are pretty prolific now in almost every major  
16 nation, we are kind of lagging; until now, the lack of  
17 vendors in the U.S. with experience, willing to give a tight  
18 performance guarantee with liquidated damages against their  
19 significant balance sheet, we now have one in Ros Roca, we  
20 must have two or three of these, and then I think we will be  
21 able to see every developer move forward, but the banks  
22 require this and it is tougher now than ever. This goes  
23 beyond digestion, digestion is just a small part of a biogas  
24 plant, but it goes to our entire integrated design, from

1 optical sorting, to mechanical pretreatment, biological  
2 treatment, pasteurization, nitrogen stripping, water  
3 treatment, the gas upgrading the injection, and then the  
4 filling station for the vehicles. We also seek guarantees  
5 from the general contractor, so they have to have excellent  
6 bonding capacity and the filling station operator, as well.  
7 1C, the biogas clean-up requires scale, so high cost is  
8 really just relative to small systems. If you try to build  
9 a \$5 or \$10 million plant, you will think that equipment  
10 cost is high, but if you are building a \$40 million plant,  
11 then you can fully utilize the capacity, it is the same for  
12 pipeline interconnection. The cost of the equipment has  
13 come down now significantly with a large number of systems  
14 injecting in the pipelines, and we have seen competency go  
15 up and gas quality go up, as well, with emissions coming  
16 down with the new water scrubbing technologies. Of the 40  
17 gas companies represented at Real Energy Biogas Injection  
18 Roundtable in 2007, I think all but PG&E now allow for  
19 access for mixed feedstock gases, so we have made a lot of  
20 progress along the way. 1D, like Pat McLafferty, we are  
21 choosing to take the path of least resistance, seeking to  
22 site at transfer stations where we think permitting is going  
23 to be a lot easier for our plants. We are participating in  
24 the programmatic EIRs as we do have certain of those sites

1 that we think have credit biomass providers. The Real  
2 Energy design has only favorable environmental impact, near  
3 zero emission, we do no combustion, so we are more worried  
4 about bankability than permit ability. Regarding ratepayer  
5 subsidy of interconnection, I am not sure why the ratepayer  
6 subsidizes wind and solar in terms of standby power or  
7 excess capacity, you know, based on the intermittency of  
8 those technologies, we are base load, so it is nice to throw  
9 darts at those other technologies. They are subsidized in  
10 terms of transmission extension and bar support and many  
11 other ways. These technologies have large hidden costs.  
12 Biogas, I do not think we expect interconnection subsidies,  
13 we can pay our own freight. In our experience, utilities  
14 will happily interconnect if the applications are thoughtful  
15 and if they are complete, so most of the dialogue over the  
16 last decade has been around, you know, incomplete, and not  
17 thoughtful applications. Rule 21 process, you know, was  
18 painful. I think we attended 100 and some odd meetings, but  
19 CEC sponsored that, made a clear level playing field for  
20 discussion, and at the end, you know, it really was not an  
21 issue, we were all friends, and we can interconnect easily  
22 and happily, so I think maybe that process will be required  
23 here. Rule 21 was only for inside the fence facilities, so  
24 these facilities will require something a little bit

1 different than Rule 21. We even integrated micro-grids in  
2 California, two of them legally, and we have done several  
3 network interconnection systems where PG&E others thought it  
4 could never be done. So we are pretty comfortable with the  
5 process you set up before, maybe, if there is a need for  
6 that. Gas and electric interconnection applies, as well.  
7 It may be that, for the gas side, we may need some sort of  
8 neutral playing field. 1E, for vehicle fueling, we need  
9 pipeline quality gas, you know, directly fed into the  
10 vehicles, which means you have got a lot of CNG vehicles  
11 near your organic waste stream, that fortunately happens in  
12 a transfer station quite often, but it is not going to be  
13 the case for all organic waste streams, so we need to see  
14 directed biogas as a physical reality, it is a regulatory  
15 reality now, thanks to the PUC, but we will need to wield  
16 our biogas directly through the public grid, to the CNG, LNG  
17 or Hydrogen stations. We have kind of our own internal,  
18 informal loading order at Real Energy for biomethane, we  
19 like to see our customers prioritize first to renewable  
20 hydrogen, second to CNG, then LNG, then CHP, and then a very  
21 low heat rate combined heat and power plant, and at that  
22 point, I do not think we will have any biogas left, it is a  
23 pretty high demand. Several years ago at this biogas  
24 roundtable in Napa, I put up the European Union's

1 specification for biogas. I gave the gas companies all day  
2 to adopt it. They laughed, but now, after spending millions  
3 of dollars on consultants, and several years gone by, they  
4 pretty much have all come around, except PG&E. You know, I  
5 think we will see PG&E come around to mixed feedstock  
6 biogas, it is very clean, it is done all over the world for  
7 many many years, and so today we just avoid PG&E service  
8 territory unless we have an opportunity for CHP within a  
9 mile or two. We do not have enough CNG vehicles to take all  
10 the gas today, there are 10 million CNG vehicles existing.  
11 We have about 100,000 of them in North America, that is  
12 changing very quickly, so, as PG&E service territory adopt  
13 CNG vehicles, I think there will be more biogas plants. On  
14 Item 1F, I discussed a little bit earlier, but we must have  
15 bankable feedstocks, vendors, contractors, and then  
16 fertilizer and power off takers, kind of, in that order.  
17 The recent biogas RFPs that we have seen on the street have  
18 required five-year USA experience, well, there are no  
19 bankable vendors with experience, guarantees against their  
20 balance sheet for performance in these technologies, I mean,  
21 we just do not have them in the U.S. today. So question 2,  
22 there are kind of three technologies that are available, in  
23 our opinion, and that includes biogas to pipeline injection,  
24 there are endless consumers in that case, the on-site

1 technologies would include the Ingersoll-Rand 250, we love  
2 that unit, just installed several of them, we think they are  
3 clean, the solar turbine MERC-50 by Caterpillar, you know,  
4 we all spent a lot of money on that machine to develop it,  
5 and we would love to see it jump off the shelf. It looks  
6 pretty sitting there, but it needs to get in the field and  
7 used. And this is a 4.7 megawatt kind of a micro turbine on  
8 steroids, very very clean, very flat efficiency curve  
9 through many, you know, from 2-4.5 megawatts. We think that  
10 is a machine that really has a place in this sector. These  
11 are economically viable only if they are PURPA-qualified,  
12 which was discussed this morning. We have to be able to use  
13 that waste cooling or waste heat. It is difficult with the  
14 250, as most of the heat is going to go to cool the  
15 turbines, so the turbine thinks it is 60 degrees, you know,  
16 year-round, in the Central Valley, and it is difficult with  
17 the MERC 50, as it is 2 megawatts of heat, and not a lot of  
18 people need that kind of heat where you find the  
19 concentrated organic waste stream, so PURPA really trips us  
20 up as a developer. But we have several occasions where this  
21 works, particularly in the PG&E service territory where we  
22 have no choice, so we are citing where we find organic waste  
23 next to very large industrial facilities, chemical or other  
24 type of facilities, that is a key location for us. Question

1 3, yeah, what indicators should be used? You know, I do not  
2 know. You are the Energy Commission, so you care about the  
3 energy. Biogas is a small part of the benefit of a biogas  
4 plant. We look at biogas plants as, you know, either in-  
5 city, or on farm. And on farm, you may see 35 percent of  
6 the benefit as measured by revenue from biogas, but half of  
7 the benefit is nitrogen, and the other 15 percent is  
8 landfill diversion from imported fats, oil and grease, or  
9 other waste streams. So, in the city, it is much different,  
10 right? In the city, it is 15 percent biogas, as measured by  
11 revenue, 15 percent nitrogen, those are usually pretty  
12 close, 25 percent landfill diversion, and then 45 percent  
13 RDF and metal and other materials mined from the materials  
14 that we are sequestering. So I think that sums up my  
15 comments.

16 MS. DOUGMAN: Okay, thank you. Chuck.

17 MR. WHITE: Chuck White with Waste Management.  
18 Waste Management, as I indicated, handles about 20 percent  
19 of the waste stream in California, and municipal solid waste  
20 stream. Our focus on energy historically has been on  
21 landfill gas to energy engines, but also we are a whole  
22 owner of Wheelabrator technologies, that is a large waste  
23 energy company back in the east and the southeast, and  
24 mostly municipal solid waste energy back there. I am not

1 really going to talk about that. I think Phil Reese covered  
2 many of our concerns that are going forward on that, that  
3 particular kind of technology, but I will focus mostly on  
4 gas that can be produced from biomass. Biomethane from  
5 waste, there is about 20-30 million tons of organic waste  
6 that is disposed in California each year, depending on the  
7 economy. And the focus has been, as I said, on landfill gas  
8 to energy engines. But we only have about, of 12 landfills,  
9 about four landfills now that really have landfill gas to  
10 energy engines, it has been very difficult to site landfill  
11 gas to energy engines, particularly in three Air Districts,  
12 the South Coast, the Bay Area, and the San Joaquin Valley.  
13 And we have real problems with the criteria pollutant  
14 controls. Until recently, we were not even putting any new  
15 facilities in, in California because it was much easier to  
16 site landfill gas to energy engines in other states that do  
17 not have the same kind of air pollution and criteria air  
18 pollutant control conditions that you do have here in  
19 California. Recently, we worked out a deal with the Bay  
20 Area AQMD on two pollutants of concern, they are NO<sub>x</sub> and CO,  
21 they are not in non-attainment for CO, so we worked out an  
22 arrangement for our engines to allow the CO to float up and  
23 to be able to rebuild the engine and have it come back down  
24 again, and once that ability to allow some flexibility in

1 the CO emissions, we are now putting landfill gas to energy  
2 engines in three or four of our Bay Area landfills that did  
3 not have such engines before. So that is really helping the  
4 Bay Area, but we still have problems in the South Coast, in  
5 the San Joaquin, we are just simply not proposing to put any  
6 new engines there, and, in fact, the South Coast has a rule  
7 on the books right now, Rule 1110.2, that they adopted about  
8 a year ago, and it goes into full effect in 2012, that could  
9 very well shut down all the existing landfill gas to energy  
10 engines. The good news, if there is any, is that they are  
11 doing a cost-effective analysis, it was supposed to be done  
12 by this next month, July, but we are working cooperatively  
13 on a NOx tech technology for engines at our Bradley landfill,  
14 but the results and the reliability of those treatment  
15 scrubbing process is to reduce the criteria pollutant  
16 emissions. It still really is not done yet, so we are  
17 hoping that the South Coast AQMD will postpone the  
18 implementation of their hard and fast criteria, the  
19 standards for NO<sub>x</sub> and CO, and allow us to complete the work  
20 to determine if the cost effectiveness technology exists for  
21 the landfill gas to energy engines.

22           Recently, we began to look more at trying to put  
23 alternatives to generate electricity for our landfill gas  
24 and really looking at transportation fuels, and if I could -

1 I have a slide up there now - one is, on the left is our  
2 waste management gas to liquids technology, which we are  
3 using, which is basically a Fisher-Tropsch process to  
4 convert landfill gas into diesel-type fuels, that could be  
5 used in our diesel fleet. We are not using that in  
6 California yet, but we are operating a plant in Oklahoma and  
7 we may very well see if we can site one of these kinds of  
8 operations. On the right, it is much more well known here  
9 in California, we have the first in the world large-scale  
10 commercial landfill gas to LNG, we partnered with Linde and  
11 the Gas Technology Institute that Susan represents, to come  
12 up with what we think is really world-class technology to  
13 treat the landfill gas so that it can be used as LNG. One  
14 of the major costs of this is that liquefaction process,  
15 which we hope to be able to avoid, if we can ever get the  
16 treated gas introduced into a pipeline to use as CNG, and be  
17 able to wheel it around through the pipeline to our various  
18 locations. We are really proud of this plant, it is right  
19 now producing the lowest carbon fuel in California, 13,000  
20 gallons per day. We are working with the Energy Commission  
21 to see if we can use the AB 118 process to build a second  
22 plant, an even better plant, a little larger plant down at  
23 our Simi Valley Landfill in Southern California, and so we  
24 will be producing on the order of 30,000 gallons of really

1 the lowest carbon fuel available in California, directly  
2 from landfill gas. But we are not leaving it there, I mean,  
3 we would like to be able to, as I say, put it into a  
4 pipeline, we did work on some legislation earlier this year  
5 to see if we could try to get that back. The real problem  
6 is not so much the statute, but it is really the current  
7 CPUC rules for both SEMPRA and PG&E, that absolutely is an  
8 absolute ban on any landfill gas being introduced into a  
9 pipeline. Is it yours, Rule 30? Or is it PG&E? Yours is  
10 Rule 30, yours is Rule 21. And so we would like to get that  
11 absolute ban lifted; we understand the concerns of the  
12 utilities, they are worried about liability, they are  
13 worried about damage to their pipeline, they are worried  
14 about transmitting a gas that is going to be inappropriate.  
15 So we are working with the Gas Technology Institute, I know  
16 they are, as well, we hope to be able to have some results  
17 that we can all come together on at some point in time in  
18 the very near future to be able to convince the CPUC and the  
19 utilities that, in fact, this gas can be treated reliably,  
20 it can be monitored, it can be tested, and can in fact be  
21 safely introduced into a pipeline. You avoid that  
22 liquefaction expense energy and it is a much more reliable  
23 way to transport material to your end use. Of course, you  
24 have to have the CNG vehicle platform in order to do that.

1 Waste Management has about 700 natural gas trucks - about  
2 800 natural gas trucks now in California, about 50 percent  
3 of which are LNG and about 50 percent of which are CNG. We  
4 actually prefer the CNG platform over the long run for a  
5 whole variety of different reasons. We at Waste Management  
6 are totally committed to converting our diesel fleet, for  
7 which there is about 3,500 total heavy-duty vehicles,  
8 convert them all to a natural gas, or biogas, down the road,  
9 and do not ask me for a timeframe to do that, it all has to  
10 do with available capital expense and conversion out the old  
11 vehicles into new. But we are certainly committed to  
12 heading in that direction.

