

RE: INDEPENDENT EMISSIONS MARKET ADVISORY COMMITTEE

INDEPENDENT EMISSIONS MARKET ADVISORY  
COMMITTEE MEETING

Taken place at:  
California Environmental Protection Agency  
1001 I Street, Sacramento, California  
June 20, 2018  
9:00 A.M. - 11:00 A.M.

Reported By: LaCreisha Vaughn, CSR 13945

1 ASHLEY CONRAD-SAYDAH: Good morning, my name is  
2 Ashley Conrad-Saydah. I'm deputy secretary for climate  
3 policy here at CalEPA, and this is the first meeting of the  
4 Independent Admissions Market Advisory Committee. Just a  
5 few housekeeping items before our secretary gives a few  
6 words and get us started. You are here at CalEPA on the  
7 second floor. If there's a signal for an emergency, please  
8 follow the staff out the doors and we'll exit the building.  
9 For the bathrooms, they are right outside this door to the  
10 right. I think that's it in terms of emergencies.

11 In terms of other housekeeping items this entire  
12 meeting will be recorded by a court reporter. And she  
13 needs everyone to introduce himself or herself when  
14 speaking. If you do not have a card in front of you, you  
15 need to state your name clearly so that she can record it  
16 for the transcript. When it comes to public comments, we  
17 will bring around a microphone so that you can actually  
18 speak into the microphone and the folks on video feed and  
19 audio feed will be able to hear you.

20 So who you can see on the video right now is  
21 Dallas Burtraw who is joining us from Washington D.C., and  
22 Meredith Fowlie is on audio right now but will join us on  
23 video from time to time and she is in Missouri. We will  
24 introduce the members of the committee in just a moment,  
25 but for now I would like to turn this over to Matt

1 Rodriguez, Secretary for the California Environmental  
2 Protection Agency.

3 MATT RODRIGUEZ: Well, thank you Ashley, and let  
4 me start by thanking the members of the committee for  
5 agreeing to do this. I know it's a commitment of your time  
6 and resources, and we appreciate your willingness to step  
7 up and help us out here because you do perform a very, very  
8 valuable function. I had two thoughts as I was coming in  
9 to work today. One is -- and I'm sure the staff in CalEPA  
10 is tired of hearing that, but I will always fall back on my  
11 law school days and remembering the class where we were  
12 taught that any decision the government makes or any  
13 decision we make is only as good as the information we have  
14 available to us in making that decision.

15 And so as we're looking ahead and implementing  
16 our climate programs in the future, it's important to get  
17 input from a variety of perspectives and really make sure  
18 we understand the implication of our program and what  
19 effects they may have and so that's why it's especially  
20 helpful to have the expertise of this committee and the  
21 members of this committee to give us their perspective on  
22 how our programs are working and what we might be thinking  
23 about in the future and what impacts you see from these  
24 programs.

25 I think the other thing that came to mind -- and

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<p>1 I was mentioning this to the staff the other day as well,                  2 this reminds me very much of a meeting that we had back in                  3 2012 right before we initiated the Cap-and-Trade Program.                  4 We met with a number of economists down at the Bren School                  5 in Santa Barbara because we were interested in getting                  6 their perspective on what was likely to occur with the                  7 implementation of the Cap-and-Trade Program -- were there                  8 things we should be looking for in terms of impacts, both                  9 in terms of reducing greenhouse gases and also impacts on                  10 the economy as well.</p> <p>11 And I remember very clearly -- I have been the                  12 secretary for I think a little bit more than six months,                  13 but I was fairly new on the job and being interested to                  14 hear how complex the economic analysis is. There are just                  15 a number of factors that go into trying to predict the                  16 impact of a program on the economy and in addition to                  17 looking at the efficiency of the program, you have to look                  18 at the changes in your manufacturing centers. You have to                  19 look at the education. You have to look at training for                  20 your employment force. You have to look at external                  21 economic impacts on your -- on your state. And at the end                  22 of the day my take away from the meeting was that the                  23 economist said that "Well we can't really tell you what's                  24 going to happen, but we're going to write some really                  25 interesting reports in a couple of years." Which didn't</p>	<p>1 and we will look forward to working with you within the                  2 agency and the days to come. So with that I will turn it                  3 back over to Ashley and get it started for real now.</p> <p>4 ASHLEY CONRAD-SAYDAH: So we'll actually jump in                  5 with introductions. We'll start with introductions for the                  6 committee members first and then go to everyone else. So                  7 Meredith and Dallas I think we'll turn to you first and                  8 make sure our connections are working. Dallas if you can                  9 get us started, please introduce yourself.</p> <p>10 DALLAS BURTRAW: I'm Dallas Burtraw. I'm here in                  11 Washington DC today. I want to say hello to everyone and I                  12 apologize for being off campus today. I'm not there in                  13 person, but I have a good connection here and I can see and                  14 hear everything very well.</p> <p>15 MEREDITH FOWLIE: I'm Meredith Fowlie. I'm on                  16 the faculty at UC Berkley but right now I'm on sabbatical                  17 in Zurich, and I am sorry I can't be there in person but                  18 will certainly be there for future meetings.</p> <p>19 ROSS BROWN: Ross Brown with the Legislative                  20 Analyst's Office. I cover climate energy issues for the                  21 office and I look forward to working with the committee.</p> <p>22 QUENTIN FOSTER: I'm Quentin Foster. I currently                  23 work with the revenue defense and I'm excited for this                  24 opportunity to serve on this committee and looking forward                  25 to working with EPA staff and fellow committee members to</p>
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<p>1 actually fill me with a great deal of confidence, I was a                  2 little concerned about where we were going. But if                  3 somebody had told me back in 2012 that in 2018 we would be                  4 well on our way to meeting our 2020 targets, that we would                  5 have a plan for how we're going to meet an ambitious 2030                  6 target, that we would have partnerships all around the                  7 world even governments that are working with us on climate                  8 change on the programs, that we would have a successful                  9 program -- Cap-and-Trade Program that had brought in                  10 billions of dollars to the state that could be invested in                  11 additional programs for reducing greenhouse gas emissions,                  12 and if somebody had told me that "Oh, by the way, you will                  13 move from 10th largest economy in the world to the 5th                  14 largest economy," I would have been very relieved.</p> <p>15 So I think we find ourself in a good position                  16 right now. But we need to continue to reach out and get                  17 the perspectives of the experts such as yourselves, so we                  18 can plot out the future and look at what we need to do to                  19 make sure that we achieve our goals in the future and make                  20 sure that we're equally successful in achieving those goals                  21 while continuing to grow the California economy, to make                  22 the California economy the model that it is.</p> <p>23 So no small task. But as I started by saying                  24 that's why I'm very appreciative of your willingness to                  25 work with us here to help us and give us your perspectives</p>	<p>1 ensure that this program is working and that the                  2 environmental integrity of the program is preserved and                  3 moving forward. Thank you for this opportunity.</p> <p>4 ANN CARLSON: I'm Ann Carlson. I am the Shapiro                  5 professor of environmental Law in at UCLA School of Law                  6 where I also direct the institute on climate change and the                  7 environment and I'm very happy to be here and looking for                  8 to working with all of you.</p> <p>9 DANIEL CULLENWARD: Daniel Cullenward, I'm a                  10 lawyer and economist with a nonprofit. I also teach at                  11 Stanford Law School and look forward to speaking with you.</p> <p>12 CHRIS TIEDEMANN: Good morning. My name is Chris                  13 Tiedemann. I'm the deputy secretary for law enforcement                  14 and counsel at CalePA.</p> <p>15 EMILY WIMBERGER: Hi, I'm Emily Wimberger. I'm                  16 the chief economist at the California Air Resources Board.</p> <p>17 RAJINDER SAHOTA: My name is Rajinder Sahota and                  18 I'm assistant division chief at the Air Resources Board. I                  19 oversee all of the climate programs.</p> <p>20 ASHLEY CONRAD-SAYDAH: Thank you. And as we go                  21 through public comment, we'll have an opportunity for you                  22 to introduce yourselves as well.</p> <p>23 First, we wanted to talk about the meeting format                  24 because this is an all world meeting and we need to                  25 establish essentially the rules of the room for how we meet</p>