13           Beyond just simply capturing landfill gas, next  
14 slide, Waste Management is really looking at a way to  
15 intercept the municipal solid waste before it goes into a  
16 landfill because there is a lot of diversion requirements  
17 here in California, and those are going to get more  
18 stringent as time goes on, not less. And so, for example,  
19 we have invested in Harvest Power, which is kind of a  
20 composting operation where you both produce anaerobic  
21 digested organic waste to produce methane, and then can  
22 actually produce a useable compost product. We are also  
23 exploring the possibility of these RACs or Renewable  
24 Anaerobic Composters, they are like mini landfill cells, but

1 they are renewable landfill cells, you fill those cells up  
2 with waste, and then cook them and generate a gas, and then  
3 pull out a usable compost product. All of these  
4 technologies require pre-processing of the waste to remove  
5 the contaminants, and so we are looking to see if we can get  
6 some of these sited here in California. We have got one  
7 planned for the RACs down in Southern California, possibly a  
8 siting of a harvest power or similar kind of facility in the  
9 Bay Area in the next couple of years to really see if we can  
10 make those a real go of it.

11           So in terms of the regulatory barriers, you know, in  
12 terms of landfill gas to energy, the Rule 1110 pointed to in  
13 the South Coast AQMD is really the problem. We hope - we  
14 want to work with the South Coast, we want to see if we can  
15 develop a reasonable standard that are cost-effective and  
16 reliable. One possibility of the compliance is, instead of  
17 building landfill gas to energy engines, we actually convert  
18 the landfill gas to fuels, and the combustion does not occur  
19 at the landfill, the combustion occurs in the vehicle and it  
20 displaces what otherwise would have been a combustion of  
21 fossil fuels, but that is going to take several years to  
22 work that out, rather than just simply by Year 2012, so we  
23 want to work with the South Coast AQMD to try to find a  
24 better solution to Rule 1110.2, than what is currently on

1 the books.

2           The CPUC Rules prohibited landfill gas in the  
3 pipeline is number two. Number three is the issue of siting  
4 and permitting these new kinds of facilities. There are a  
5 couple of great projects underway, one is with CARB, it is  
6 their Bio-Refinery Guidance document to help give some  
7 guidance on what are the air pollution standards applicable  
8 to bio-refineries. We are hoping that comes out with some  
9 good guidance for us. Also, Cal Recycle, which used to be  
10 the Integrated Waste Management Board, is working on a  
11 programmatic EIR for anaerobic digestion facilities. These  
12 kinds of government actions to facilitate the permitting and  
13 siting of projects is really absolutely essential. The  
14 fourth barrier is on high temperature types of conversion  
15 technologies. Right now, you just simply cannot do it in  
16 California because there is a whole myriad of opposition to  
17 it. Waste Management does not plan to pursue any high  
18 temperature stuff - in California - we are pursuing it  
19 elsewhere in the nation because there is such opposition and  
20 concerns expressed by various parties to high temperature  
21 technologies. But there needs to be a way to be able to  
22 bring some of these high temperature technologies into  
23 California, things like gasification, things like plasma  
24 processes down the road, but they are very expensive.

1           In terms of financing, that is a real problem for  
2 these facilities. The low hanging fruit right now is  
3 landfill gas because the gas is already being generated, it  
4 just simply has to be cleaned and scrubbed up. Some of  
5 these other technologies like anaerobic digestion  
6 technologies where you have to build a very capital  
7 intensive type of unit, it is going to be much more  
8 expensive. The problem we see is that the Low Carbon Fuel  
9 Standard really does not kick in until about 2015, it is  
10 only for transportation fuels. The cap-and-trade program  
11 under greenhouse gases, that is really iffy right now, you  
12 know, I would not invest a dime right now in betting that  
13 the cap-and-trade program is going to exist, but if it were  
14 to come about, you would be able to generate additional  
15 revenue source from selling tradable credits under that cap-  
16 and-trade, things for like bioenergy type of facilities.  
17 And then, also, the renewable electricity standard which  
18 CARB is working with, but that might get changed around, but  
19 the whole idea of having a 33 percent standard of renewable  
20 energy, of which bioenergy would play a part is so  
21 important, but there cannot be any kind of cap on the cost,  
22 the price that you would pay for energy generated from  
23 renewable electricity sources like biogas, like biomethane,  
24 there has to be able to float to whatever the market will

1 bear to bring these kinds of technologies online to meet  
2 that 33 percent standard.

3           And, really, the good news is there are some  
4 bridging financing right now available primarily from the  
5 Energy Commission, AB 118 provides a funding source that  
6 runs through about, what, 2016 or so, and that is going to  
7 be really helpful to provide funding for some of these  
8 technologies to come online before these other programs like  
9 the LCFS, cap-and-trade, renewable electricity standard,  
10 really kick in. There is also a brand new program I just  
11 found out about this past, earlier this year in the  
12 Legislature, SB 71, the CAEATFA Board is going to be able to  
13 give you complete waiver of sales and use tax for production  
14 of bioenergy type things, primarily biofuels. So if you are  
15 on a bill, a \$10 million planned, and \$5 million of that is  
16 taxable items, you will be able to get about - what - five  
17 or 10 percent of it, about a million dollars worth of  
18 savings potentially in sales and use tax for a \$10 million  
19 capital expenditure on taxable items and goods.

20           So these are all really helpful programs that need  
21 to be pieced together to make sure that we can put some of  
22 these projects together. That is pretty much my cut on it,  
23 and I would answer your questions directly, but I kind of  
24 weaved around some of the issues that really seemed to be

1 front and center on our plate. Thank you very much.

2 MS. DOUGHMAN: Okay, thank you. Gillian.

3 MS. WRIGHT: So the thing about going last is, what  
4 has not already been said? So I am Gillian Wright, I am  
5 Director of Commercial and Industrial Services for Southern  
6 California Gas Company. Southern California Gas Company is  
7 the largest gas local distribution company in the United  
8 States, or the fifth largest in the world, we serve 6  
9 million residential customers, over 200,000 business  
10 customers in Southern California, and our territory extends  
11 from about Visalia south to the Mexican border, and we  
12 provide wholesale service to our sister company, San Diego  
13 Gas & Electric. So we are very interested in gas is the  
14 basic point. You know, I really want to support and echo, I  
15 mean, essentially everything, though the utilities are very  
16 very benevolent and supportive of the development of  
17 landfill gas. I think that we are really in agreement with  
18 all the prior speakers, both on the policy priorities and  
19 the benefits of biomethane, so I am not going to duplicate  
20 what they have said. I guess I want to just highlight a  
21 couple of elements, you know, I think what is interesting  
22 and exciting in biomethane is that it is really adapting  
23 already commercially available technologies, technologies  
24 that are pretty well established and pretty well proven in

1 the natural gas processing industry and other industries,  
2 and so some of the major challenge in talking about scale is  
3 trying to miniaturize the process, the equipment, and  
4 similarly for us, our interconnection process is fairly well  
5 standardized and established, but it was designed for  
6 natural gas production, which happens on a much larger scale  
7 and has a little bit different business character or  
8 business model than I think we expected of biogas. So we  
9 are really in the process of adapting and trying to adapt  
10 and establish an appropriate standard that fits biogas.

11 We really see biomethane as a critical resource to  
12 develop. We see that it is a really valuable element in a  
13 portfolio of not just renewable energy, but energy across  
14 the board, because it is interchangeable with natural gas.  
15 And the flexibility and reliability, interchangeability of  
16 existing infrastructure for natural gas just gives you a lot  
17 to leverage for biomethane as a resource, and that is why we  
18 are very interested in seeing pipeline injection of  
19 biomethane developed.

20 On the topic of gas quality and landfill gas, we  
21 actually are one of the utilities that has released a  
22 guidance document in September, allowing - setting testing  
23 requirements and constituent standards for biogas from any  
24 feedstock, except landfill, although we are participating in

1 the GTI's study on landfill gas and landfill gas quality.  
2 But the key concern on landfill gas is simply the toxics,  
3 and being sure, confident of the technology and reliability  
4 of the technology to remove toxics. I will say,  
5 technologically, we are pretty confident that that  
6 technology exists, but we need to establish a workable  
7 standard and one where we are not going to be placed in the  
8 position of having to accept gas that we cannot verify its  
9 quality and safety, and particularly when you are talking  
10 about toxics, it is just very important that that gas not  
11 come into the pipeline system in the first place. But I  
12 think we are pretty confident that we can reach a workable  
13 resolution that will allow us to be able to, once again,  
14 accept landfill gas into our system and we are hopeful that  
15 we will reach that fairly soon.

16 MR. WHITE: As are we.

17 MS. WRIGHT: Our guidance document also allows  
18 interconnection with either our transmission or distribution  
19 system, and we really designed it to be comprehensive, to  
20 not limit feedstock, and to not limit interconnection  
21 points, to give the most flexibility and really trying to  
22 react to and adapt to the small-scale and distributed nature  
23 of biomethane sources, to be able to - I am sorry, that is  
24 my phone, I forgot to set it on vibrate. And our goal

1 really would be, and I think our goal is in line with what  
2 we heard from some of the power developers this morning, is  
3 to really be able to standardize, streamline, and adapt, to  
4 really make a process that fits the nature of the suppliers,  
5 so they are small, they are not in the energy business, they  
6 want a simple process, they want a predictable process, they  
7 want a certain process, they want limited up-front costs,  
8 they want known costs, and those are all things that we are  
9 working on. Frankly, one of our hurdles is we have got to  
10 get somebody connected to us so that we can shake out all of  
11 the details and really work that process out, as Mr. Best  
12 was discussing your experience.

13           So some of the things that we are doing. We are  
14 actually in the process of bringing on line a demonstration  
15 project at the Escondido Wastewater Treatment Plant in San  
16 Diego, our sister utility's territory, and the purpose of  
17 that plan is really to have a gas clean-up system in  
18 operation, to get the operational data and to really have  
19 the experience of bidding it, constructing it, operating it,  
20 seeing how it performs, see how it varies in its  
21 performance, and use that to refine our own quality  
22 standards. Hopefully - and we set our quality standards as  
23 quite comprehensive and quite conservative, purposely, and  
24 the reason for that is that we want the movement in that

1 standard to be moving towards simplifying and easing, rather  
2 than tightening and complicating. Again, moving towards  
3 predictability and moving from more difficult to easier,  
4 rather than guessing it will work and then finding that it  
5 does not.

6           We are also actively pursuing investments in biogas  
7 clean-up. We think that we actually offer a comparative  
8 advantage and some expertise in operating biogas clean-up  
9 systems so that, again, looking at the suppliers of the  
10 sources for biogas, they are not in the energy business, the  
11 source, the valuable energy source is waste product that is  
12 a sideline to their core function, even for wastewater  
13 treatment plants. And so we see that there is a real value  
14 to someone else taking the lead and actually handling that  
15 process.

16           I wanted to talk just a little bit in terms of  
17 barriers and things that I would agree with you, there is  
18 the general barriers of complicating overlapping permitting,  
19 not designed for this application, we see that as well.  
20 Another barrier that we did not necessarily anticipate, but  
21 have encountered with biomethane is the requirement to  
22 actually sell the resource. If the supplier does not have  
23 their own use, or does not have a high value use, and right  
24 now the highest value use for biomethane is for renewable

1 electricity generation. We find that the potential  
2 suppliers are very intimidated by the process of even  
3 contemplating how they would go about selling their biogas  
4 to an electric utility, or to an electric generator. And I  
5 am sure it will not come as a surprise to the panelists that  
6 reassuring them that all they have to do is bid into the  
7 annual RFPs that the electric utilities put out for  
8 renewable energy, is not reassuring. I think that is sort  
9 of an unanticipated barrier that we are also contemplating,  
10 what is our ability to facilitate because I think there is a  
11 real benefit and value - we believe there is a real benefit  
12 and value in pipeline biomethane, also in avoiding adding  
13 additional air sources. To the extent that you can push  
14 biogas and biomethane development towards displacing natural  
15 gas and existing sources, rather than adding additional  
16 sources. I mean, frankly, self-interested, I represent the  
17 commercial and industrial customers that have to flog their  
18 way through the permitting process and the compliance  
19 process, and the fewer people they have to compete with to  
20 do that, the better it is for them. So I think that getting  
21 over the hurdle of making that transaction process simple,  
22 and I think some of the ideas discussed, like a floor price  
23 for energy, a known price that a standard contract or a  
24 standard offer sales contract for biomethane would really

1 facilitate the development, particularly of some of the  
2 smaller sources.

3 MS. DOUGHMAN: Okay, thank you. A lot of  
4 interesting ideas, very exciting ideas. I am really happy,  
5 actually throughout the day, so far, we have seen a lot of  
6 good ideas and a lot of cross fertilization, I think. So  
7 let's see, the next step, then, would be for panelists to  
8 respond to comments that other panelists have raised.  
9 Chuck?

10 MR. WHITE: Yeah. I wanted to follow-up with  
11 Gillian if I could. I really am so glad to hear that you  
12 and Sempra and Standard Gas and Electric are interested in  
13 encouraging landfill gas, and I know you are anyways, we  
14 have been talking for some time, but you mentioned - you  
15 focused on toxics, I guess I have got two questions. Is it  
16 just the toxics? Or is there also the other types of like  
17 moisture, for example, that could deteriorate pipelines, or  
18 other types of things like siloxanes that are not really  
19 toxic, but they can leave a dust on the burners of people's  
20 homes if they do this. Is that also a concern? And,  
21 second, what is the standard for toxics, do you think, that  
22 would be acceptable for the utilities to accept the landfill  
23 gas? Because right now, with natural gas has got benzene in  
24 it, which is a known carcinogen, which is toxic, so are you

1 looking for the reference that the overall biomethane cannot  
2 be any more toxic than natural gas you are already  
3 receiving? Or are you going to be looking for some other  
4 higher standard than that? I am just curious if the  
5 utilities have given any thought to, you know, what is the  
6 appropriate level. Because, presumably it is not going to  
7 be zero toxic, it is just not going to be perhaps anymore  
8 toxic than what you are already handling in your pipelines.