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<p style="text-align: right;">Page 9</p> <p>1 and how we interact. We have memos in the back and these  2 memos include the legislative authority for the IEMAC that  3 was laid out in AB398. So we put together a memo for  4 consideration of the committee on how we get together and  5 how we compose the annual report that's called for in the  6 legislation.</p> <p>7           So if you note on the legislative authority, it  8 essentially tells us who should be on the committee -- at  9 least five experts on the emissions trading market design  10 and three of those appointees have to come from the  11 governor's office and two from the legislature, so we've  12 achieved that goal. The committee members have certain  13 requirements. The legislation also tells us that at least  14 annually we have to hold a public meeting and report to  15 both the state board, meaning the California Air Resources  16 Board and joint legislative committee on climate change  17 policies on both environmental and economic performance of  18 the regulation adopted by the state and other relevant  19 climate policies. So this remains in effect until 2031.  20 So the committee will meet annually and produce a report  21 until that time.</p> <p>22           Additionally the state board needs to actually  23 work with the -- so the Air Resources Board has to also  24 report to this committee if two consecutive auctions exceed  25 the lower of the price containment levels established</p>	<p style="text-align: right;">Page 11</p> <p>1 regularly make regulatory decisions and quasi-adjudicative  2 decisions. And behind the act is a policy that those  3 decisions should not be made in a back room, deals should  4 not be being cut in the back room about those decisions and  5 the discussions on those matters should occur in public  6 even though the act might make more sense when considering  7 those bodies, it does apply to this body. And there's some  8 provision of the act that might not be intuitively obvious  9 in the conduct of your business.</p> <p>10           The main provision is the open meeting provision  11 and that provides -- when the committee hears, discusses,  12 or debates a matter within its jurisdiction or when a  13 majority of the committee does that, it has to be in a  14 publicly noticed meeting with the agenda posted in advance.  15 And the reason I say that might not be intuitively obvious  16 is for many of you, if you're serving on a panel that might  17 have a charge that seems similar to this one in an academic  18 context, what you would routinely do and what we routinely  19 do when we serve in that sort of capacity other than on a  20 public body is we have a conference call before the meeting  21 of all the members to talk about -- "Well, what are you  22 going to talk about? What you are you going to talk about?  23 What are we going to do? How are we going to wind this up  24 at the end of the meeting?" And that is something  25 prohibited under the Bagley-Keene Act -- is prohibited if</p>
<p style="text-align: right;">Page 10</p> <p>1 pursuant to an earlier legislation.</p> <p>2           In terms of meeting format, all of the meetings  3 of the committee need to be conducted according to the  4 Bagley-Keene Open Meeting Act and that is a law that  5 applies to many of our government committees. I'm actually  6 going to move the agenda around a bit and give Chris time  7 to talk a bit about the open meeting so we have those  8 principals before we move forward with the agenda.</p> <p>9           MATTHEW RODRIGUEZ: Thanks Ashley. I provided  10 members of the committee with a short memorandum about the  11 Bagley-Keene Open Meeting Act as well as a copy of the act  12 itself. And generally the act embodies a state policy that  13 when a multimember body is created by state statute, it  14 exist to serve the public and, therefore, the public should  15 have an opportunity to attend the meetings of the body and  16 provide comments to that body. In order to do that, the  17 act requires that there be a ten-day notice of meetings of  18 any state bodies that are subject to its provisions and  19 that there also be a ten-day notice of the matters that  20 will be discussed at the meetings of the body.</p> <p>21           A lot of the provisions of the Bagley-Keene Act,  22 if any of you dove in and actually read it, make a little  23 more sense when you consider the many types of state bodies  24 created by statute in California including bodies such as  25 the Air Resources Board or the State Water Board where they</p>	<p style="text-align: right;">Page 12</p> <p>1 more than two members of the committee engage in that sort  2 of discussion.</p> <p>3           The act prohibits not only the actual physical  4 coming together of a quorum of this body to discuss matters  5 related to the committee's jurisdiction, it also prevents a  6 conference call or video conference discussion of a  7 majority of the members of the body about the subject  8 matter of the committee. There's also a provision in the  9 Bagley-Keene Act that prohibits what are known as serial  10 meetings and serial meetings are not an actual coming  11 together of a majority of the members of the board to  12 discuss a matter within it's jurisdiction. They are  13 instead a series of discussions between members of the  14 board that are tantamount to a meeting of more than --  15 meeting of a quorum or majority of the board to discuss a  16 matter within the jurisdiction of the board.</p> <p>17           So if one committee member calls another and  18 says, "I think the report should reflect whatever, would  19 you call a third member of the committee and make sure that  20 we're all together on this?" That is a prohibited serial  21 meeting. The Bagley-Keene Act provides both civil and  22 criminal penalties for violation of the act, so in addition  23 to the fact that it's simply good public policy, there are  24 penalties for violation of the act.</p> <p>25           Some of the frequent questions that come up</p>

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<p style="text-align: right;">Page 13</p> <p>1 particularly in a panel of this sort, include "Well, what  2 about attendance by a majority of the members of the  3 committee in an academic conference where we discuss  4 matters that touch on climate policies. And I direct you  5 to Section 11122.5 of the act, which provides a series of  6 examples of those types of things that are not prohibited.  7 You can attend ceremonial or social gatherings with the  8 majority of the members of the committee without violating  9 the act. Of course, you shouldn't use that gathering to  10 discuss the matters that should be discussed in open  11 meeting. You can also attend conferences where you will  12 hear about matters that touch on the committee's  13 jurisdiction, so long as at that conference a majority of  14 the members of the committee don't get together and talk  15 about the subject matter of this committee which really is  16 the report to the legislature and CARB about the climate  17 policy.</p> <p>18           The act does not prohibit communication with  19 CalEPA staff about matters such as scheduling the meetings,  20 the proposed agenda of the meetings, and procedural aspects  21 of the meeting. We can communicate with all of the members  22 of the committee and all of the members of the committee  23 similarly can communicate with us. We would not engage in  24 horse trading about what the substance of the report will  25 be, but there's no prohibition of staff communicating with</p>	<p style="text-align: right;">Page 15</p> <p>1 ask you to provide us with the records including any such  2 records that you keep on your personal devices including  3 your cell phone. We review the records to determine  4 whether any of those are privileged or otherwise exempt  5 from production, and then we at CalEPA would take  6 responsibility for producing the records.</p> <p>7           And the reason for that and the reason I want to  8 bring this up is if you get a Public Records Act request in  9 your capacity as a committee member and fail to respond to  10 it and someone goes to court to sue for failure to respond,  11 there's a mandatory attorney's fees award if that person  12 prevails and the award is the responsibility of the public  13 agency, meaning CalEPA and not you, so we really want to  14 know about those requests and have an opportunity to work  15 through them -- work with you and make a proper response to  16 the request. Both the Bagley-Keene Open Meeting Act and  17 Public Records Act have just -- I don't want to say  18 infinite number of complexities, but close to infinite  19 number of complexities in their application and we're  20 available when situations arise to provide advice on both  21 acts and you shouldn't hesitate to get in touch with Ashley  22 or with me if you have a question about either of those  23 statutory schemes.</p> <p>24           So if you have questions now, I can answer them  25 or if they come up when we're discussing the process for</p>
<p style="text-align: right;">Page 14</p> <p>1 the majority of the committee members.</p> <p>2           The act also provides that written material that  3 is distributed to a majority of the committee members  4 should also be provided to the public including material  5 related to the committee's business. If material  6 distributed, for instance, by a board member to all of the  7 other members is related to an agenda item, we would  8 typically post that on our Internet site with the meeting  9 materials relating to agenda items.</p> <p>10           If a member of the committee wants to distribute  11 information to all members of the committee that doesn't  12 directly relate to an agenda item, we will -- we would ask  13 that the material be provided to us, we will make certain  14 that it's distributed to all members of the committee, and  15 we will also make sure that we comply with the act in  16 making that material available for any members of the  17 public who request to inspect the material.</p> <p>18           Finally, I want to just say something short about  19 the California Public Records Act. As members of this  20 committee, you're subject to the California Public Records  21 Act for any documents that you prepare, own, use, or retain  22 that relate to the business of this committee. All of  23 those records are considered public records and if a member  24 of the public makes a request either to CalEPA or to you  25 directly for those records, what we would typically do is</p>	<p style="text-align: right;">Page 16</p> <p>1 future meetings, I'll be here and I can answer those. So  2 thank you.</p> <p>3           ASHLEY CONRAD-SAYDAH: Are there any questions  4 from committee members?</p> <p>5           QUENTIN FOSTER: Clarifying question for me in  6 terms of what constitutes serial meetings. Does that also  7 constitute one on one communication with an individual who  8 is also serving on the committee? So for example, a phone  9 call to one committee member, two phone calls to another  10 committee member, what does constitute serial meetings  11 mean?</p> <p>12           MATTHEW RODRIGUEZ: No, one conversation is not a  13 serial meeting because it doesn't involve a quorum, but you  14 still have to be careful with those sort of communications  15 because if you engage in a one to one conversation and the  16 person you're talking then proceeds to call another member  17 of the committee to pass on that information, it could be a  18 prohibited serial meeting. So that's the type of thing  19 we're -- we advise caution and you might want to ask us the  20 specific question if you have a specific problem.</p> <p>21           QUENTIN FOSTER: Thank you.</p> <p>22           ROSS BROWN: Question, maybe this kind of gets  23 into some of the later agenda items for the meeting, but I  24 think sort of the term kind of within the subject matter  25</p>

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1 jurisdiction of the committee and sort of the discussion of  
 2 any of those items given that the legislation is somewhat  
 3 broad on what the committee should be looking at, I guess  
 4 I'm curious about, kind of, examples of types -- I mean for  
 5 example, you know, I'm curious on is there any information  
 6 on program X or Y or Z that the committee members have as  
 7 sort of requesting that type of infor -- you know, are they  
 8 aware of analyses that have been done? Is sort of request  
 9 of that nature, you know, would that be kind of considered  
 10 a discussion within the subject matter of the committee?  
 11 Similarly, I guess, you know, if I was interested  
 12 in just, sort of, several committee member's thoughts on  
 13 the analysis that was done by a particular organization.  
 14 For example, even a methodology or something like that. I  
 15 mean are those types of discussions all kind of subject to  
 16 all of the requirements that we're talking about here.  
 17 MATTHEW RODRIGUEZ: That's a good question. In a  
 18 stricter sense, at least the way I read the statute, and  
 19 secretary or lawyers -- so you can weigh in -- but the  
 20 jurisdiction subject matter that this committee is charged  
 21 with is the report to the legislature about these policies,  
 22 and if you are communicating with the other members of the  
 23 committee for purposes of reaching an opinion for a report  
 24 about these policies, that's a prohibited meeting. I  
 25 understand that the committee members work in the field of

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1 climate change and I think it's too broad to conclude that  
 2 any time the committee members speak with one another about  
 3 general matters related to climate change, that's a  
 4 prohibited meeting under Bagley-Keene.  
 5 But if you're doing it with the purpose of  
 6 reaching a conclusion about the report to the legislature,  
 7 that's a prohibited meeting. And as far as the criminal  
 8 penalties under Bagley-Keene, the statute provides that a  
 9 violation of the act with the intent to deprive the public  
 10 of information that the public is entitled to is a  
 11 misdemeanor. So if you're, for instance, talking at a  
 12 conference about, you know, general planet-wide climate  
 13 policies, it'd be very hard for us to tell the members of  
 14 the committee you can't do that I don't think anyone would  
 15 serve on the committee if we were to do that. But if  
 16 you're really contacting more than one other member of the  
 17 committee to get your ducks in the row regarding the report  
 18 to the legislature that's a prohibited meeting.  
 19 So I don't know that I am being that clear but  
 20 that's really --  
 21 ROSS BROWN: Yeah, I think it's still a little  
 22 bit blurry sort of in my mind about kind of where to draw  
 23 that line, where you're just chatting generally about  
 24 climate policies versus forming an opinion for the purposes  
 25 of the report. So I guess just in more -- I mean, we can

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1 sort of have further discussions on specific items as they  
 2 come up sort of along the way, but I guess that's just my  
 3 overall question.  
 4 MATTHEW RODRIGUEZ: And, again, you can always  
 5 call us for specific advice about a specific phone call  
 6 that you want to make.  
 7 ASHLEY CONRAD-SAYDAH: Yeah, I think a number of  
 8 committee members had asked about existing relationships.  
 9 You all work together, contact one another, and have these  
 10 existing relationships, and many have asked can they  
 11 continue those business relationship, continue to publish  
 12 together, continue to reach out to one another to ask  
 13 questions on these broader topics. So that was where a lot  
 14 of -- I think I heard it from every one of you, that  
 15 question.  
 16 MATT RODRIGUEZ: I'll just say one I don't want  
 17 to and shouldn't be and continue be the attorney for the  
 18 committee and I think Chris did a very nice job of  
 19 summarizing the law on all of this. My observation here is  
 20 that on its face the statute seems to provide for an event  
 21 for a broad inquiry by this committee and to the climate  
 22 programs, how they are working, and economic impacts and  
 23 their efficiency.  
 24 On the other hand, the actual role of the  
 25 committee is relatively narrow in the sense of a report --

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1 coming up with a report that would be going to ARB and to  
 2 the legislature or the legislative committee. So as Chris  
 3 was suggesting it's really that work on the report, that  
 4 legislative report and that discussion you would be having  
 5 on that report that would cause issues about Bagley-Keene  
 6 and that sort of thing.  
 7 But in general you are here because you have some  
 8 pre-existing knowledge of these programs, how they work,  
 9 the effects on the economy, but your participation in this  
 10 committee shouldn't inhibit that continued work. In fact  
 11 that's one reason why we're interested in your perspective.  
 12 But we will be finding that balance, but I think Chris  
 13 identified it's your -- let's look at your jurisdiction and  
 14 and your conversations related to that report and what you  
 15 would say to the legislature in your role as a member of  
 16 the committee is what we would be looking at as we're  
 17 looking at applications in the Bagley-Keene Act.  
 18 CHRIS TIEDEMANN: Yes.  
 19 MATTHEW RODRIGUEZ: I'll stop being an attorney.  
 20 ANN CARLSON: So I gather this is true of email  
 21 communication for self-editing report? You can't have  
 22 serial comments on our report?  
 23 CHRIS TIEDEMANN: Yes, that's correct. And part  
 24 of the reason that Ashley and I discussed moving my  
 25 comments ahead in the agenda is we'll get to that when

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1 we're talking about the process for a report because when  
2 we talk about that the Bagley-Keene Act presents some  
3 difficulty, because it definitely does encompass email  
4 communications and decisions that might be made by the  
5 majority of the committee about editing the report or  
6 final -- you know, what the final record should look like.  
7 So I think we will get into the particulars of the next  
8 agenda item.

9 ASHLEY CONRAD-SAYDAH: Just checking in with  
10 Meredith or Dallas to see if you have any questions or  
11 comments.

12 DALLAS BURTRAW: I heard that clearly and I  
13 think I understand, thank you.

14 MEREDITH FOWLIE: I'm with Dallas also. I may  
15 have questions later on as we get into the particulars.  
16 Thank you.

17 ASHLEY CONRAD-SAYDAH: Okay. Great. And because  
18 we moved an agenda item and completed it, we actually have  
19 an opportunity for public comment. If there are any  
20 members of the public who wish to comment on this item,  
21 please raise your hand and we will bring you a microphone.

22 Okay, seeing none we'll continue with agenda item  
23 Number 2 and talk about the meeting -- continue with the  
24 meeting format. So we discussed the fact that these  
25

1 established term for the chair, it would be voluntary and  
2 should we change the chair, we could have another vote. We  
3 will also have a court reporter present at each meeting,  
4 and the court reporter will prepare a full transcript and  
5 that transcript will be available online as soon as it  
6 becomes available to CalEPA. Are there any questions on  
7 simply the meeting format? Okay great.

8 So importantly let's talk about the report, and  
9 this is the deliverable that we're responsible for as part  
10 of the legislation. So to facilitate the report what we  
11 plan to do is upload the transcript to the website that  
12 we've established as part of the CalEPA site and upload a  
13 summary as well of that transcript. So Bill, who's in the  
14 audience, is a staff member of our climate program and Bill  
15 will be taking the transcript and your comments here today  
16 and creating a summary report, so that if someone want to  
17 get sense of what happened in the meeting, they don't need  
18 to read through the full transcript.

19 That summary report will also be available to all  
20 of you members and each of the members will have an  
21 opportunity to provide comments to that report, add  
22 additional items and additional comments and we will bundle  
23 that all together and make that available potentially if  
24 that's what you all agree to. That compilation will be the  
25 report that could be submitted for your annual report. If

1 meetings and discussions must be conducted according to the  
2 Bagley-Keene Open Meeting Act.

3 Now we'll talk generally about the meeting  
4 format. So we planned to arrange presentation to the IEMAC  
5 for each of our meetings on California's climate policies,  
6 including publicly available environmental economic  
7 information that indicates the performance of those  
8 policies, and, again, the publicly available pieces are  
9 pretty important. The committee will not be privy to  
10 information that the public wouldn't otherwise see or  
11 hadn't already seen.