9 MS. WRIGHT: Well, I am sure Kimberly will have some  
10 more informed things to say for PG&E, so I will qualify that  
11 I am not our gas quality engineer, and I would defer to her.  
12 But I can tell you generally, just to clarify, I think it is  
13 a good point. We are, of course, concerned about a range of  
14 constituents. Many - the moisture and those types of  
15 constituents, the sulfur, and some other contaminants, those  
16 are covered because they also occur in natural gas, they are  
17 covered in our Standard Rule 30. And then siloxanes and  
18 also some of the other VOCs and toxic compounds are covered  
19 in our biomethane guidance document, those typically occur  
20 in other sources of biogas, and we are concerned about  
21 those. Landfill gas has its own political history. And the  
22 political history is around health hazards relating to toxic  
23 compounds that were present in landfill gas, so my shorthand  
24 reference was to really - the health risks associated with

1 the toxic compounds, and then, you know, my understanding of  
2 what is an acceptable standard is really, again, based on  
3 the health risks. And I think it is really a consensus, you  
4 know, it is not our unilateral determination, it is not  
5 something that we would want agency support for what is the  
6 appropriate standard, but are we looking for a standard that  
7 is more restrictive for compounds that are common to natural  
8 gas and landfill gas? No, I do not think that would make  
9 any sense, so there are certain compounds that I think are  
10 unique to landfill gas, or occur in different concentrations  
11 in landfill gas, and that is the hurdle to get over.

12 Because of the political history, we also face a different  
13 landscape in terms of when we are examining accepting biogas  
14 and biomethane into our pipelines, we did not have a  
15 preexisting prohibition. We are essentially free to decide  
16 to accept things and to accept standards for gases that we  
17 are not accepting, but because of the history with landfill  
18 gas, we would have to lift an existing prohibition, which by  
19 its nature sets a different hurdle. Setting aside the fact  
20 that, when you are talking about a health risk rather than  
21 an equipment risk or a longer term health risk associated  
22 with the cumulative effect of air pollutants, obviously it  
23 is a different standard.

24 MS. DOUGHMAN: Can I just ask Gillian to be a little

1 bit more explicit about which compounds are thought to  
2 create which health risks?

3 MS. WRIGHT: I cannot really - that is outside of my  
4 expertise. Kimberly.

5 MS. DOUGHMAN: Just to make it a little more  
6 specific.

7 MS. KEMP: Maybe I will talk a little bit about his  
8 question or his comments and then we can go into that for  
9 the ones who can remember how to pronounce. So just to  
10 confirm, it is more than just toxics that is a concern with  
11 biogas. We are looking at moisture, and you mentioned low  
12 hanging fruit in your talk, and that is basically the easy  
13 stuff, the low hanging fruit, because it is something that  
14 is already dealt with, with geologically formed natural gas.  
15 I think when we went through the process with the dairy, we  
16 baselined all of the analysis that we did on samples from  
17 the pipeline that the dairy was going to be injecting into.  
18 So that makes a lot of sense because here you have 50 plus  
19 years of history with a gas, there has never been problems,  
20 it is almost like a different - and I think when you enter  
21 into something in today's climate, you have to make sure you  
22 do your due diligence, and I think maybe in the past, you  
23 know, a learn by doing, or learn as we go approach, was more  
24 acceptable, and natural gas does have a long history, there

1 is no - you know, the known problems are known now, so I  
2 think that is a very logical and efficient approach, is to  
3 baseline against natural gas, and we did that, and we will  
4 continue to do that for future projects. The only exception  
5 to that, I would say, is when we start getting into some of  
6 the biological colonies and in-pipeline, you can in fact  
7 introduce something that may not be there, or may be there  
8 to a certain extent, and change the environment, or you can  
9 accelerate corrosion. There are those kinds of concerns,  
10 which have a little bit more to do with chemistry than with  
11 just comparing to thresholds that you measure and say,  
12 "Okay, well, this one must be okay because we already have  
13 this threshold in our pipelines." So that was the only, I  
14 would say, exception to that where we were not necessarily  
15 comfortable with simple baselining against our pipeline gas,  
16 and we want to increase sort of the analysis for  
17 microbiologically influenced corrosion occurrences in the  
18 pipelines. So as far as some of the toxics, when we  
19 approached the project initially, like I said, we really  
20 developed kind of a laundry list of analyses that could be  
21 run. A lot of them are going to be based on protocols  
22 already developed for like air pollution, VOCs, that kind of  
23 thing, and those are the kinds of things that we basically  
24 baselined against, I guess, in our pipeline gas. And the

1 things that we were worried about from a toxicity standpoint  
2 were the bacteria known to be present in manure. And we  
3 targeted especially some of the pharmaceutical compounds  
4 that were used on the particular dairy that we connected  
5 with, so they actually provided us with information about  
6 their operation and which products they used to control  
7 infection and to maintain the physical health of their other  
8 - of their livestock. And that was the kind of thing that  
9 we approached from a toxicity standpoint, so there were  
10 pharmaceuticals, some of them come to mind,  
11 chlortetracycline, and things like that that are used to -  
12 that are basically to fight infection that spreads through  
13 the living conditions. The threshold that we looked to came  
14 mostly from OSHA exposure limits. They are in -- NGTI's  
15 biogas study actually did a good explanation of the hazards  
16 of using those exposure limits directly to like a presence  
17 in a gas, so we actually - that is where we hired kind of  
18 our own consultants that come through and get some I guess  
19 you could say almost corrective levels, so that we were not  
20 applying a level directly that was not intended for the  
21 exposure method that would happen in the case of, you know,  
22 this compound in a gas, the exposure would be obviously a  
23 combustive gas coming into somebody's home or a pipeline  
24 worker in a situation where you had some leakage, or

1 something like that. So we actually had a group come in and  
2 modify those levels to take into account the difference in  
3 exposure. So that was kind of the process that we went  
4 through, and I think that, in the end, we were able to at  
5 least address a lot of these concerns. I mean, we do not  
6 know - some of it was done in a very research oriented way,  
7 and we think it is right, we think we have something good  
8 and we were able to get through the findings that we had in  
9 a way that I think we can defend. So I do not know if that  
10 answered -

11 MS. DOUGHMAN: Yeah, thank you. A quick follow-on  
12 question, you mentioned that, in other states, you have  
13 interconnected with landfill gas, into gas pipelines, is  
14 that right?

15 MR. BEST: I am not in the landfill gas business at  
16 all.

17 MR. WHITE: This is Chuck. California is the only  
18 state that actually prohibits landfill gas. I mean,  
19 landfill gas is flowing into California, some molecules from  
20 places in Texas that connect directly to the pipeline, so it  
21 is coming into California, you just cannot do it here in  
22 California.

23 MS. WRIGHT: I am not sure if it is actually -

24 MR. WHITE: Well, some molecules are making it, I am

1 sure. It is being done throughout the rest of the country.  
2 It is just California seems to have set up barriers that  
3 make it very difficult to do that.

4 MS. KEMP: Just a historical note, and I do not  
5 know, the timeframe on this, I am still trying to get, but  
6 PG&E did take landfill gas in Mountain View for - yeah. So  
7 historically, it has not always been that way, and at least  
8 within PG&E, from what I understand, the addition of the  
9 prohibition in our tariff was based on that experience.

10 MR. WHITE: Landfill gas is so readily available  
11 now, only about - less than half of it is actually being  
12 beneficially used, the other 50 percent is being flared, and  
13 so, I mean, it really is available for pipeline gas, and  
14 particular in cases like South Coast where they are putting  
15 such incredible controls on landfill gas engines that it may  
16 make more sense to just simply try to capture the gas and  
17 get into a pipeline, if you can figure out a way to do it,  
18 and I would be really interesting in hearing from Susan  
19 Patterson about it. I mean, from the utility standpoint,  
20 there is a toxicity issue, there is the aesthetic issue like  
21 of the siloxanes coming through and dusting on top of  
22 burners, and then, well, there is the maintenance issue of  
23 sulfur compounds and moisture that can be carried into  
24 pipelines, and there is the Gas Technology Institute, there

1 are technologies out there readily available that could be  
2 used, and then what is - how do we come up with a monitoring  
3 system that would provide some certainty that - I do not  
4 want to be continuously monitoring 24 hours a day, but, I  
5 mean, my experience with our LNG plant at Altamont, there  
6 are certainly indicators you can use as to how well that  
7 plant is performing, and if it starts going, you know, south  
8 on you, you can turn it off, you can shut it down, there are  
9 all kinds of things you can do without having to do  
10 continuous testing for toxicity, for moisture, for all these  
11 kind of things. There are ways to do it much more simply,  
12 and I would be interested in hearing what Susan and GTI  
13 think about how we can get there from here.

14 MS. PATTERSON: Well, first of all, I wanted to say  
15 I am encouraged by hearing about the willingness of the  
16 utilities to accept gas into the pipeline, and I had a  
17 question about guidance documents, you both mentioned that  
18 you had guidance documents. Were those documents that each  
19 utility prepared specific to projects that you were  
20 undertaking?

21 MS. KEMP: I do not think I said - we do not have a  
22 guidance document, per se. We have had one project that has  
23 come on line, and we developed a set of requirements for  
24 that project, but that is not something we have necessarily

1 gone out and we have gone out and handed out. We have  
2 pointed to the guidance document that was developed by GTI  
3 and, sort of in parallel with that, as our project was  
4 developing, we had some additional consulting done  
5 specifically for our project and we have their report, which  
6 was just a summary of basically what they found and bringing  
7 in, like I said, a lot of what they did was to help us in  
8 interpreting the data that we were able to make measurements  
9 of all the things that we wanted to make measurements for,  
10 but the next step was to interpret that and that is what  
11 they did for us.

12 MS. PATTERSON: Okay.

13 MS. WRIGHT: Ours is a general guidance document  
14 that is a companion to our Rule 30, there are some general  
15 provisions in Rule 30 that the gas must be free of hazardous  
16 substances and merchantable, and so the guidance document  
17 spells out what that means with regard to biogas and  
18 biomethane. And we did release it publicly in September,  
19 and we provided it to everybody who had ever inquired within  
20 us about biogas interconnection, as well as all of our  
21 wastewater plants, food processing facilities, and everybody  
22 on the California producers, California natural gas  
23 producers service lists, that have an interest generally in  
24 producer interconnection issues.

1 MS. PATTERSON: I did want to mention that GTI has  
2 done a guidance document for a dairy waste --  
3 interchangeability of dairy waste and -

4 MS. WRIGHT: Right.

5 MS. PATTERSON: -- and I think it is available on  
6 our website to everybody, and we are working on the  
7 companion piece for landfill gas, so -

8 MS. WRIGHT: And our guidance document was based  
9 significantly on the GTS Study which we participated in. We  
10 expanded that and did some further consulting work to bring  
11 in wastewater gas and other food waste-based biogas, so that  
12 we could make it comprehensive across feedstocks.

13 MS. PATTERSON: Now, you mentioned technology and I  
14 have a list that I was not aware of, but my boss sent me 26  
15 projects throughout the United States that are currently  
16 cleaning up gas and putting it in the pipeline, and it  
17 mentions the technology type for each one of these 26, so I  
18 am not going to go through them, but if somebody is  
19 interested in that, it is happening and I know GTI has a gas  
20 clean-up technology and, you know, I know others are  
21 developing them or already have them.

22 MS. DOUGHMAN: That would be great if you could send  
23 that as written comments for our record, if you do not mind.  
24 I think it is time to open it up to public comments. I have

1 some blue cards here. First is Evan Hughes. He is a  
2 consultant. He is representing Biomass Energy and  
3 Geothermal Energy.

4 MR. HUGHES: I was intrigued by the statement from  
5 Gillian Wright that the sources of biogas are small  
6 enterprises and have their own business -

7 MS. DOUGHMAN: Sorry, I think your mic is not  
8 working.

9 MR. HUGHES: I am Evan Hughes, Consultant in Biomass  
10 Energy and Geothermal Energy, Menlo Park, California. I was  
11 intrigued by Gillian Wright's statement that the sources of  
12 this biogas are individuals and small operations that are in  
13 a different kind of business, and it is a side business to  
14 them. But to a gas company, it is the main business, and  
15 the expertise is there, the economy is a scale, it should be  
16 there. The barrier could be, as it is in some conservation  
17 measures on electricity, that the regulations do not provide  
18 for the investors in the company to get a proper return for  
19 these sort of conservation or fossil energy avoidance  
20 systems, as opposed to the traditional ways of producing  
21 energy. On the electricity side, the analogy would be  
22 getting paid to reduce a kilowatt hour instead of generate a  
23 new one and a new power plant. I am not quite so sure what  
24 it is on the gas side, but I would like some comments, both

1 from regulated utilities and the unregulated companies that  
2 are in this kind of business, on how to apply the expertise  
3 and the ability raise capital, that these companies have.  
4 There ought to be something in the Action Plan that allows  
5 for regulatory or economic barriers to be addressed. The  
6 economics may be the key thing, rather than regulatory, but  
7 I would like some - what the ideas are on action.