12 At the meetings committee members will have an  
13 opportunity to comment on the presentation, ask questions  
14 of the presenters, and on the environmental economic  
15 performance of the Cap-and-Trade regulation and other  
16 relative kind of policies. The public will also have an  
17 opportunity to comment. So to run the meetings and to make  
18 sure that the committee members all have an opportunity to  
19 weigh in and the public may weigh in, we are recommending  
20 that you all select a chair and vice chair and the chair  
21 will run the meetings and facilitate the meetings. If the  
22 chair is not present the room could elect for a vice chair  
23 to facilitate the meeting.

24 We're suggesting this would occur by vote and we  
25 can do another vote as necessary. So there would be no

1 you choose a different approach, we can discuss that today.  
2 But essentially what we're looking at is it would be an  
3 opportunity for the legislature and air board to look at  
4 your comments and to weigh your expertise on the policies  
5 that we're discussing today and to see that in a compiled  
6 format. There are obviously other opportunities that you  
7 may or may not want to suggest for the committee. That's  
8 the CalEPA staff suggestion and we're interested in your  
9 feedback on that approach.

10 ANN CARLSON: So I guess my initial reaction to  
11 that is that seems like a great and bare minimum, and so I  
12 appreciate that we get some restrictions that we operate  
13 under because of Bagley-Keene. I appreciate that we're  
14 limited to that, but I hope we will have the opportunity to  
15 do a bit more than that. I guess that's my initial  
16 reaction to it, is that maybe in the first round when we  
17 don't have a lot of time that might suffice, but I would  
18 hope that we could get a bit more in depth in writing on  
19 particular issues that we think probably need more than  
20 just comments.

21 ASHLEY CONRAD-SAYDAH: So along those lines --  
22 and I should -- I should mention that Bill himself is an  
23 economist so when he puts his summary together he will have  
24 expertise in doing that work.

25 So in thinking about how to go beyond the bare

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<p style="text-align: right;">Page 25</p> <p>1 minimum and potentially dig in on some of these details and                  2 being mindful of the Bagley-Keene Act, some of you have                  3 suggested the idea of putting together subcommittees to                  4 discuss particular items might be necessary. So depending                  5 on what we hear in the presentation and the type of                  6 feedback, if you do want to establish some subcommittees,                  7 you would do that in groups of two to avoid this -- to                  8 basically comply with the open meeting act. So if that's                  9 something you desire as we go through our presentations                  10 today or as we continue to work, we can do that, but it                  11 needs to be established in the public meeting not outside                  12 the public meeting.</p> <p>13 QUENTIN FOSTER: So then we would be deciding                  14 that today?</p> <p>15 CHRIS TIEDEMANN: Well, you can decide that today                  16 or you could decide to establish subcommittees at any                  17 future meeting, a subcommittee of two if there's a                  18 particular task that you want to assign to such a                  19 subcommittee. You can establish a subcommittee of more                  20 than a quorum of the committee, but the problem with that                  21 is those meetings are subject to the Bagley-Keene Act and                  22 they have to be publicly noticed and agendized and held in                  23 the exact same manner as the meeting that's being held                  24 today.</p> <p>25 QUENTIN FOSTER: Thank you.</p>	<p style="text-align: right;">Page 27</p> <p>1 DANIEL CULLENWARD: No, I just -- I mean we can                  2 get into this in the particulars. But again, I think the                  3 ability of this committee to operate well is going on the                  4 contingent on having the ability to transmit public                  5 information in a public way during and in between committee                  6 meetings. Even if there are subcommittees, I think it's                  7 very important for the primary documents and the reports                  8 that are considered by subcommittees to be made available                  9 and to be made available as widely as possible, so I hope                  10 that would be a consideration for the committee moving                  11 forward.</p> <p>12 ASHLEY CONRAD-SAYDAH: And we will get into the                  13 particulars as we hear the presentation later and have that                  14 discussion.</p> <p>15 CHRIS TIEDEMANN: I just want to clarify one                  16 thing that might be obvious to everyone in this room but                  17 that is if a subcommittee were to take upon itself a                  18 particular portion of the report, it can prepare a draft of                  19 that report. But it cannot be a committee report without                  20 discussion of it and approval of it by the entire committee                  21 or a majority of the committee and a vote of the committee                  22 in a public meeting.</p> <p>23                  24 DALLAS BURTRAW: I have one additional question                  25 for clarification. If we have a committee of two persons</p>
<p style="text-align: right;">Page 26</p> <p>1 ANN CARLSON: If, for example, a subcommittee of                  2 two were to prepare a report, I assume that in a public                  3 meeting a third member of the committee could then comment                  4 on the report or make their comments public that way. Is                  5 that the way you're envisioning it?</p> <p>6 ASHLEY CONRAD-SAYDAH: Yes.</p> <p>7 ANN CARLSON: Thank you.</p> <p>8 MEREDITH FOWLIE: Just one more clarifying                  9 question from Meredith on the phone. I would assume with                  10 this meeting format that the -- to make sure that the                  11 transcript and summary was substantive we get materials                  12 well in advance of the meeting. So one could imagine, you                  13 know, identifying issues, distributing materials, and then                  14 forming subcommittees to prepare comments at that meeting                  15 just to facilitate the process of subcommittees preparing                  16 comments and other members commenting publicly or                  17 responding publicly.</p> <p>18 ASHLEY CONRAD-SAYDAH: Yes, we have to get                  19 materials on the website at least ten business days before                  20 the meeting, but there's nothing saying we couldn't get                  21 those meetings up and publicly available well in advance of                  22 that ten-day limit.</p> <p>23 MEREDITH FOWLIE: Thank you.</p> <p>24 ASHLEY CONRAD-SAYDAH: Okay, well if -- oh, more                  25 questions?</p>	<p style="text-align: right;">Page 28</p> <p>1 who are working on some subtopic and that's been all                  2 decided on at a public meeting and it's publicly noticed                  3 and another committee member wants to send over the trans                  4 of recent work that he or she may have done or paper he or                  5 she may have come across to that subcommittee for their                  6 consideration could that sort of one way input to the                  7 process of the deliberation of subcommittee? Would that be                  8 allowed?</p> <p>9 CHRIS TIEDEMANN: No. No -- well, that would be                  10 allowed but all of that material would have to be                  11 distributed to the entire committee because there's a                  12 provision of Bagley-Keene that provides if written material                  13 is distributed to the majority of the committee, it's                  14 supposed to be distributed to all members and made                  15 available to the public for inspection.</p> <p>16                  17 DALLAS BURTRAW: So to follow up then for topic                  18 or for any subcommittee we may have, if one of the                  19 committee members came across the materials that they                  20 wanted to share with any of the committee they would have                  21 to share it with all the committee, but they could do so                  22 and then the ARB staff or someone would also receive that                  23 information and put it in the public record.</p> <p>24 CHRIS TIEDEMANN: We would ask that the material                  25 come through CalEPA, and we would distribute it to all</p>

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1 committee members.  
2  
3 DALLAS BURTRAW: Thank you.  
4 DANIEL CULLENWARD: Just to clarify really quick  
5 but I think Dallas was asking the nature of the question I  
6 was trying to get at. I think it would be very important  
7 for us to have a mechanism that transmits that information  
8 publicly for the entire public to see in order for the  
9 subcommittees to work well and for the full committee to  
10 stay apprised on what's going on between the meetings.  
11 ASHLEY CONRAD-SAYDAH: Duly noted, thank you. So  
12 with meeting format I'm sure we will get into some of these  
13 discussions later after we hear the presentations and we'll  
14 have an opportunity to figure out how we want to do work on  
15 the report as we move through the meeting. But for now I  
16 think I just want to talk a bit about the schedule and then  
17 we'll move on to talk about the positions of chair and vice  
18 chair.  
19 So the meeting schedule, we will hold meeting of  
20 the committee at least annually. Committee members may be  
21 compensated or reimbursed for travel expenses, but not  
22 compensated for their time. As noted if we have request  
23 for another meeting or if we need to meet again, those  
24 meetings have to be noticed at least ten days in advance  
25 and held in a space where the public can join us so that

1 sort of running the meeting, then you will be falling back  
2 on the CaleEPA staff. We are more than willing to perform  
3 that role and call on people in the audience, but generally  
4 with the committee it's appropriate to have somebody in the  
5 committee actually run the meeting of the committee rather  
6 than having the staff do it. But you do have that  
7 discretion. We can continue the way you see thus far or  
8 you can elect a chair and have that chair sort of be the  
9 head in controlling the tempo and who gets to speak and the  
10 order of speaking and controlling the agenda. So I just  
11 want to make that observation.  
12 ANN CARLSON: So I have a lot of experience with  
13 one person in the -- not actually physically in the room  
14 but on the committee who I have co-chaired something with  
15 them and I happen to know he has excellent skills at  
16 chairing and that is Dallas Burtraw, who I think is kind  
17 and patient and organized and so I would like to nominate  
18 him to serve as chair.  
19 DANIEL CULLENWARD: I'll just say as a  
20 preliminary matter I think the chair is a great idea and  
21 I'll be glad to second Dallas's nomination.  
22 MEREDITH FOWLIE: Yes, I was going to offer if  
23 there wasn't, but yeah, I third.  
24 ASHLEY CONRAD-SAYDAH: Is there any opposition to  
25 Dallas being the chair of the committee? What about from

1 will necessitate obviously work on behalf of CaleEPA to make  
2 sure that can happen.  
3 Our next meeting so far is scheduled for  
4 September 21st, it's a Friday. We will determine the best  
5 timing for that after we see the duration of time after  
6 today's meeting.  
7 Are there any comments or any additional comments  
8 on the proposal for how the process of this committee  
9 works? Any other questions?  
10 Okay, so we will move on to the selection of the  
11 of the IEMAC chair. In this case we would like nominations  
12 for a chair and this is essentially a vote where we would  
13 need a majority vote to reach consensus on the chair. You,  
14 Ross, actually asked a question about being a voting or  
15 nonvoting member and we had said that as a representative  
16 from the legislative analyst office he could abstain or  
17 join in on this chair vote. So it's entirely up to you how  
18 you join us.  
19 Okay, do we have any nominations for chair or any  
20 comments on the -- what qualities the chair should possess?  
21 MATTHEW RODRIGUEZ: If you don't mind, Ashley,  
22 it's entirely up to the committee whether they elect a  
23 chair and how they proceed. But you can see just by the  
24 way this meeting is being conducted, the role of the chair.  
25 If you don't have a chair and somebody in the committee is

1 you Dallas? Any opposition?  
2 DALLAS BURTRAW: Just trepidation, thank you.  
3 ASHLEY CONRAD-SAYDAH: So if there are no  
4 objections then I guess we just need an affirmative "aye"  
5 or yes from all of you that this is the chair you select.  
6 DANIEL CULLENWARD: Aye.  
7 ANN CARLSON: Aye.  
8 QUENTIN FOSTER: Aye.  
9 ROSS BROWN: Aye. I'm going to abstain -- this  
10 is Ross, I'm going to abstain as actually mentioned. I  
11 think just as a general matter just sort of given our  
12 office's role in the process -- legislative process, I  
13 think I'm going to for the most part just not vote on any  
14 of the items, but this is not a reflection on Dallas or  
15 thoughts on him, but this is sort of an ongoing matter.  
16 Thank you.  
17 ASHLEY CONRAD-SAYDAH: Thank you, Ross.  
18 Dallas do you accept the role of chair?  
19 DALLAS BURTRAW: Yes. Thank you very much  
20 everybody.  
21 ASHLEY CONRAD-SAYDAH: All right. We do -- we  
22 don't have to select a vice chair. We added language that  
23 said if the chair was not present, there could be a vice  
24 chair to run the meetings. Of course, we're faced with  
25 that situation today so we can either select a vice chair

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1 or have staff continue to facilitate. That's really up to  
 2 you all. So if anyone has comments on the selection of  
 3 vice chair or ideas about that, please weigh in now.  
 4 DALLAS BURTRAW: Well, in the future I expect to  
 5 be in the room for all meetings. The scheduling was so  
 6 short on this one, but I think in general, it'll be really  
 7 wise to have a vice chair, so I think we should move to  
 8 have somebody in that role.  
 9 ASHLEY CONRAD-SAYDAH: Any other comments on  
 10 having a vice chair or not having a vice chair, and also  
 11 you can just move on to nominations for a vice chair if  
 12 that's what you would like to do.  
 13 QUENTIN FOSTER: I would just add my agreement  
 14 with Dallas that having a vice chair will be helpful as  
 15 well.  
 16 MEREDITH FOWLIE: I was just going to add I agree  
 17 with a vice chair and my suggestion would be if Ann and  
 18 Dallas had worked together in the past, that would be -- I  
 19 have lots of confidence in both of them, I would nominate  
 20 Ann Carlson.  
 21 QUENTIN FOSTER: I would second that nomination.  
 22 ASHLEY CONRAD-SAYDAH: Are there any objections  
 23 to having Ann serve as vice chair?  
 24 Ann, do you have objections?  
 25 ANN CARLSON: I don't.

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1 ASHLEY CONRAD-SAYDAH: Okay. So just through an  
 2 audible yes or affirmation, if you could all please weigh  
 3 in -- or no, could you all please weigh in on having Ann as  
 4 vice chair, please?  
 5 DANIEL CULLENWARD: Aye.  
 6 QUENTIN FOSTER: Aye.  
 7 MEREDITH FOWLIE: Aye.  
 8 DALLAS BURTRAW: Aye.  
 9 ASHLEY CONRAD-SAYDAH: So we have selected Dallas  
 10 Burtraw as chair of the committee and Ann Carlson as vice  
 11 chair of the committee. And just to close out this item,  
 12 I'll finish this off and then we will pass the mic along to  
 13 you to facilitate comments after Rajinder's and Emily's  
 14 presentations. Are there any public comments on the  
 15 selection IEMAC chair?  
 16 Okay. So we've actually done very well with  
 17 this. I'm sure there'll be many more questions on the  
 18 format of the report and how we all work together in the  
 19 future, so please feel free to bring those up, but for now  
 20 we would actually like to turn over to the largely  
 21 substantive discussion with an overview of California's  
 22 climate policies with the focus on the Cap-and-Trade  
 23 Program and we will be hearing Rajinder Sahota and Emily  
 24 Wimberger today and they are colleagues from the California  
 25 Air Resource Board. So I just need to get the presentation

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1 up and then we'll get started.  
 2 RAJINDER SAHOTA: Thanks Ashley. And good  
 3 morning everyone and thank you Secretary Rodriguez for the  
 4 invitation to be here to present at the first meeting of  
 5 IEMAC. Both Emily and I have separate presentations and so  
 6 I don't know if you want to have comments until after both  
 7 presentations are completed or if you want to have comments  
 8 after each one. I'll defer to you.  
 9 ANN CARLSON: Rajinder, I'm going to need help  
 10 from IT to make sure this is working, so if you want to get  
 11 started with the paper presentation, I can get some help.  
 12 RAJINDER SAHOTA: I believe there's paper copies  
 13 in the back for folks in the room if you don't already have  
 14 a copy. And my presentation is titled 2017 Scoping Plan  
 15 Update and Scope of Current Cap-and-Trade Rulemaking.  
 16 So I start with slide two which is really about  
 17 getting the lay of the land for California and greenhouse  
 18 gases, and what we're trying to do overall in the state.  
 19 So the second slide is the GHG emissions inventory. It  
 20 lays out --  
 21 DALLAS BURTRAW: May I interrupt? The remote  
 22 presentation isn't coming up even though the screen is  
 23 there --  
 24 ASHLEY CONRAD-SAYDAH: I sent the PowerPoint

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1 through to you and Meredith this morning. We're working on  
 2 an IT issue to bring it up right now. If you have the  
 3 PowerPoint with you look along with that and I'm trying to  
 4 get them to come and help us out.  
 5 DALLAS BURTRAW: In the meantime if that doesn't  
 6 work if you could put the meeting camera back on to the  
 7 full screen, it will make it easier to see the full space.  
 8 RAJINDER SAHOTA: Okay. So back to slide 2,  
 9 Greenhouse Gas Emissions Inventory. What we see here is  
 10 the 2015 total emissions by scoping plan sector. You can  
 11 see which sector's contributed the most greenhouse gases in  
 12 the state's inventory, transportation is by far the largest  
 13 sector. And if you look at refining and extraction which  
 14 are about half of the industrial sector, transportation,  
 15 for an extraction, processing, and then eventual combustion  
 16 of those fuels out of the tailpipe accounts for almost 50  
 17 percent of the state's greenhouse gases.  
 18 The other sources include electricity both  
 19 generated and imported because we do import a significant  
 20 amount of electricity in the state. Agricultural,  
 21 commercial and residential home heating, cooling and water  
 22 boilers. And then high global warming gases at recycling  
 23 and waste make up the remainder of the state's inventory.  
 24 In 2015 the state's total inventory was 440.4