8 MS. WRIGHT: I think that is very true, I mean, the  
9 value for displacing natural gas with biogas is clearly in  
10 the reduced carbon emissions, or avoided carbon emissions, I  
11 should say, and the avoided methane emissions, which is the  
12 higher value from a greenhouse gas perspective, and then, of  
13 course, with the production of renewable energy. You know,  
14 I think that Susan did a really good job of sort of  
15 surveying the landscape of subsidies that exist for  
16 everything, but biogas. And I think that is a missing  
17 piece, I mean, to address the gentleman's point, I think,  
18 for instance, the South Generation Incentive Program  
19 provides fairly generous incentives for renewable fueled  
20 fuel cells, but no incentives for the production system or  
21 clean-up system to produce the renewable fuel for the fuel  
22 cell. So there is a gap there. And actually, it reminded  
23 me also of another interesting economic point, is the way  
24 the sort of missing elements in both the simplicity and

1 incentives, sort of inadvertently creates an incentive to  
2 pursue on-site generation, even when on-site generation may  
3 not actually be the best fit, because of the availability  
4 both of the tax credits and other incentives for generation,  
5 and also because the supplier can then avoid having to sell  
6 anything, that they simply are avoiding the purchase of  
7 electricity, but it is not really the best sort of highest  
8 best use equation. I mean, in that instance, the customer  
9 is producing renewable energy, which is a good thing, but it  
10 is generally at a lower efficiency than what could be done  
11 if the biogas were blended with natural gas in a high  
12 efficiency plant, and they are avoiding a sort of average  
13 retail price of electricity, and they are producing a  
14 premium electricity product. So, it is sort of a, I think,  
15 perverse incentive, I guess, is the way I would view it.

16 MS. DOUGHMAN: Okay. All right, so our next blue  
17 card is WebEx on phone, Ross Buckingham with California  
18 Bioenergy.

19 MR. BUCKINGHAM: Hello. I have a question for  
20 Gillian Wright. I heard you say that your [inaudible] was  
21 interested in perhaps getting into providing the biogas  
22 clean-up and ejection equipment and process, and [inaudible]  
23 [1:10] Kern County and Tulare County where there is a lot of  
24 dairies and essential dairy biomethane. But does Southern

1 California Edison have any interest in buying the  
2 [inaudible] biogas from producers, from dairy biogas  
3 producers in Kern County, Tulare County, and then cleaning  
4 that up and ejecting it through your equipment?

5 MS. WRIGHT: First of all, let me clarify, as fun as  
6 it would be to answer on behalf of Southern California  
7 Edison, I am with Southern California Gas Company and,  
8 though our gas territory does overlap Edison's electric  
9 territory, and their territory does also extend roughly into  
10 Kern and Tulare, though not quite as far north as ours does.  
11 So to answer your question, Southern California Gas Company,  
12 yes, it is exploring investing in owning and operating  
13 biogas cleanup and injection facilities. As to the question  
14 of whether Southern California Gas Company would actually be  
15 interested in purchasing the raw gas, that sort of relates  
16 to the hurdle that I was mentioning earlier. Fundamentally,  
17 for Southern California Gas Company, for the gas that we  
18 purchase for our own customers' use, right now there is no  
19 value, we do not have a way to justify the premium that is  
20 required to pay for biomethane. Our interest in developing  
21 biomethane is also anticipating that there will be a value  
22 to biomethane for our core gas use, and that is part of why  
23 we are exploring this now, is that we expect very much in  
24 the future that there will be a value and a reason. But

1 ahead of the cap-and-trade requirements and other greenhouse  
2 gas restrictions, it would simply be very very expensive  
3 gas. So we are - among the things that we are also  
4 exploring is whether there is a way that we can help to  
5 facilitate that transaction, as well. And it is complicated  
6 regulatory reasons. As a rule, we generally do not sell gas  
7 to the electric generation market, there are some limited  
8 exceptions to that; we are exploring whether there might be  
9 a place for additional limited exceptions, for instance,  
10 perhaps aggregating very small producers of biogas. Could  
11 we actually purchase several small supplies or aggregate  
12 them and sell them back to the electric utilities, again, to  
13 just facilitate the transaction. We are exploring it, it  
14 would require regulatory approval, there might be  
15 opposition. It is not really the core business model, we  
16 are not looking to get into the gas marketing business, but  
17 there may be a barrier that we could help to alleviate or  
18 eliminate.

19 MR. BUCKINGHAM: [Inaudible]

20 MS. WRIGHT: I should say a couple things. With  
21 regard to dairies, the economics are very very challenging  
22 for dairies right now, and whether it is us owning and  
23 operating or someone else, the equipment still costs what it  
24 costs, and it is on top of a fairly expensive process. So

1 there are significant challenges for dairy economics. On  
2 the question of whether we would be - I guess another idea  
3 that we are also exploring, thinking about, seeing whether  
4 it might fit and whether there might be a demand for it, is  
5 also looking at something like a green tariff kind of  
6 structure, whether there might be demand for gas customers,  
7 for instance, for fuel cell usage, or for transportation  
8 usage, whether there might be an interest in purchasing a  
9 partially or all renewable gas product that had a separate  
10 premium price. Again, a significant regulatory process,  
11 lots of details to work out, but it is certainly something  
12 that we are kicking around as a possibility that may have  
13 some value in the market.

14 MS. DOUGHMAN: Okay, the next blue card is Lesli  
15 Daniel from Sierra Club.

16 MS. DANIEL: Ah, it has to be a bright green light,  
17 okay. Lesli Daniel, Sierra Club, California. The Sierra  
18 Club standard for alternative energy is that you have a net  
19 gain in energy, a reasonable net gain in energy, and a  
20 reduction of greenhouse gases. For that reason, we do not  
21 actually support landfill gas being captured, and with one  
22 exception and that is after final cap, reason being, is data  
23 shows that you are actually seeing fugitive emissions, 3.8  
24 to 7.8 times the rate of when we are flaring. How that is

1 occurring is from various practices that are being utilized  
2 to increase the generation of gas. So we are seeing wetter  
3 landfills, we are seeing later capping, we are seeing  
4 grading that will capture water, we are seeing the  
5 consolidation of wells in areas, and so the problem with  
6 that is that we are seeing more emissions from greenhouse  
7 gases because of these practices when the engineering of the  
8 landfill is actually designed for dry. That is not a plus  
9 in the long run, we are frontloading, if you will, our  
10 greenhouse gas emissions in doing that and not capturing a  
11 latent gas. So let me restate, the one exception to our  
12 opposition is after final cap, then we can capture landfill  
13 gases. So that leads me to a question on if these practices  
14 were stopped, and so that we did not see these increases in  
15 fugitive emissions, would it be economical to run biogas  
16 projects out of active landfills or interim cover landfills  
17 and SALs, and 2) are we open to establishing appropriate  
18 standards to assure that we are not undermining our  
19 engineering and increasing greenhouse gas emissions? And I  
20 can see Susan's face just kind of working it for Lesli  
21 questions - I do have a white paper I would be more than  
22 happy to share, and I definitely will share with the  
23 Commission. The data is coming from EPS - or EPA. So...

24 MR. WHITE: Well, I guess I will jump in. This is

1 Chuck White with Waste Management. We understand there has  
2 been a lot of concerns about the landfills from folks that  
3 do not like landfills. There is a lot of - this data, I do  
4 not know - first of all, we think we disagree with it. When  
5 we put together, design a system to capture landfill gas,  
6 either for flaring or for energy generation, we are  
7 designing to do maximum capture, and there is not any  
8 falling back of the capture efficiency for landfill gas when  
9 you use it for energy recovery, energy production, so we  
10 think we can very effectively capture the gas at landfills.  
11 And I know there is a lot of dispute about that, but, for  
12 example, Columbia just put out a report that is available -  
13 I would like to give it to anybody, it really tries to  
14 counter a lot of the assertions by folks that claim that  
15 landfills are not operated to maximize the efficient  
16 collection of landfill gas. I would be happy to provide  
17 that to anybody who is interested. So I just have to  
18 disagree with you. I do not think your premise is really  
19 accurate, that I think the landfills are doing a very fine  
20 job of collecting the gas.

21 MS. PATTERSON: And I would be interested in seeing  
22 your white paper.

23 MS. DANIEL: Do you have a card?

24 MS. PATTERSON: Yeah.

1 MS. DOUGHAM: Are there other people in the room  
2 that would like to speak? Anyone else on the WebEx or the  
3 phones? Ask again, okay. Is there anyone on the WebEx or  
4 on the phones that would like to make a comment? We have  
5 apparently two people who would like to speak. How about  
6 the person who said "can you hear me?"

7 MR. MORTON: [Inaudible].

8 MS. DOUGHMAN: Okay, thank you. Let's see, I think  
9 there was somebody else on the phone?

10 MS. SCHNEIDER: Hi, this is Ann Schneider.  
11 [Inaudible].

12 MS. DOUGHMAN: Okay, thank you. Let's see, anyone  
13 else in the room that wants to comment on this panel?  
14 Anyone else on the phone? Okay, why don't we break and we  
15 will start with our next panel at 3:30.

16 (Off the record at 3:20 p.m.)

17 (Back on the record at 3:35 p.m.)

18 MS. DOUGHMAN: Okay, I would like to get started, so  
19 would everyone please take their seats? Okay, so now we are  
20 starting the last panel of the day, I want to thank  
21 everybody for staying with us throughout the day, I think we  
22 have had a great series of panels, and some great  
23 discussion, a lot of interesting ideas, good information.  
24 So the last panel here, the topic is increasing production

1 of transportation and biofuel in California. We have three  
2 questions for this panel. First question: What actions can  
3 agencies take to best address the following barriers to  
4 bringing new biofuel production facilities to California:  
5 1) difficulties in obtaining reliable and affordable  
6 feedstock materials, 2) lack of commercialization of  
7 emerging technologies such as cellulosic ethanol, 3)  
8 conflicting regulations and permitting issues that constrain  
9 biofuel developments, 4) difficulties in obtaining  
10 financing. The second question: Are there additional  
11 barriers to increasing production of biofuels in California?  
12 And then the last question: What indicators, such as  
13 gallons per year, should be used to measure progress  
14 bringing new biofuel production facilities to California?

15 So I would like each panelist to introduce yourself  
16 and then we will go through and you can provide opening  
17 comments, and then respond to other panelists' comments, and  
18 then we will open it up for public comment. So, Jim, why  
19 don't you start?

20 MR. TISCHER: Thank you, Pamela. My name is Jim  
21 Tischer. My day job is with California Water Institute at  
22 CSU Fresno, my hobby for the last two and a half years has  
23 been to assist the - do you want to put my slide up, the  
24 first slide - is to assist the Mendota Advanced Bioenergy

1 Cooperative in Mendota, to develop a advanced bio-refinery.  
2 Why don't you put the second slide up? The bio-refinery  
3 will replace a sugar beet factory that was closed in  
4 September of 2008 and will have four components, as you can  
5 see. It will have the gasifier on the top end, which will  
6 take orchard prunings from within 50 miles and process them  
7 through a gasifier to turn a turbine, to make green  
8 electricity and process heat for the other units. The sugar  
9 beets, the 800,000 tons a year of sugar beets, will come  
10 from within 40 miles of the facility up in the Los Banos Dos  
11 Palace, and Five Points Area. They will be processed to go  
12 through a diffuser, the thick juice will go into the ethanol  
13 plant, the pulp will be pressed out, and will go into the  
14 anaerobic digestion unit, the biomethane will be injected  
15 into utility pipeline or for transportation purposes, the  
16 water from the process will be reclaimed for landscape and  
17 irrigation purposes. We are also about a mile from the City  
18 of Mendota Wastewater Treatment Plant, so we will take in  
19 three acre feet a day to process through the water treatment  
20 plant and we will be a net water producer. So basically we  
21 will be in the role of being a net water producer, we will  
22 have real close to a zero carbon footprint, and we actually  
23 cut across all four of your panels, so what I would like to  
24 do is to go through and answer the questions for this

1 particular panel, and then circle back on a couple of other  
2 ones that I think are important to us because we are going  
3 to cut across all of them.

4           Because we are a cooperative, and the farmers, the  
5 sugar beet and almond farmers will be owners of the bio-  
6 refinery, that is less of an issue for us because we will  
7 contract on a long term basis with the almond prunings and  
8 the sugar beets, so fortunately that is not an issue. The  
9 lack of commercialization, all of the units that we will be  
10 using, the gasifier, the diffuser, the anaerobic digestion  
11 unit, the gasifiers have been used extensively in Europe and  
12 to a lesser extent in the United States. The sugar beet  
13 diffuser is 1890 technology, works quite well. The  
14 anaerobic digestion unit, as you are well aware, has been  
15 brought up, I understand, by early panelists, earlier  
16 panelists. There are 5,000 anaerobic digestion units in  
17 Europe, they are quite pleased with the performance. And  
18 you have heard speakers talk about the injection of the  
19 methane in there. The water treatment is a key important  
20 element for us. As you may have heard, if you read the  
21 Sacramento Bee, Mendota is a deficit area for water this  
22 last year, we hope it will be better, so the fact that we  
23 can take wastewater will be beneficial to us. All of the  
24 elements that the technologies that we will be using will

1 essentially be off-the-shelves, so we are not building a  
2 Lunar Lander here. The trick is the integration of the  
3 pieces, so you can take the waste elements from one process  
4 and move it to another one and use it, so you have a very  
5 low carbon footprint and a low energy footprint, and then  
6 all of the pieces fit together and are synergized.

7           The regulations and permitting issues, we are in the  
8 predevelopment stage, so that phase of our character  
9 building is out in front of us, we are excited about the  
10 opportunities that that offers. We are pleased to see that  
11 the Central Valley Water Board is moving forward on a  
12 comprehensive EIR for this. Our local air district, San  
13 Joaquin Air District, has been briefed since the beginning  
14 and they encouraged us not to even - when we started out, we  
15 had an IC engine up here, and they put a big X on it on the  
16 first drawing and they said, instead, do us all a favor and  
17 do not use an IC engine, so we took that to heart, and you  
18 do not see an IC engine up there now, which is unfortunate,  
19 but we are not going to fight the Air District. One the  
20 water side, we will have the exciting opportunity to deal  
21 with the Department of Health Services, maybe the Corps of  
22 Engineers, which some other districts and some other project  
23 developers might not have, so next year should be quite  
24 character building.