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<p style="text-align: right;">Page 37</p> <p>1 million metric tons. For reference the 2020 target is 431                  2 million metric tons. One piece that's missing out of the                  3 state inventory and is tracked separately is the natural                  4 working lands. And so these sectors are the four sectors,                  5 wetlands, grasslands, et cetera, they vary by complex                  6 biological systems and there is separate work underway to                  7 try to better quantify and understand the GHG fluxes from                  8 those systems. But for now those are kept separate from                  9 the energy, industrial and transportation, AB 32 scope                  10 inventory.</p> <p>11 As we look at the inventory and the sectors you                  12 see here, I think it's important for me to note that as we                  13 think about greenhouse gas regulations in the State of                  14 California we don't have just one policy for each sector.                  15 We have in some cases several climate policies and then                  16 also air quality related policies for these sectors. I'll                  17 use transportation as one example here. So for the                  18 transportation sector we do have large regional state                  19 implementation plans for air quality purposes which are                  20 meant to reduce the smog and toxic emissions from the                  21 transportation sector. Those also get co-benefits in                  22 greenhouse gases and we also have other policies that are                  23 direct climate policies such as the carbon fuel standard                  24 and cap-and-trade program and advanced clean cars, which                  25 is about getting more cleaner technology on the roads.</p>	<p style="text-align: right;">Page 39</p> <p>1 economy to grow while we made progress on decarbonizing the                  2 economy and making progress towards our state targets.</p> <p>3 Specifically on greenhouse gas emission trends                  4 slide 4 lays out the emission trends from 2000 to 2015. So                  5 what you see in the yellow line is the greenhouse gas                  6 inventory and you can see where it dips around 2008, 2009                  7 and that was the great recession. And you can see that                  8 it's been steadily hovering just above the 2020 target in                  9 recent years. The teal line, the shorter line from 2012                  10 until 2016 is actually reported data directly to the State                  11 of California, to ARB under our GHG mandatory reporting                  12 regulation. These are emissions data reports that are                  13 submitted annually and verified by third party verifiers                  14 and they represent a significant portion of the statewide                  15 inventory, but not all of the statewide inventory.</p> <p>16 This data is available several months ahead of                  17 the inventory getting posted. So what you see in 2016 is                  18 a -- is a noticeable decline in the reported emission for                  19 the state for 2016. When this data was released in                  20 November of 2017, we identified some sectors that actually                  21 saw significant declines in greenhouse gas emissions. Part                  22 of that was the electricity sector, we saw pole plants and                  23 we saw carbon pricing introduced into the dispatch and the                  24 CAISO Energy Imbalance Market and in balancing authorities                  25 throughout the states, which meant that having a carbon</p>
<p style="text-align: right;">Page 38</p> <p>1 So as we think about all of these sectors, it's                  2 important to remember that there may be several policies                  3 and not just climate policies that are interacting with the                  4 emissions in that sector over time. On top of that we have                  5 to recognize that there are different levels of regulations                  6 for these sectors. We may have federal policies, state                  7 laws, and local laws that actually influence emissions from                  8 those sectors over time. So as we work there, you know the                  9 work at ARB, we are trying to harmonize our air quality and                  10 climate program to the extent feasible to make sure we're                  11 maximizing all benefits under these policies for these                  12 different sectors. Recognizing that there's going to be                  13 some federal interaction and some local interactions and                  14 local mainly on the stationary sources.</p> <p>15 Slide three provides an overview of how we have                  16 been doing on reducing emissions and the economy. So what                  17 we see is the carbon intensity of the California economy is                  18 declining. It has a 33 percent decrease since the 2001                  19 peak. The California economy has grown, the GDP is up                  20 37 percent during that same period. And there's a good                  21 story here, that while our economy has continued to grow,                  22 it has become less carbon intensive. But it doesn't mean                  23 we can take a step back and rest. It just means that the                  24 way we have been designing our programs, the way that we                  25 have been implementing the program has actually allowed the</p>	<p style="text-align: right;">Page 40</p> <p>1 adder in the dispatch system made renewables more favorable                  2 for dispatch or a fossil when fossil has a carbon                  3 compliance under the cap-and-trade program.</p> <p>4 The line towards the bottom -- it looks purple on                  5 the screen -- here might be a dark blue for everyone else                  6 and that is really the emissions per capita and those are                  7 also decreasing. The population is continuing to grow in                  8 California, but the emissions per capita are decreasing                  9 just the same as we saw for the economy. So in all we are                  10 seeing really good indicators that our programs are                  11 starting to deliver some real emission reductions across                  12 the state. And so we are actually on track to achieve the                  13 2020 target before 2020. Our scoping plan modeling that                  14 was put out with the development of the scoping plan last                  15 year actually has us below the 2020 target in 2020, and                  16 that's our forecast. Obviously we'll have to see what the                  17 reported data shows and the inventory shows year after                  18 year, but the modeling itself, the year term model shows                  19 that we are on a steady decline through 2020.</p> <p>20 So there are some key metrics when we think about                  21 tracking progress. With a suite of programs throughout the                  22 state and separate levels of programs at federal, state,                  23 and local levels, I thought I'd focus on some of the key                  24 metrics. Some of the metrics that we spoke to are included                  25 in the scoping plan executive summary.</p>

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<p style="text-align: right;">Page 41</p> <p>1 Obviously we were talking about meeting the  2 state's target, we were talking GHG inventory, it actually  3 parses out emissions by sectors, so you can see how  4 different sectors are performing year after year. On top  5 of that we also have production data for specific sectors.  6 Not only does ARB collect production data but some of that  7 production data is actually made available through federal  8 resources and so you actually can see changes in cement  9 clinker production, for example, before we even post some  10 of our GHG emission data in the state. So there's a suite  11 of information not available at ARB but also on other  12 websites, the federal websites.</p> <p>13 The other information that is worth tracking is  14 weather patterns. We all know in biohydro years, we need  15 to generate less fossil power, but it's worth noting that  16 even during the period of significant drought in  17 California, we made progress in decarbonizing electricity  18 sectors. We noted in the scoping plan executive summary  19 that our three largest IOUs are on track to meet the  20 50 percent RPS almost a decade earlier than mandate by the  21 Statute. So it's not just the hydro patterns that are  22 influencing the progress we're making there, we do have  23 evidence that our policies are actually driving emission  24 reductions even when the weather may not be cooperating or  25 working towards what we need to do.</p>	<p style="text-align: right;">Page 43</p> <p>1 So what you see is there are some existing  2 programs, such as the renewable portfolio standard  3 increased to 50 percent, bio fuels measure, which was the  4 low carbon fuel standard. It's currently at a 10 percent  5 CI so we propose a scoping plan to shift that to  6 18 percent. There's energy efficiency measures, those are  7 driven by SB 350 which calls for at least -- or a double in  8 energy efficiency savings by 2030 from current levels.  9 There's the short lived climate pollutants programs, which  10 is about high-global warming gases, fugitives from dairies,  11 and it is a relatively new program. It was enacted under  12 AB 1383 pollutant plan put together by Senator Lara and  13 again he's also on our board as a member.</p> <p>14 The last measure is the Cap-and-Trade Program  15 that is an existing program, and after AB 398 had passed  16 and signed by the governor last year. It includes a role  17 for the Cap-and-Trade through 2030. The Cap-and-Trade  18 Program itself is listed together about 38 percent of the  19 emissions reduction needed to achieve the 2030 target and  20 the other measures together would contribute about  21 62 percent.</p> <p>22 The mix of measures, again, represents existing  23 measures and new measures and some of them actually have  24 been around for much longer than some of the others. For  25 example, the RPS program predates almost every other</p>
<p style="text-align: right;">Page 42</p> <p>1 The other metrics that we track are seen on  2 previous slides, there's the tonnes per million GDP,  3 volumes of renewable fuel such as the increases in bio  4 fuels renewable diesel, a lot of that is driven by  5 implementation of a low carbon fuels program. There's also  6 data on the penetration of zero emission vehicles and  7 efficient medium and heavy duty vehicles. Both metrics are  8 tracked as part of Advance Clean Car Program and as part of  9 our local source strategy.</p> <p>10 There's information available on other state  11 agency websites such as CEC, the California Energy  12 Commission related to the growth of specific renewables in  13 the state and there's energy demand data that is posted on  14 the Energy Commission's website. So it's not just ARB that  15 holds all this data, it's held at a variety of state  16 agencies and even on some federal websites. And it's  17 important to recognize that there is a bulk of information  18 out there as you're looking at changes in California.</p> <p>19 Slide six is really about the 2017 scoping plan.  20 The scoping plan is actually a blueprint that was adopted  21 in December 2017 for how the state will achieve the SB 32  22 target, 40 percent below 1990 levels by 2030. The main  23 programs and policies are listed on the slide and their  24 relative contributions to the estimated emission reductions  25 that we need to make from a business as usual scenario.</p>	<p style="text-align: right;">Page 44</p> <p>1 program on the chart there. The mobile source strategy  2 which is driving clean fuels and technology and freight.  3 It's important to remember that that is really part of our  4 state petition plan for air quality and we're leveraging  5 the work there to get gas benefits for the transportation  6 sector.</p> <p>7 So, again, recognizing that we have existing  8 purpose at ARB we're trying to leverage all of them across  9 the multiple pollutant areas that are a concern to the  10 state and looking to extends some of the programs that we  11 believe have been successful in helping us achieve our  12 progress towards 2020.</p> <p>13 Since the plan was just adopted in December 2017,  14 we've actually started making some progress on the measures  15 of the plan. For example, low carbon fuel standard  16 regulation was recently heard at our board -- the first of  17 two board hearings, and instead of just sticking with the  18 18 percent CI increase from the current 10 percent, we are  19 advocating and have proposed that it go to 20 percent in  20 2030. The final board hearing for the LCFS is scheduled  21 for, I believe, September of this year. And so it is  22 coming back to the board for our final vote and that should  23 have the CI values and how those will increase over time on  24 schedule to the 2030 target.</p> <p>25 Under SB 350 there was a requirement for</p>

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1 integrated resource plans. Like I said earlier, data  
 2 suggested that the three largest IOUs achieve 50 percent  
 3 RPS by the end of this decade. That's ten years ahead of  
 4 the SB 350 mandate. The IRP plans are really about taking  
 5 all the different measures that are encompassing the  
 6 electricity sector and putting them under one collective  
 7 comprehensive plan that would be developed by each utility  
 8 in the state. That is an ARB board item. It is being  
 9 developed in concert with CEC California Energy Commission  
 10 and California Public Utilities Commission that is going to  
 11 our board in July for a single hearing. There's a draft of  
 12 the report posted on our website, and also I think a  
 13 handful of comments on our website for more information.

14         There are mechanisms underway to identify how to  
 15 reduce vehicle miles traveled. The transportation sector,  
 16 again, has a suite of measures on it's own. You've got  
 17 measures for air quality purposes. You've got zero  
 18 emissions vehicles program, low carbon fuels program, but a  
 19 significant portion in the scoping plan is to reduce  
 20 vehicle miles travelled, and we do have SB 375 which is  
 21 about sustainable communities and planning for other  
 22 mobility choices than individual passenger vehicles.

23         There was a gap that was identified in the  
 24 scoping plan and that is that we want to try to achieve  
 25 40 percent reduction in BMT from BAU in 2030 and so work is

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1 underway with state agencies to try and close that gap to  
 2 make sure that we're able to achieve the 40 percent. And  
 3 then there's work that continues on measures such as  
 4 short-lived climate pollutant strategy. There's been a  
 5 suite of discussions on the oil gas sector if you emissions  
 6 there, there's community updates and hearings all this  
 7 year. There's also been community meetings on the dairy  
 8 digester program and several workshops here at ARB on the  
 9 high global warming potential gases that are a concern.

10         So as you look at this, what we see is some  
 11 measure that are proposed to be developed, and designs to  
 12 be a bit more stringent than what we had in the scoping  
 13 plan, and then there's a couple of measures like the third  
 14 measure on BMT where we're still trying to identify how to  
 15 close that gap. And then you have the last measure which  
 16 is really about SOEPs. And the first three interact  
 17 directly with the Cap-and-Trade Program. The last measure,  
 18 the last bullet is about measures that are outside the  
 19 scope of the Cap-and-Trade Program.

20         So I know when people think of Cap-and-Trade they  
 21 think it's the be-all end-all of the state's climate  
 22 policies, but it actually isn't. There are significant  
 23 emissions that are not covered by the Cap-and-Trade Program  
 24 that also need to be addressed if we are to achieve our  
 25 2030 target.

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1         Which leads us to Cap-and-Trade program. Most  
 2 everybody is somewhat familiar with the Cap-and-Trade in  
 3 California or has directly been involved in some way. It's  
 4 an economy-wide program. It's economy wide and that it  
 5 covers most of the industrial, energy and transportation  
 6 sectors, not high global warming gases. It has a steadily  
 7 increasing auto auction floor price to create an economic  
 8 incentive for investment in cleaner and more efficient  
 9 technologies. The total emissions to be delivered by the  
 10 program are uncertain as those ultimately depend on the  
 11 performance of the complementary measures, economic growth  
 12 through 2030, and other factors.

13         And I think this is important because on the  
 14 previous bar chart you saw the Cap-and-Trade program  
 15 identified to deliver about 38 percent of the total  
 16 reductions needed to achieve the 2030 target, well that's  
 17 under one scenario. Depending on how the other measures do  
 18 in the same sectors that are covered by the Cap-and-Trade  
 19 Program, it may need to deliver more or may need to deliver  
 20 less in helping us achieve our 2030 target.

21         Another thing that's worth noting is that the  
 22 scoping plan is a path to 2030. That doesn't mean that new  
 23 measures or additional efforts can't be put into place for  
 24 the some of the same sectors. So the 2030 scope -- or the  
 25 2017 scoping plan is -- it's not the final word on all the

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1 programs that we need to hit 2030, it is what we are  
 2 proposing today and it doesn't preclude any other state  
 3 agency or new legislation from being enacted to actually  
 4 ask for other types of action in any of the sectors that  
 5 are under the scope of AB 32.

6         So this year we are undergoing a rulemaking on  
 7 the cap-and-trade program itself. There's a couple of  
 8 pieces of direction that are driving the staff process  
 9 here. The first is the board resolution 17-21. In  
 10 July 2017 the board directed staff to continue work on  
 11 specific post-2020 allocation topics. The first one is  
 12 really about transition assistance, legacy contracts.  
 13 These are speaking to contracts between generators and  
 14 power purchasers where the legacy contracts may have been  
 15 enacted before a carbon price was known or reasonably  
 16 expected to be known and there's no way to actually pass  
 17 the cost for a carbon pricing mechanism back through the  
 18 process.

19         There's also the waste-to-energy facilities.  
 20 These facilities have been exempt for the first and second  
 21 compliance periods. But beginning in 2018 these facilities  
 22 would be subject to the Cap-and-Trade Program and will have  
 23 to have a compliance obligation where they are required to  
 24 procure some allowances and turn them in for compliance.