1           The financing, let me jump forward to an earlier  
2 panel, and that is the sale of the finished products, power,  
3 biomethane, electricity, have to have contracts in line for  
4 the off-take agreements. If you do not have those, if those  
5 are not in place, if you are just strictly a merchant plant,  
6 then you will not get it financed. And so the discussion is  
7 then academic, and so, from our standpoint, that is our  
8 first - one of our major first focus areas, so we do not get  
9 immersed in the details, so that we focus on the off-take  
10 agreements, conceptually to be able to move forward, the  
11 financing is the Mt. Everest to climb for renewable projects  
12 in the United States, currently. As I am sure any developer  
13 has told you, that even those that have scored \$50 million  
14 from DOE cannot get the other part of the financing to be  
15 able to move projects forward. So until the projects can be  
16 structured to be able to bring in the private sector to  
17 carry it over the top of the mountain, the projects are not  
18 going to happen.

19           Question 2, I commend the Energy Commission for  
20 their visionary thinking and moving forward on this, and  
21 wanting to move forward on increasing biofuels and trying to  
22 wrap your arms around it, this is very difficult to do when  
23 you are trying to move forward to make it happen. From our  
24 standpoint, we think that you should measure gallons per

1 year if you are looking at liquid fuels, or you should look  
2 at MCF of biomethane produced, and successful projects where  
3 you have ribbon-cuttings much the same as the 5 megawatt  
4 unit that synchronized yesterday and was dedicated in  
5 Mendota, you know, the first one that connects with the ISO,  
6 that is a significant landmark, and I would suggest to the  
7 CEC that completed projects, completed operational  
8 sustainable projects, be your measurement. And I think that  
9 completes my presentation.

10 MS. DOUGHMAN: All right, thank you. Ted.

11 MR. KNIESCHE - Thanks very much. I am Ted Kniesche.  
12 I am head of Business Development at Fulcrum Bioenergy, we  
13 are waste to fuels company headquartered just down the road  
14 here in Pleasanton, California. We have our first  
15 commercial plant that will go into construction towards the  
16 end of this year, it is right outside of Reno, Nevada, just  
17 over the hill, and it will be a 10.5 million gallon waste to  
18 fuels project, it is waste to ethanol. We make 100 percent  
19 ethanol at the back end. The project reduces greenhouse gas  
20 emissions on an aggregate lifecycle basis by over 75  
21 percent. Like Jim was saying, we are also able to use  
22 predominantly wastewater and non-potable water, also known  
23 as gray water, for the facility. These are very clean,  
24 pretty efficient processes. The technologies have been

1 developed quite a bit over the last couple of years. And we  
2 have a demonstration project down in North Carolina that has  
3 been demonstrating our yields that are north of 100 gallons  
4 per ton of feedstock. So we are very excited about this  
5 first project. We have plans and we are actually in  
6 permitting on a couple other projects around the country  
7 that we hope to have permitted prior to the online date of  
8 these first facilities, so that we can continue to develop  
9 new projects around the country. We do have ambitions in  
10 California, I think there are some challenges here that are  
11 similar and some that are unique to California in getting  
12 projects built here. We do have actually long term  
13 feedstock contracts in California for future projects, and  
14 these are 20-year fixed price contracts, so we feel very  
15 good about the development opportunities here.

16 I think there are challenges on the regulatory side  
17 that I know Jim will talk about a lot more, but we do need  
18 to clarify some of the regulations and have regulatory  
19 certainty for us to be able to produce here. One example is  
20 the Low Carbon Fuel Standard is frankly a very attractive  
21 program for companies like us, it is a very technology  
22 neutral, product neutral program that allows you to really  
23 look at a target, which is greenhouse gas reductions, and  
24 try and meet that in a real way. But the threat of that

1 going away under this anti-AB 32 campaign is concerning, to  
2 say the least. And it is hard to build a business that  
3 really takes a long term planning, it takes a minimum of a  
4 couple years to permit and develop these facilities, and  
5 then a couple years to construct them, so when you are  
6 looking four or five years out, you really need regulatory  
7 certainty on what the market is going to be like. And I  
8 think the biggest challenge with the LCFS right now is  
9 trying to show it, it is more of a political argument around  
10 indirect land use and some of these other things. In trying  
11 to show that the LCFS can simulate development in California  
12 and will be good for Californians and good for jobs here, I  
13 think, is really important. If the regulation only  
14 stimulates projects around the State for fuel to be sold  
15 into the State, it is probably not going to be that popular  
16 of a regulation. So I think the more we can use that target  
17 and the very aggressive targets that really should stimulate  
18 renewable fuels, to be built here in California, I think the  
19 more we can use that as a tool for more biofuel development  
20 in the State. I think that would be tremendously helpful.

21           You know, I think on your panel, on your list of  
22 questions, feedstock is not really the issue, I think there  
23 is lots of feedstock out there, there is lots of waste  
24 feedstock, there are some logistical challenges depending on

1 the type of fuel pathway you are looking at. If you are  
2 looking at woody biomass, you have to think really hard  
3 about where you are getting the biomass from and in what  
4 radius. But there are a lot of waste feedstocks out there  
5 that are available, that are frankly landfilled every day.  
6 And getting control of that feedstock and having certainty  
7 around it in the form of a project financing is really not  
8 the challenge, the challenge is, in this climate, ever since  
9 the fall of '08, trying to get financing. And financing is  
10 the biggest challenge, and it is a challenge because of the  
11 technology risk and because these projects have not been  
12 built in a commercial way yet, and so trying to overcome  
13 that technology hurdle and also get financing for your first  
14 plant requires a lot of equity, it requires patient  
15 investors, it requires dealing with the DOE, and other  
16 agencies that are not the most efficient groups to work  
17 with. So it is a challenge. You know, I think it takes a  
18 lot of effort and patience to try and get these projects  
19 financed. We actually expect our first project to get the  
20 financing wrapped up later this summer, so we do expect to  
21 go into construction, but we also had a financing deal  
22 wrapped up with a large bank that no longer exists, in the  
23 fall of '08, and so that was - it has been a long two years.

24 I think from California's standpoint, I think the AB

1 118 money is a good source of some of the funds. I think  
2 the CEC has thought really hard and long about how to deploy  
3 that money, and I think, year after year, as you look to  
4 deploy more of it, I think the more technology neutral and  
5 sort of project neutral it can be, I think the better, and  
6 really let the projects sort of win on the merit and not try  
7 to pick fuel pathways over projects that are ready. I think  
8 the hardest part, from our standpoint as developers, is that  
9 this technology is no longer in the lab. I think there is a  
10 big misconception that these are bench scale projects that  
11 have a lot of technology risks. We actually have a  
12 demonstration project in North Carolina, as I mentioned,  
13 that has been operating for well over a year and a half now.  
14 This technology works, it is ready to go, that does not mean  
15 you can convince a bank that they are not going to have any  
16 risk, it is the risk capital. So that is the financing  
17 challenge, but the technology is ready to be commercialized  
18 and we are ready to go, so the more I think we have access  
19 to capital, the better we will be.

20 I mentioned the conflicting regulations, you know, I  
21 think just regulatory certainty is the biggest challenge  
22 right now and I think, as you look towards some of the  
23 programs like AB 222 that are trying to clarify some of the  
24 regulations that were really written in a way that just

1 technically does not make any sense from our technology  
2 standpoint, those things need to be clarified. And, you  
3 know, like I said, the LCFS needs to be around if people are  
4 going to put the risk and the time into building a project  
5 in California. We need to know that there is that kind of  
6 an attractive market there at the end when we are ready to  
7 build, or when we are ready to operate.

8 I think on the metrics question, I think gallons per  
9 year is probably fine. A little different approach that we  
10 have seen Federally, is a lot of environmental groups are  
11 trying to push this thing called the billion gallon  
12 challenge nationally, and the idea is really to put forward,  
13 you know, the first billion gallons sort of done the right  
14 way, and in a sustainable way, that truly meet greenhouse  
15 gas reductions, that are domestically sourced and  
16 sustainable. I think something like that for California  
17 might be a good target. It needs to translate into some  
18 sort of a mandate and maybe be tied to the LCFS, but  
19 something like that, if you pass the first 100 million  
20 gallons or 200 million gallons in California, I think that  
21 would be a significant milestone. I think the fear is  
22 getting into a situation that the RFS is into right now,  
23 where they have 100 million gallon target for cellulosic in  
24 the first year, it is a very modest first step, and the EPA

1 had to waive it all the way down to 6.5 million gallons for  
2 year one because the production just is not there. A lot of  
3 it is because of the financial markets and everything else,  
4 but 6.5 percent of a very modest target in year one is a  
5 pretty bad way to start a very aggressive and ambitious  
6 program. So I think it does need to be achievable and real,  
7 and once you get those first gallons in production, a lot of  
8 other things can happen. So maybe something along those  
9 lines would be useful.

10 MS. DOUGHMAN: Great, thank you. Allen.

11 MR. DUSAULT: Thanks. Allen Dusault with  
12 Sustainable Conservation. First, my organization is a  
13 nonprofit environmental group. We have been working on  
14 biofuel issues for probably about seven or eight years, and  
15 when I say working on it, I mean trying to figure out how do  
16 you grow, how do you produce in California biofuels  
17 sustainably. And back when we started looking at this,  
18 there was not a lot to go on because California had not been  
19 doing in recent years much research, you have to go back to  
20 the late '80s, early '90s, to when we are trying to grow  
21 some biofuel crops and some isolated examples of research,  
22 so when we asked the question, what can we grow to produce a  
23 biofuel crop sustainable in California, there was not a lot  
24 to go on because California has not until recently funded

1 that research, for the most part, and that has been a big  
2 problem. So we started looking at different crops, we have  
3 looked at sweet sorghum, we have looked at sugar beets, we  
4 have looked at sugarcane, we have looked at any number of  
5 crops and we are not the only ones, there are some other  
6 players out there, UC Davis is involved, trying to figure  
7 out how do you produce biofuels. And I do not want to go  
8 into all the different experience we have had, but it is not  
9 easy, it is very difficult, in fact. It is not just a  
10 matter of making it work. Even if you can make it work  
11 environmentally, you have to make it work economically and  
12 that is very difficult. And then, when you switch from  
13 looking at a biofuel crop, for example, a dedicated crop to  
14 using crop waste, then you have to shift your model a little  
15 bit and you run into some different problems. Now, if you  
16 look at, for example, dairy waste, of which we have a lot  
17 of, and you want to produce biomethane for vehicle fuel, it  
18 is not easy at all, you have to convert trucks to run on  
19 biomethane I think there has been an earlier speaker who  
20 talked about using the landfill gas to produce biomethane in  
21 the truck conversions, so I will not say much on that, other  
22 than it is expensive and difficult, even if it is carbon  
23 negative. There are other wastes, there is food processing  
24 waste and, again, you have to ask what is the technology,

1 how are you converting that to fuel, and then you run into  
2 some regulatory barriers. And when you look at probably the  
3 biggest opportunity, maybe the Holy Grail in terms of  
4 environmental benefit, MSW to biofuels using any number of  
5 technologies, in California you cannot do it right now. So  
6 that is a sticking point and that has been around for a  
7 while. So, going to answer the question of the feedstock  
8 question, I am just trying to jump right into all the - in  
9 the shortest time possible - you know, answer some of the  
10 questions here, you know, there is a lot of feedstock out  
11 there, but we do not really have a model of how to use it.  
12 We do not have a model of how to use the MSW, we do not have  
13 a model of how to use - we have a model, there are models of  
14 how to use it - we do not have a practical pathway to do  
15 that. Right now, there is almost very very little in the  
16 way of biofuel that is dedicated crops going to biofuel in  
17 California. Most of what we use, and specifically ethanol,  
18 comes from the Midwest, and that is also for much of our  
19 biodiesel to the extent it is being produced anymore.  
20 Really difficult to figure out how to make this work  
21 economically and in the California environment. So lots of  
22 feedstock, how you convert that into biofuel is very  
23 difficult and you really do not understand that viscerally  
24 unless you try to do it, and I am speaking as an

1 environmentalist. I have to do it. My job description says  
2 produce biofuels. That means everything. Get over the  
3 regulatory hurdles. Get out there and grow the crops. What  
4 happens if there is not enough water? What happens if it is  
5 a bad year, you know, because the price of fuel drops, of  
6 conventional fuels, which affects the price of biofuel?  
7 Those are all really important and relevant questions and  
8 you really get it when you try to do it, and if you can sit  
9 in an office and say, "I want the perfect solution," you can  
10 do that until you are blue in the face and you can be, you  
11 know, dumb, fat and happy, but try to get out there and do  
12 it and it is really hard.

13           Moving on to - and I have got to say, the status quo  
14 holds sway, you can look at, pick up your newspaper, see the  
15 Gulf of Mexico has oil all over it, we know that is bad and  
16 we do not want that, go look at what we are doing in the  
17 Middle East with war and all the other stuff going on, we  
18 know that is bad, we do not want that, but, okay, here is  
19 the decision point - we can produce our biofuels right in  
20 California. Can we go for it? No! You have objections  
21 from just about everyone, and for a whole bunch of reasons.  
22 So it is really hard, but if we are going to do it, we have  
23 to look at not what is the incremental additional emissions,  
24 there are going to be - anything you do is going to have

1 some additional pollution, air, water, whatever; you have to  
2 say, "What is the net public health benefit?" Because we  
3 can drive trucks up and down the Central Valley all year and  
4 do cellulosic ethanol, and wave a magic wand, and we can do  
5 cellulosic ethanol, but you are producing diesel emissions -  
6 that is an impact. And that is affecting disadvantaged  
7 communities, so do not say there is a Holy Grail out there,  
8 because there is not one. They all have impacts. And if we  
9 are going to have impacts, we have to look at the trade-  
10 offs, so we should not be looking at each individual  
11 facility, we have to look at it in the broader context of  
12 what is the policy and where are we going to go. I am  
13 sorry, I have an opinion on so much of this stuff, it may  
14 come out.

15           The question on lack of commercialization, so I  
16 think I am getting at some of the questions about, you know,  
17 we need to be able to commercialize these technologies, but  
18 it is very difficult to do so, certainly in California and  
19 our previous speaker put his plant - correct me if I am  
20 wrong - in Nevada because you were trying to avoid the  
21 difficulties of trying to get permitted here. Correct?

22           MR. KNIESCHE: It is more complicated than that.

23           MR. DUSAULT: That is only one - permitting is one  
24 issue, certainly.

1 MR. KNIESCHE: I can get into if you want.

2 MR. DUSAULT: Right. So - and there are also issues  
3 of when you look at the way we regulate, we regulate to, in  
4 a sense, incentivize pollution shifting. When you go and  
5 try to get a permit, you are going to have some impact and  
6 you are going to be told by the Air District or Water Board  
7 to mitigate it, or any number of agencies, and you are going  
8 to end up doing that, or trying to do that, by pushing it  
9 into another media. If you are trying to get a permit to do  
10 something on a small scale, it is more expensive to do  
11 something on a small scale than a larger scale, so you are  
12 going to have your cost of pollution control is going to be  
13 much greater. Let's centralize the facility. Great, you  
14 are going to have a stationary source of emissions. Okay,  
15 the Air District says, "Okay, now you have all these  
16 emission controls you have to do, but, okay, you are a  
17 bigger facility, you can afford that." By putting the  
18 biomass on a truck and moving it to a, you know, that was  
19 not already on wheels, and I am talking about, say,  
20 cellulosic, of a biomass, you are causing diesel emissions  
21 which the Air District does not care about, but CARB will  
22 care about it, but they are looking at it totally  
23 differently. So, again, we do not have a comprehensive  
24 policy on how to do this and it is very important because

1 otherwise we are creating more pollution without actually  
2 benefitting the environment. There is also early adopter  
3 penalties, being there first to do it, and you are going to  
4 get killed from a regulatory process, I can speak from  
5 experience, it is very very difficult. You know, any one  
6 thing goes over any regulatory limit, it is regulatory  
7 sudden death, and if you are trying to get financing for  
8 your project, good luck. Again, we have to be looking at  
9 these things in a larger way, we need the agencies to  
10 coordinate like they are not now doing, meeting does not  
11 mean coordinating, meeting means changing things. If you  
12 are going to meet, you have to change something that is not  
13 working. When we have the Bioenergy Action Plans from  
14 previous years where all those things were identified as  
15 problems that are either still there, or very little has  
16 been done, even if there has been a little bit of progress  
17 and there are a lot of good people in these State agencies  
18 trying to do things, but there is not a lot of  
19 accountability in terms of results because that is the way  
20 State government works.

21           Difficulties in getting financing? Yes, there are.  
22 That is a big issue. And trying to wrap up here, additional  
23 barriers? Certainly there are additional barriers. One  
24 thing that has to be talked about that is important is we

1 can generate electricity, you can generate fuel, and  
2 depending upon what the incentives are, biomass could go for  
3 biofuels, are going to go to electricity instead, and so you  
4 have got to come up with a broader policy to figure out what  
5 direction you want to go - RPS, Low Carbon Fuel Standard? I  
6 do not know. But there are tradeoffs there that I think are  
7 not being talked about adequately. Again, no one seems to  
8 be in charge. Cal EPA? Good in theory, not good in  
9 execution.

10 Okay, final point, what indicators? The indicator  
11 for me will be how many biofuel plants do we actually build  
12 that will displace Middle East oil? That will be the best  
13 indicator. Thank you.

14 MS. DOUGHMAN: Thank you. I hope we can prove you  
15 wrong and help improve the regulatory process related to  
16 biomass and biofuels. Jim.

17 MR. STEWART: My name is Jim Stewart and I am  
18 Chairman of the Bioenergy Producers Association, which is  
19 dedicated to improving the environment for the production of  
20 advanced biofuels and green power in California. Allen is  
21 patient and his enthusiasm has probably covered most of what  
22 I would have said, but I do have some written remarks.

23 In 2006, the California Energy Commission authored a  
24 comprehensive and visionary Bioenergy Action Plan. With

1 regard to the production of advanced biofuels, our  
2 Association believes the best path forward would be to  
3 implement the goals set forth in the original document. We  
4 continue to support and urge further progress on the  
5 recommendations for California's biofuels development that  
6 begin on page 24 of the 2009 Progress to Plan document.  
7 However, what we most need, and what we recommended, and  
8 what was recommended in the original Bioenergy Action Plan,  
9 is legislation that will make possible the implementation of  
10 a wide range of new technologies for the production of  
11 advanced biofuels and green power from the State's vast  
12 sustainable and locally available resources of organic  
13 waste. In particular, the plan called for a review of the  
14 definitions of gasification, transformation, fermentation,  
15 parolysis, and manufacturing. For example, California has a  
16 scientifically inaccurate definition of gasification that  
17 requires zero air emissions from the entire biorefining  
18 process, a standard required of no other manufacturing  
19 facility in the State, and one that would shut down every  
20 one of our power plants and petroleum refineries.

21 In the category of advanced biofuels, it is not the  
22 Bioenergy Action Plan that needs updating, it is  
23 California's statute. California has an antiquated and  
24 repressive statutory and regulatory environment that is

1 driving bio-based technology providers and investment  
2 capital out of the State, inhibiting the development of the  
3 biofuels industry. On a lifecycle basis, the production of  
4 ethanol from organic waste is currently the only pathway  
5 according to the ARB that absolutely can meet or exceed the  
6 goals for greenhouse gas reduction established in the LCFS.  
7 Earlier this year in a presentation, the Air Resources Board  
8 listed in the increased use of biofuels from waste materials  
9 as its number one solution for meeting greenhouse gas  
10 reductions goals of the LCFS.

11           The ARB has projected the need for 24 new commercial  
12 scale advanced biofuels facilities in California by 2020,  
13 all of which, high temperature, low temperature, mechanical,  
14 would be covered by the legislation we are pursuing. We  
15 have a massive oil spill in the Gulf, likely the most  
16 devastating environmental disaster in the nation's history,  
17 two wars in the Middle East, and as a nation we are paying  
18 something approaching a billion dollars per day to import  
19 petroleum, and a meaningful portion of that money is finding  
20 its way to organizations whose goals are to destroy this  
21 nation's value system, its economy, and its way of life.  
22 The need appears to be so overwhelming that one wonders why  
23 the Democrats on the environmental committees of our  
24 Legislature for five years have blocked legislation that

1 addresses the objectives set forth in the 2006 Bioenergy  
2 Action Plan. It appears that environmental perfection, as  
3 opposed to environmental protection, is getting in the way.  
4 Earlier this year, our Governor got it right when he said,  
5 "Environmentalists must stop letting the perfect become the  
6 enemy of the possible." The beneficial use of organic waste  
7 in the production of renewable energy is the possible and,  
8 by the way, on a lifecycle basis, perhaps our cleanest  
9 pathway to advance biofuels production. It is also  
10 generally projected that conversion technologies can recover  
11 perhaps five times as much energy from the waste stream as  
12 can be recovered from landfill biogas. The era of siting  
13 new landfills is obviously approaching an end and, with our  
14 growing need to achieve energy independence, the time has  
15 come to reevaluate our historical concept of recycling and  
16 to embrace a new approach that is critical to the nation's  
17 security, the recycling of carbon, recovering energy from  
18 materials that otherwise have no financially feasible value  
19 for reuse, a process that is consistent with current  
20 recycling practices protects the current recycling  
21 infrastructure and is also consistent with nature's own  
22 cycle of CO<sub>2</sub> generation and recovery.

23 In my view, the recycling of carbon is the next  
24 generation of recycling. Perhaps we should call it Advanced

1 Recycling. And its product, renewable energy, is of immense  
2 strategic importance to this nation. Our current  
3 legislation, AB 222, has been endorsed by more than 100  
4 statewide associations, cities, and counties, sanitation  
5 districts, labor, waste management firms, electric  
6 utilities, and biobased technology providers, and by the  
7 California Energy Commission, the Air Resources Board, and  
8 Cal Recycle. We are sincerely grateful to those three  
9 agencies for their independent evaluation and support of  
10 this legislation. There are now in the thermal area, which  
11 is only one of the aspects that is covered by this bill, but  
12 there are now some 300 thermal conversion technologies  
13 operating around the world, about 100 of which are  
14 processing municipal solid waste in the production of some  
15 form of energy. The Department of Energy this last December  
16 gave grants for \$600 million in the support of, I think it  
17 was, 21 biorefinery projects, whose total capital costs  
18 would be about \$1.3 billion - very very little of that is  
19 going to be spent in California. Our organization right now  
20 is tracking some 50 biomass power projects that are in  
21 various stages of development or construction in the U.S.  
22 and approximately 65 advanced biofuels projects that are  
23 non-food derived biofuels feedstocks. In 1989, the year AB  
24 939 established the State's recycling program, 40 million

1 tons of municipal waste were landfilled in California. If  
2 it were not for the recession, we would be placing  
3 essentially the same amount in landfills today. The state's  
4 progress in recycling, which has been significant, and we  
5 are now at over 50 percent recycling, has almost totally  
6 been offset by the growing population and increased per  
7 capita disposal. Even if California, through its  
8 traditional recycling processes, were to achieve a statewide  
9 recycling goal of 75 percent by the year 2020, as is now  
10 being proposed, we would still be landfilling approximately  
11 25 million tons of solid waste each year. And by that time,  
12 we would have placed in landfills another 300 million tons  
13 or more of post-recycled materials, a massive lost  
14 opportunity to achieve energy independence and an improved  
15 environment. But even if our legislation were to pass and  
16 take effect in January of next year, it would take, as Ted  
17 Kniesche pointed out, four years before one of these plants  
18 could be permitted and operational in the State of  
19 California. We are talking about almost the year 2016  
20 before we can begin to take advantage of these new  
21 technologies and the opportunities we have from our organic  
22 waste. We will never reach zero waste in California unless  
23 other jurisdictions are given tools, new tools, and new  
24 pathways to achieve it.

1           Of course, there will be compromises along the way,  
2 we all have to compromise to reach our mutual goals, that is  
3 what I think was said so eloquently by Allen. But we need  
4 to make sure that our national priorities are part of the  
5 equation, as well. We believe that the time to begin this  
6 process is now. Thank you.

7           MS. DOUGHMAN: Thank you. All right, now would the  
8 panelists have any comments on any of the other panelists'  
9 remarks? Allen?

10          MR. DUSAULT: Yeah, I just want to temper my passion  
11 for biofuels with the recognition that some of my best  
12 friends work in State government and I did not mean any  
13 offense to any State workers if I implied that from my  
14 statements. And I at one point was a State worker myself.  
15 So California is doing many very very good things, there is  
16 a lot of good policy development, there is a lot of really  
17 important things happening, there is the funding now under  
18 118, so let me just recognize all the good things that  
19 California State Government is doing. I have been the  
20 recipient of a couple of those grants and I will leave it at  
21 that.

22          MS. DOUGHMAN: Do we have any blue cards from the  
23 audience? Okay, we have one coming up here. John Shears  
24 from the Center for Energy Efficiency on Renewable

1 Technology.

2 MR. SHEARS: Yeah, I just wanted to share an  
3 observation on the biofuels side. And this is something  
4 that ARB and Division of Weights and Measures is going to  
5 have to contend with, as well, you know, the thinking has  
6 been done over there on the issue. Focus for transportation  
7 fuels has largely been on ethanol, but a looming  
8 complication that is going to arise on the biodiesel side is  
9 that FAME biodiesel probably will be incompatible; in fact,  
10 if you talk to the auto manufacturers right now, is largely  
11 incompatible with the new diesel technology. In the  
12 discussions with the ARB and the auto manufacturers under  
13 the LEV 3, the Low Emission Vehicle version 3 standards that  
14 are being developed at the ARB, there is definitely a  
15 concern going forward as the vehicle manufacturers improve  
16 the diesel vehicles to meet the plan for super ultra low  
17 emission vehicle standards, that Fatty Acid Methyl Ester, or  
18 FAME, biodiesel is incompatible as a fuel, and those  
19 vehicles are to meet those standards. So I have raised this  
20 issue in one of the AB 118 workshops earlier, that was  
21 focused on transportation fuels, and I just wanted to raise  
22 it here again because it is part of the visioning and the  
23 planning process that we are talking about here, is, you  
24 know, BTL type fuels, so hydrocarbon fuels derived from

1 biomass is, you know, the likely path that industry will be  
2 comfortable with and that will allow the vehicles to meet  
3 the new emission standards. I expect that probably on the  
4 medium- and heavy-duty side, this will also start to become  
5 more and more of an issue, but certainly it is an immediate  
6 concern with the auto manufacturers, so the challenge there  
7 is, you know, with the FAME industry being what it is in  
8 California, what the implications would be for those market  
9 players, and where the fuel market needs to go to become  
10 compatible with these - you know, I would equate them as  
11 being the equivalent of thoroughbred horses, these new  
12 vehicles are so highly engineered and very sensitive to any  
13 contaminants or biodegradation, or whatever would happen  
14 with the fuels. So I just wanted to flag that for everyone.

15 MS. DOUGHMAN: So do you see that the solution is to  
16 change the fuel? Is there a process, a technology available  
17 to do that?

18 MR. SHEARS: Well, part of it is through the ASTM  
19 process, there is still discussions, I think, Allen follows  
20 this, as well. You know, there are discussions around the  
21 definition of biodiesel or another definition of a biomass-  
22 based diesel, and there is potentially some concerns about  
23 how that is moving ahead. So the issue is, in the agencies  
24 working together to vision and plan for where the fuels need

1 to be, how we address the inclusion of a biodiesel fuels,  
2 whether the Ester-based or the non-Ester-based hydrocarbon-  
3 like fuels, how we work with the market so the market can  
4 transition in the least painful manner, so that we have  
5 fuels that are compatible with the coming vehicle  
6 technologies.

7 MS. DOUGHMAN: Okay, thank you. Any comments from  
8 the panel? Ted.

9 MR. KNIESCHE: The only think I would say is, you  
10 know, before we were Fulcrum, we were a private equity firm  
11 looking at, and they still exist, U.S. Renewables Group, but  
12 we were looking at a lot of different technologies, and one  
13 of the challenges was what technologies could handle a wide  
14 array of feedstock, and that is really where we settled in  
15 on the thermal chemical route in gasification. But the nice  
16 thing about gasification is it also offers you the  
17 opportunity to make a wide array of fuel product. Once you  
18 make syngas, you can make a whole host of fuels and  
19 chemicals and even electricity from it, so there is a lot of  
20 not only feedstock flexibility in the technology, but there  
21 is a tremendous amount of product flexibility out the back  
22 end, and I think that is an important thing to not overlook  
23 when thinking about this technology and even speaking to  
24 some of the things Jim was talking about on making sure we

1 understand the technology and get in the definitions right  
2 so that it can be allowed to do the things that we think it  
3 can do, and that is one of the reasons we are very excited  
4 about this technology. And the way we look at it is, if you  
5 have control of some sort of biomass or feedstock, what is  
6 the highest value you can get out of it, and right now, we  
7 like the ethanol market, it is the big market, there is some  
8 price certainty out there, there is some regulatory  
9 mechanisms, especially federally, they give you certainty,  
10 but down the line there is a whole host of other things you  
11 can make from syngas chemicals, renewable butynol, actual  
12 clean diesel that is real diesel, that can be blended one  
13 for one in a diesel tank, so I think there is a lot of  
14 opportunity with that technology, which is something to  
15 consider when looking at the regulations.

16 MS. DOUGHMAN: So by syngas, you mean bio syngas?

17 MR. KNIESCHE: Yeah, it is short for synthesis gas,  
18 but it is basically a mix of carbon monoxide and hydrogen.

19 MS. DOUGHMAN: Jim, did you want to add something?

20 No, okay. All right, let's see, I have some more blue  
21 cards. We have a question from WebEx phone, Carl Herman.  
22 Go ahead.

23 MR. HERMAN: [Inaudible] [2:12]

24 MS. DOUGHMAN: You mentioned that there is political

1 opposition. Could you summarize a little bit what some of  
2 the counter arguments might be?

3 MR. HERMAN: [Inaudible] [2:14]

4 MS. DOUGHMAN: Okay, comments from the panelists?  
5 Ted.

6 MR. KNIESCHE: I am certainly not an expert on what  
7 he was discussing, but there is a related proposal  
8 Federally, anyway, which is CEDA, I think it is Clean Energy  
9 Development Authority, or the National Bank for Clean Energy  
10 Deployment, and I think that would be a useful tool for  
11 projects that are looking for money out of the loan  
12 guarantee programs, either from USG or DOE, to be able to  
13 access that money out of more of a quasi-public private  
14 partnership, through a CEDA-like program. I think it would  
15 probably be more efficient, and it would be more directed  
16 towards dealing with projects that do have technology risks,  
17 where I think DOE and some of the other agencies have been  
18 more reluctant to take that risk because of the reasonable  
19 prospect of repayment language that is in the statute. So I  
20 think agencies that are dedicated toward something like  
21 that, that could be a useful mechanism. I am not sure that  
22 California would realistically have something like that,  
23 especially given the budget issues.

24 MR. STEWART: This is just a comment and it is not a

1 California issue, but it is worth noting that the loan  
2 guarantee programs have not really been working well in  
3 Washington, and part of it has to do with the way that they  
4 are structured and that they require the participating  
5 foreign banks or participating banks to have - they do not  
6 give a high enough percentage of guarantee on the total debt  
7 that is being loaned. The USDA has called for comments on  
8 that, I think, by June 15<sup>th</sup>, Ted? And anyone who wishes to  
9 weigh in and urge the OMB and the USDA to reevaluate the  
10 structure of those loan guarantees, that probably would move  
11 our industry forward as rapidly as anything we could talk  
12 about financially.

13 MR. KNIESCHE: The only other thing, there is a lot  
14 of money in the DOE Loan Guarantee Program, I mean, there is  
15 \$8 billion already appropriated, and they could put a  
16 multiplier on that, depending on the projects' risk  
17 associated with it, so, I mean, there is talk of that  
18 multiplier going up to as much as \$60 billion with the  
19 projects, so a lot of that goes into the wind and solar  
20 industry, but, I mean, there is a phenomenal amount of money  
21 available in that program, and if there is any pull that the  
22 State has in Washington, I think that would be the useful  
23 exercise.

24 MS. DOUGHMAN: Okay, thank you. We have the next

1 person is Paul Relis.

2 MR. NUFFER: Paul Relis.

3 MR. RELIS: Trying to figure out, there is a  
4 reference to the 2006 Plan that Jim Stewart made, and in  
5 terms of we are at 2010, you are updating the plan, will  
6 this group - this is a one-time working group, and then you  
7 are going back to develop a document, a draft, will you be  
8 using the 2006 as a benchmark for that? So we will have a  
9 frame of reference to see then, now, why these different  
10 recommendations in 2010 vs. 2006? This is just a process  
11 question.

12 MS. DOUGHMAN: Yes, we are going to take information  
13 from this workshop, we have a group of about 10 State  
14 agencies that we are working with, the Bioenergy Interagency  
15 Working Group, and we are going to work with them to draft a  
16 report, and then we will publish that and have another  
17 workshop to have comments on that. Our thinking so far is  
18 to draw on the 2006 Bioenergy Action Plan, also the progress  
19 to plan, there have been a couple of progress reports  
20 published, most recently last year. Also, a number of the  
21 state agencies that are involved in the Bioenergy  
22 Interagency Working Group have programs underway. For  
23 example, there is the programmatic EIR for the anaerobic  
24 digestion, co-digestion, there are other activities going on

1 in many agencies, so we have compiled a list of all the  
2 activities, and we are checking back with the other  
3 participants in the working group to make sure that, you  
4 know, we have everything, that we are working with them to  
5 see what are the priorities, is there anything that has  
6 dropped off because of furloughs, etc. And then we are  
7 going to take that information, look at all of your comments  
8 today, the written comments, and prioritize. And then we  
9 are going to draft a document that explains how this builds  
10 on what has been done before, how we plan to move forward,  
11 how we plan to measure progress, etc. And then we will come  
12 back to you for more comments.

13 MR. RELIS: Thank you.

14 MS. DOUGHMAN: Yes. Scott Smithline, is that right?  
15 Okay.

16 MR. SMITHLINE: Thank you. Hi, Scott Smithline,  
17 Californians Against Waste. Just to follow-up on the  
18 process question and then one substantive comment. So could  
19 you repeat for me what the deadline is for written comments?  
20 Do you have one - did you say one?

21 MS. DOUGHMAN: June 9<sup>th</sup>.

22 MR. SMITHLINE: June 9<sup>th</sup>, okay. We can submit that.  
23 And I just want to state for the record, as well, that, you  
24 know, there has been additional conversation about the

1 Assembly Bill 222, and support for that particular piece of  
2 legislation, and we would certainly disagree with how it has  
3 been characterized by some of the speakers today, and so,  
4 for the record, I think it is important to state that almost  
5 every major environmental organization is actually opposed  
6 to that piece of legislation, and I certainly hope that the  
7 Energy Commission will consider that, and perhaps either  
8 investigate why, or reach out, or look into perhaps what  
9 some of the different characterizations are. I think that  
10 would be important to us. And we will follow-up on that in  
11 writing. Thank you.

12 MS. DOUGHMAN: Great, thank you. We do want to  
13 consider all perspectives. Allen.

14 MR. DUSAULT: Can I respond to that? And I respect  
15 Scott's position. I talked to the other major environmental  
16 groups and I get a very different perspective. What I have  
17 found is there is usually one individual in one  
18 organization, in particular, that opposes, and the other  
19 organizations, other major environmental groups, actually  
20 are not - would like to support AB 222. There are other  
21 politics that intervene, they like the environmental  
22 benefits, they like the need to create biofuels from waste-  
23 based sources, and maybe some of them will go neutral this  
24 time around, but this is not simply a question of these

1 environmental groups are unilaterally opposed. The sidebar  
2 conversations I have had, I have found, we would love to  
3 support AB 222. There are some other politics intervening,  
4 there are tradeoffs people will do, so just because an  
5 environmental organization opposes a piece of legislation or  
6 goes neutral does not mean that they are not supportive of  
7 what it tries to do. So I think that is just important to  
8 realize.

9 MS. DOUGHMAN: Ted.

10 MR. KNIESCHE: And I can just speak from experience,  
11 at least from the Federal level, we worked very hard over  
12 the last year to get waste eligible under the RFS2, under  
13 the EISA law, and I actually personally worked with some of  
14 the major kind of household name environmental groups on  
15 getting that, and I think we certainly came to an  
16 understanding and a compromise that recycling was always to  
17 be protected, if not enhanced, with all these projects and  
18 all these communities. We are definitely at the very end,  
19 just above landfilling on the reduced reuse recycle waste  
20 hierarchy, and we all actually worked very closely together  
21 in getting that eligibility. And I think one of the issues  
22 that they recognized was that there is a big environmental  
23 picture here that is beyond just the waste industry, there  
24 is trying to find fuel pathways that will meet the biofuel

1 targets, that will not harm some of these indirect land use  
2 issues that are not competing with food vs. fuel and things  
3 like that. And waste, if done right, and I think it needs  
4 to be done the right way, and not at all ever competing with  
5 recycling, and there are actually a lot of projects that we  
6 are looking at, where our project will facilitate the  
7 building of a MRF where recycling frankly does not even  
8 exist today. So I think it is a much more complicated  
9 picture, and I think rather than just being opposed to using  
10 waste at all, I think we just need to sit down and work  
11 through some of the issues. But we were certainly able to  
12 do that on the Federal level.

13 MS. DOUGHMAN: Yes, go ahead. Scott Smithline  
14 again.

15 MR. SMITHLINE: Scott Smithline, Californians  
16 Against Waste. You know, I am not going to speak for other  
17 environmental organizations or what their intentions are or  
18 are not, based on individual conversations. Certainly, I  
19 have a lot of individual conversations with all of the  
20 environmental organizations that are listed as opposed  
21 currently to that legislation. If they change their  
22 position, they change their position, but you know, I  
23 hesitate to speak, you know, I do not know how to interpret  
24 the statement that they are not opposed to it when they are

1 opposed to it, so I am just going to leave that alone. But  
2 with respect to Ted's comment, I think, you know, it is  
3 complicated, but from our perspective, AB 222 as written is  
4 not a sophisticated solution to a complicated problem. It  
5 oversimplifies and I think how it is being addressed here is  
6 oversimplifying what the Bill actually does, and I agree  
7 that we could have a sophisticated conversation about some  
8 of the things that you talked about, and what does it really  
9 mean to protect recycling? I am not convinced the language  
10 in the Bill does that. It does not mean that we could not  
11 talk about what that means and come up with language that  
12 might actually do that. Same with respect to air emissions,  
13 I am not convinced the language in the bill does that, I am  
14 actually sure that it does not do that because it does not  
15 require anything other than the requirement that you are  
16 able to obtain a permit in the State of California, which  
17 you need to do to do anything in the State of California, as  
18 we all know. So, again, there is a lot of rhetoric and I do  
19 not want to get into necessarily a heated debate about it,  
20 but it is clear, this is a very sophisticated issue, as you  
21 say, and so I just feel compelled to say for the record that  
22 the list of environmental organizations against it is long.  
23 Allen, you may have sidebar conversations with them, but  
24 they are opposed to the legislation based on their official

1 submissions to the Legislature, and if we wanted to have a  
2 dialogue about that piece of legislation or about these  
3 concepts, I would be happy to be a participant in that and  
4 have a more sophisticated, timely conversation about it. I  
5 know that is not the purpose of today. So thank you.

6 MS. DOUGHMAN: I have - any further comments from  
7 the panel? Or should I move on to the next blue card?

8 MR. DUSAULT: Let me just move off of AB 222 and  
9 raise an important related point, and that is, if you had  
10 the option to take one of the waste streams, municipal solid  
11 waste that is typically landfilled, that may potentially at  
12 some point in the future be able to recycle, but right now  
13 it is landfilled because there is no market for it, and turn  
14 that into a biofuel vs. landfilling, that is a good thing.  
15 Landfilling has - and, you know, this is not to disparage  
16 people, I used to work in the business myself, but it has a  
17 lot of environmental impacts, and if you can divert some of  
18 that material to reuse, or in some cases existing - this is  
19 my own personal opinion - plastics recycling has a lot of  
20 environmental impacts and a lot of downsides, and if you  
21 could take plastic and make it into a biofuel, and actually  
22 there is a company that can do that, that is a good thing.  
23 And if you were to take the lifecycle environmental impact  
24 of taking that plastic bottle that is either now landfilled

1 or goes to - I will call it Recycling With an Impact - and  
2 put it as a biofuel that has less lifecycle impacts and more  
3 environmental benefits, why should that be lower on the  
4 hierarchy? Because reduce, reuse, recycle. I think biofuel  
5 production - and if you look at the lifecycle benefit of  
6 taking that plastic bottle and maybe putting it into a  
7 biofuel vs. a reuse option, and I used to do this for a  
8 living, by the way, I was involved in the waste recycling  
9 industry for a long time, I think you have to say put aside  
10 the language of recycling and, if we use gasification and  
11 say, what is the net environmental benefit of the different  
12 options, and make decisions on the net environmental benefit  
13 and on public health benefit, I think we would be a lot  
14 further along in terms of coming to solutions.

15 MR. STEWART: Just one other comment on AB 222.

16 MS. DOUGHMAN: Jim, just for the people, you just  
17 want to say your name?

18 MR. STEWART: Oh, Jim Stewart. It is really quite  
19 easy to go around and to say that AB 222 is going to lower  
20 the environmental standards in California because the  
21 standard that exists today in gasification is zero  
22 emissions, it prevents any of these projects ever being  
23 built in the State because they could be challenged for  
24 meeting a scientifically unachievable standard. The

1 standards that the legislation establishes are that we must  
2 meet any and all environmental standards in the State of  
3 California not only for permitting, but on a regulatory  
4 basis in operation. And to say that those standards do not  
5 need to be met is to express a lack of confidence in the  
6 very agencies that are hosting this meeting today, and to  
7 state that they are not going to do their job in making sure  
8 that our technologies, just like any other technologies,  
9 like refineries, or power plants, are going to meet the  
10 standards that are required by the State. So I think it is  
11 a misrepresentation to say that this bill in any way  
12 endangers or lowers the environmental standards of this  
13 State.

14 MR. SMITHLINE: [Inaudible] [2:31]

15 MR. STEWART: I think I have heard it said.

16 MR. SMITHLINE: Scott Smithline, Californians  
17 Against Waste. I think what I said was this bill does not  
18 require anything beyond getting an operational permit in the  
19 State. I did not say that you did not have to comply with  
20 the existing regulations, or that they would not be enforced  
21 upon you, I am quite certain they would, actually. But what  
22 I said was that the bill actually has language in it that  
23 says you have to comply with the law. And my point is that,  
24 essentially meaning this language because, to get a permit

1 and to operate in the State of California, you have got to  
2 comply with the law. And so I guess I see that I do not  
3 think that language adds any value to state policy, I guess,  
4 would be clarification.

5 MS. DOUGHMAN: Okay, I think I am going to need to  
6 move on to the next comment. Thank you. The next blue card  
7 is on the WebEx phone, Robert Kirsten. Yes, go ahead.

8 MR. KIRSTEN: [Inaudible] [2:32].

9 MS. DOUGHMAN: Okay, thank you. Any comments from  
10 the panel? All right, thank you for your comment. Our next  
11 blue card is from Jim Rothstein.

12 MR. ROTHSTEIN: Hi. Jim Rothstein, no affiliation.  
13 As just a member of the public, who generally supports  
14 regulation, I am impressed to hear Allen and  
15 environmentalists make some arguments that perhaps  
16 regulation is not quite as effective or pointing us in the  
17 right direction as we would like. So my question, or you  
18 can just leave it hanging as a comment, is there any  
19 consensus or is there any serious possibility of modifying  
20 the regulatory process in California so that it remains  
21 based on policy, of science, but becomes more comprehensive,  
22 can be a bit more nimble, and be implemented quickly, and  
23 one that the public would trust? That is a question mark,  
24 or you could just leave it hanging. Thank you.

1 MS. DOUGHMAN: Panel, comments?

2 MR. TISCHER: Just from the standpoint of \$176  
3 million project in the predevelopment stage, I would applaud  
4 that direction on the regulatory folks, from the regulatory  
5 folks. It is encouraging to see, you know, Pamela Creedon,  
6 the Executive Officer of the Central Valley Board, moving  
7 forward on the programmatic EIR for the Anaerobic Digestion  
8 folks and the developers there. What would be useful, if  
9 California determines that development of in-State biofuels  
10 is a priority, is to have basically a regional one-stop  
11 shopping center where you have the Water Board, and you have  
12 the Air Board, and you have the other folks where you can  
13 come together in one forum and get it done, and that would  
14 shorten your development time and make it much easier.  
15 Cities and counties have done this and found it to be quite  
16 successful, and not compromise their standards. But  
17 certainly, in renewable energy, we do not seem to be all  
18 pulling the same wagon in the same direction, and I thought  
19 it was tough in water policy, but it is not much better in  
20 renewable energy, so I would encourage that policy direction  
21 where the regulatory authorities came together for one-stop  
22 shopping center if development of in-State renewable fuels  
23 is a state priority; otherwise, we are going to continue in  
24 the same direction that we have been moving in, and it is

1 going to be very difficult for us to get traction to meet  
2 State goals.

3 MS. DOUGHMAN: Allen.

4 MR. DUSAULT: Yeah, and I would like to speak with  
5 two minds on this because, again, I am willing to speak as a  
6 former regulator who wrote regulations and forced  
7 regulations and believed very much in what I did, and  
8 believe in that now also, and that is regulations serve a  
9 purpose. The reason why California has strong regulations  
10 is because there has been environmental impact from  
11 facilities that were not well regulated. We have examples  
12 of that in the Gulf of Mexico right now. And there are many  
13 examples, many other examples where, if you do not have  
14 adequate oversight of industry, and not just industry, but  
15 it is certainly overseeing all different types of  
16 facilities, you are going to have environmental impacts.  
17 And if you do not have adequate enforcement, putting aside  
18 the regulations themselves, you will have impact. So  
19 regulations serve a very important purpose. So, I am  
20 changing hats for a moment now and speaking from my  
21 experience in trying to get things permitted. It is  
22 important to have strong regulations, but it is also  
23 important to have smart regulations. It is one thing to  
24 have limits and controls, and that is necessary, and there

1 are different ways to do it, but often times, when we do  
2 regulations in silos, and when we do regulations over time  
3 that do not cross-reference, we get Catch 22 situations. We  
4 are told actually opposing things by different agencies, or  
5 you have things that are just virtually impossible to comply  
6 with, or the time frames, you know, would not work because  
7 the technology does not work in that time frame and there  
8 are a lot of different types of what I will call regulatory  
9 failure. And I could talk for a very long time of what  
10 those are. But you do need smarter regulations, and  
11 California has a structure that is someone anomalous. Many  
12 or most other states in a sense have a super agency where  
13 there is someone in charge of - there is an Air Division,  
14 there is a Water Division, but there is someone to go to at  
15 the top, or some responsible party that says, "We have  
16 conflicts we need to resolve." The former agency I worked  
17 for experienced this and said, "We need to change the way we  
18 permit. We should be giving an agency permit, not a Water  
19 and Air permit, we need to look at the whole facility when  
20 it comes in." California needs something similar and I do  
21 not want to say that is the only way to do it, but you need  
22 to have some accountability, where you do not now. If you  
23 get a permit from an agency right now, and then you go to  
24 another agency and get a different permit, and they are in

1 opposition, there is nothing you can do. There is no  
2 recourse. You can go back to the agency and say, "This  
3 conflicts." They say, "Okay." So you do need a process and  
4 we do need reform to make our regulations smarter, not  
5 weaker; that is, we do not want relaxed standards, but we do  
6 need to change the way we do business because we are seeing  
7 literally - and not just in biofuels, it is renewable  
8 energy, it is all sorts - it is composting, all sorts of  
9 facilities that are - and project developers are saying, "We  
10 are going to go elsewhere to do our business because it is  
11 so difficult in California." And I see that an awful lot.  
12 And I do not want that to happen. I want that business to  
13 stay here. I want us to be developing those new ways to do  
14 business, to do the research, to do the cutting edge  
15 installations. So point well taken, we need to have strong  
16 regulations, and we need to have smart regulations.

17 MS. DOUGHMAN: Anymore comments for the panel? No?  
18 Okay, we have another blue card from Val Tiangco of SMUD.

19 MR. TIANGCO: I have a few comments. My name is  
20 Valentino Tiangco, I work for SMUD, I used to work with  
21 California Energy Commission before, I was the Biomass Lead  
22 before I left CEC. Just a big comment. Indeed, managing 80  
23 or over 80 million tons of biomass clearly present  
24 challenges and opportunities for all of us in this room and

1 it presents challenges and opportunities for technology,  
2 renewable energy production, policy, environment, social,  
3 market, and economic development. We need concerted efforts  
4 from the State, from the industry, utility, Federal, and  
5 other stakeholders to change the management and regulatory  
6 policies or philosophies, to better reflect the strategic  
7 value of biomass as a renewable resource. It is a good use.  
8 Sacramento Municipal Utility District last year from the  
9 renewable energy mix, biomass contributes about 49 percent.  
10 SMUD is on track to meet the RPS goals this year, 2010. We  
11 have more aggressive goals than the State, 23 percent - 20  
12 percent for RPS and additional three percent for green  
13 energy. For year 2020, we had 33 percent RPS goals and  
14 additional four percent for green energy, so total of 37  
15 percent. This year, biomass for the renewable, biomass will  
16 contribute about 61 percent from solid biomass direct  
17 combustion and also the use of landfill gas to power.

18 MS. DOUGHMAN: Just to clarify, 61 percent of your  
19 renewables?

20 MR. TIANGCO: Yeah, 61 percent of our renewables, 52  
21 percent out of the 61 percent being contributed by direct  
22 combustion of biomass and also landfill gas to power, and  
23 about nine percent coming from biomethane, pipeline  
24 injection to our transmission pipeline, going through our

1 most efficient power plant, 6,900 BTU per kilowatt hour, we  
2 just did 6,500 25 megawatt at Consumnus, our combined cycle  
3 power plant. In terms of looking on the actions that the  
4 agencies should take, both for biopower and biofuels, when  
5 it comes to difficulties in obtaining reliable and  
6 affordable feedstock, I would like to echo that funding is  
7 needed to help accelerate innovations, to reduce costs for  
8 reliable and affordable feedstocks, increased efficiency,  
9 and expand applicability both for agriculture, forestry and  
10 MSW research. Maybe we can repeat what we had before, this  
11 approval [Phonetic] account, to support agricultural-based  
12 fuels and also forestry. I would like to repeat, we need to  
13 capitalize the low hanging fruits, feedstocks such as animal  
14 or dairy waste, or livestock waste, food waste, landfills  
15 and wastewater. There is a need for processing facilities,  
16 drying systems, for woody biomass, agricultural waste, and  
17 maybe energy crops to reduce handling costs and create fuel  
18 markets for both biopower and biofuel. We need to aggregate  
19 and optimize biomass collection and transportation systems  
20 to reduce handling costs. There is a need for advanced  
21 treatment technologies for landfill gas and digester gas to  
22 improve fuel quality, reduce nitrogen oxide emissions,  
23 process economics, and also the market activity of this  
24 feedstock. We need to consider municipal solid waste, the

1 organic production of municipal solid waste. There is a  
2 need to accelerate adoption of new technologies in order to  
3 expand biopower markets and mitigate fuel related costs and  
4 issues. We need to continue to leverage funding with  
5 Federal government, US DOE and USDA. Yesterday, US DOE has  
6 announced the funding opportunity for research to focus on  
7 sustainable production of large quantities of non-food  
8 biomass for bioenergy. The intent of this funding  
9 opportunity is to quantify and understand environmental  
10 impacts of different strategies for producing the large  
11 quantities of energy crops, and other crops at the watershed  
12 scale. This is part of DOE's commitment to expanding  
13 domestic bioenergy without negatively impacting  
14 environmental quality, biodiversity and availability of food  
15 fiber, feed, and water. Another point, we need to encourage  
16 the establishment and support payments for sustainable  
17 biomass supply in order to solve the difficulties in  
18 obtaining reliable and affordable feedstock materials.  
19 Another point I would like to echo what we have written in  
20 the California Biomass Collaborative Roadmap, we need to  
21 implement standards and best management practices for  
22 sustainable biomass supply. Another point, we need to  
23 accelerate adoption of fuel treatments in forested areas to  
24 enhance fire prevention and forest health, and timber stand

1 improvement. Another point, in order to solve this reliable  
2 and affordable feedstock material, we need to establish and  
3 maintain commodity markets for biomass, including MSW,  
4 agricultural, and forest refuses [phnnetic]. I think it is  
5 also important if we can help implement waste shed or  
6 business enterprise or biomass enterprise zones such as  
7 written in the Biomass Roadmap, so that we can have more  
8 reliable and affordable feedstock for both biopower and  
9 biofuel. We need to encourage or provide additional  
10 opportunities for long term contracting, both for feedstock  
11 supply and also for power or biofuel production. We need to  
12 limit the organic fraction, or we have to continue that, the  
13 waste allowed in conventional landfills, to encourage  
14 development of waste reduction, recycling, recovery,  
15 conversion alternatives -- and pay attention on this one -  
16 increase tipping fees at conventional landfills to support  
17 diversion programs. We need to increase and implement fines  
18 at local jurisdiction levels that were not able to comply  
19 with these programs. In terms of helping commercialize  
20 emerging technologies and also increase the use of biomass  
21 for power production and also for biofuel production, we  
22 need to implement biopower systems at government and other  
23 public facilities level, meaning State agencies, or any  
24 public facilities should require government partakes of

1 biomass energy, biopower or biofuel, and other bio-based  
2 products. So for State government literacy, I would like to  
3 suggest in terms of looking on the statutory changes,  
4 perhaps we should enact that the State and Local Government,  
5 through public procurement, that they should use biopower as  
6 part of the energy and also use biofuels for their  
7 transportation fleet. I would like to recommend, also  
8 perhaps statewide, to implement feed-in tariff program.  
9 SMUD started the feed-in tariff program earlier this year,  
10 January 4 of 2010, we had 100 megawatt and on January 4, we  
11 were fully subscribed. But unfortunately, most of the  
12 offers were on solar PV and the biomass came along at the  
13 end through our program that we tried to implement, and we  
14 got funding through the US DOE Community Deployment of  
15 Renewable Energy. I think it is important that we need to  
16 replace in terms of looking on the statutory changes that we  
17 need to replace, I believe, technology-specific regulations,  
18 and we need to replace it with performance-based  
19 environmental standards. We need to - I agree that we need  
20 to revise definitions for conversion technologies as waste  
21 disposal, or eliminate technology and transformation  
22 definitions. I think that is all. Thank you.

23 MS. DOUGHMAN: Thank you. It is 5:00 and I think I  
24 just want to thank the panel and thank the audience for your

1 helpful comments and giving us lots of food for thought.  
2 Please provide any written comments by June 9<sup>th</sup>, and look for  
3 our notice for our next workshop. Thank you very much.

4 [Adjourned at 5:00 P.M.]

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