25         I'll just flag that waste-to-energy is something

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<p style="text-align: right;">Page 49</p> <p>1 that's kind of a high concern to the justice community, and  2 so they are very concerned about the emissions, the air  3 quality emissions generated by these facilities, and  4 ultimately it was a lot of their concerns that weighed with  5 the board in deciding that waste-to-energy needed to be  6 fully in the program and basing the carbon signal under the  7 Cap-and-Trade Program.</p> <p>8           The last piece is the allocation, and this is  9 about the mechanism and regulation to provide free  10 allowances to industry to minimize for leakage. There's a  11 couple of features in the allocation methodology. Cap  12 adjustment factors are one of those features. The cap  13 declines at a certain percentage year after year, this is  14 the annual budget for Cap-and-Trade Program. Cap  15 adjustment factors decline the same percentage year after  16 year. Some sectors, just where you may have high process  17 emissions over 50 percent and you're in a high category of  18 emission trade exposure, we give you half cap adjustment  19 factor as part of the allocation methodology. And so we  20 went back to look at those to see if it was appropriate to  21 continue that for those few limited sectors.</p> <p>22           There are discussions that we have been having  23 and that have been put in public comments that the natural  24 gas sector should also get a different cap adjustment  25 factor, so we're continuing to have those discussions</p>	<p style="text-align: right;">Page 51</p> <p>1 have is AB 398 and it adds a few features to the program.  2 The first is a price ceiling. We don't currently have  3 price ceiling in the program, AB 398 without a price  4 ceiling, and it would have two price containment points.  5           Just for reference the current Cap-and-Trade  6 Program has three tiers in its reserve and the three tiers  7 can almost map back to the concept of two price containment  8 points on the price ceiling. Except in AB 398 if you hit  9 the price ceiling we would have a value in the regulation.  10 At that value for compliance California entities pay on a  11 ton per ton basis and then ARB would be responsible for  12 ensuring the integrity of the program by finding those tons  13 elsewhere. It's not clear, you know, if you hit the price  14 ceiling, it means you can find those tons in the sector  15 that are covered. Are you looking at the biological  16 sectors? Are you looking at the geography of the state?  17 So that's an ongoing conversation.  18           There's also the treatment of unsold auction  19 allowances. Currently the regulation has a mechanism that  20 if there's low demand at an auction and some allowances are  21 unsold, they are removed from the market until two  22 consecutive auctions are fully subscribed at prices above  23 the full price. We did have a period of low demand for  24 allowances for a variety of reasons in 2016, early 2017.  25 This mechanism that exists in the regulation would actually</p>
<p style="text-align: right;">Page 50</p> <p>1 publicly. And then the last piece is the assistance  2 factors. So when you think about the allegation  3 methodology, the assistance factors are really based on  4 what is your potential for the leakage. So we have three  5 categories in regulation, it's high, medium, and low. An  6 assistance of a hundred percent means that you're in a high  7 category for leakage and that you face no additional  8 reduction in your compliance obligation -- or no additional  9 reduction in your allocation -- free allocation of  10 allowance.</p> <p>11           Now a hundred percent assistance factor does not  12 mean that every company gets all the allowances they need  13 for free. The cap adjustment factors are still in the  14 equation and so you're still seeing about a four percent  15 decline in your allocation year after year. And when we  16 did an example and we held output to today's levels, what  17 you see is allocation to the industrial sectors under a  18 hundred percent assistance factor is reduced by almost 50  19 percent by 2030. So it is a significant drop in allocation  20 year after year. There is a piece of AB 398 that requires  21 the board, ARB, to prepare a report on is what we're  22 providing to allocation sufficient to minimize leakage, is  23 there anything else we should look at. And I think that  24 report is due 2025 to the legislature.  25           The most important piece of direction that we</p>	<p style="text-align: right;">Page 52</p> <p>1 remove almost 40 million allowances right now to move into  2 the reserve. That provision was codified in AB 398. So it  3 codifies an existing mechanism in the Cap-and-Trade  4 Program.  5           And then there's a requirement on offset usage  6 limits. The current offset usage is 8 percent. That would  7 drop to four percent for the first half of the decade and  8 then six percent for the second half of the decade, and  9 then there's a call for differentiation of offsets. Those  10 are the direct environmental benefits to the state and  11 others. And right now we're working through the public  12 process to define what direct environmental benefits to the  13 state means. Obviously, if it's an offset it's getting  14 greenhouse reductions, but we're looking beyond greenhouse  15 reductions to understand what other air pollutant  16 reductions represent a direct environmental benefit to the  17 state or avoidance of harm to the state's water.  18           So not every offset qualify for direct  19 environmental benefit. There's two things going on here,  20 first is the redirection in the offset usage limit. Second  21 is for the differentiation that only half of those could be  22 something that do not provide a direct environment benefit  23 to the state. Offsets provide cost containment in the  24 program and so this is a feature that is going to be  25 reduced to some extent for the next decade. And then</p>

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1 there's also direction in AB 398 about the post-2020  
 2 allocation assistance factors. The legislation assessed  
 3 the assistance factors at a hundred percent from 2021  
 4 through 2030.

5 The question that we're grappling with under the  
 6 resolution is the third compliance period that is 2018,  
 7 '19, and '20. Do you set those at a hundred percent as  
 8 well or do we go ahead and let the medium category drop  
 9 from 100 percent to 75 percent and the low risk category  
 10 drop from 100 to 50 percent? And so we have some  
 11 information that they put out in a public workshop and it  
 12 calculated or estimated that if we did not make a change to  
 13 the regulation and those assistance factors fail in 2018,  
 14 '19, and '20, the cost for compliance more than doubles for  
 15 the industrial sectors that receive allocations right now.

16 And then there's section AB 390 that talks about  
 17 evaluations which could lead to potential changes and those  
 18 are related to banking rules. And other concerns are  
 19 overallocation, which is there's some unsold allowances in  
 20 the program from the current period, from 2013 to 2020. If  
 21 those are pushed for post 2020 and given the caps in 2020,  
 22 will we have too many allowances in the system to where the  
 23 carbon price and steadily increases carbon price would no  
 24 longer be supported and we will see meeting of a carbon  
 25 price signal. And so that is something that we're

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1 continuing to look at in our public process.

2 In all this we have been trying to lay out the  
 3 general principle for our approach to current rulemaking.  
 4 We want to continue to market design for a steady,  
 5 predictable, increasing floor price, with declining cap, to  
 6 prompt the investments and actions needed to achieve the  
 7 mid- and long-term GHG reduction goals for the state. In  
 8 the scoping plan process we looked at Cap-and-Trade, we  
 9 looked at cap and decline, a carbon tax, prescriptive  
 10 regulations, a suite of policies that included the  
 11 Cap-and-Trade Program that includes the features in that  
 12 first bullet was determined to be the most cost effective  
 13 way to achieve the 2030 target.

14 So we were really trying to reserve feature of  
 15 the program that make it cost effective. We want to make  
 16 sure the carbon price signals conform to legislation and  
 17 maintain the integrity of the pre-2021 period of the  
 18 program. So having some kind of right cutoff between 2020  
 19 and 2021 doesn't seem to match with how industry operates,  
 20 how business decisions are made, in that using two distinct  
 21 period of time where you're thinking about investments or  
 22 actions to reduce GHG emissions or gain efficiencies. And  
 23 so we do believe that businesses are already planning for  
 24 post-2021 and how they've been complying with the program  
 25 to date, and so we want to make sure that's a seamless

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1 transition.

2 We want to avoid penalizing covered entities in  
 3 response to early action to reduce greenhouse gases or  
 4 investment in allowances. We want to continue  
 5 collaborations with program linkages and, again, we do want  
 6 to maintain the benefits of the program's market features.  
 7 We want to make sure it continues to be cost-effective  
 8 through the opportunities to identify the lowest GHG  
 9 reductions across the economy, compliance flexibility  
 10 through trading and multiyear compliance periods, and we  
 11 want to make sure that we minimize leakage.

12 So the next steps on the Cap-and-Trade Program  
 13 itself on the rulemaking are -- first, I'm going to say  
 14 there are no specific staff proposals at this time, so  
 15 we're continuing to work on this. We will continue to have  
 16 workshops in the first half of 2018. We actually have  
 17 another workshop tomorrow. There will be a 45-day staff  
 18 proposal later this summer and I actually did note that the  
 19 next IEMAC meeting would be September 21st and I believe  
 20 that should be around the time the 45-day proposal is out.  
 21 So all stakeholders and members of the committee should  
 22 have a proposal to look at before it goes in front of our  
 23 board hearing. And then the first board hearing again will  
 24 be fall and then a final board hearing by the end of this  
 25 year.

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1 We have heard calls from the regulated entities  
 2 and we also believe that having the Cap-and-Trade  
 3 regulation with the final vote by the end of year is best  
 4 to ensure market certainty and make sure that people have a  
 5 clear path and understanding of what they need to do. As  
 6 we continue past 2020, think about 2030 target.

7 The last two slides, I won't go over them in  
 8 detail but these are really to make sure that committee  
 9 members and the public understand the amount of reporting  
 10 and oversight over the program itself, not just  
 11 Cap-and-Trade, but also other aspects of the climate policy  
 12 in the state. We have -- obviously we have the mandatory  
 13 reporting data, the inventory, we have board items, we have  
 14 the five years scoping plan update. We have written  
 15 reports per the legislature, and then on the next slide we  
 16 have recent legislation. With AB 197 there's an  
 17 information report each year. Mary Nicholas did provide a  
 18 report in January to the AB 197 committee.

19 We recently had an AB 197 hearing, again, on  
 20 another topic or a few topics, about 2 or 3 weeks ago, and  
 21 then AB 398 of course IEMAC and report they're going to be  
 22 providing and then another report by the legislative  
 23 analyst's office, so Ross gets to work on two reports. You  
 24 have my sympathy. Really this is just to make sure all the  
 25 folks know all the opportunities, not only for public

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1 engagement, but other committee engagements and then  
 2 legislative engagement on climate policies and the  
 3 Cap-and-Trade Program. With that I will end my  
 4 presentation. Thank you.

5 ANN CARLSON: So I wanted give any board members  
 6 an opportunity to ask a question. I think we all probably  
 7 have a lot, but we don't have a lot of time left. So we're  
 8 going to try to limit this time period, but I do think it  
 9 will be helpful for us to have opportunity to raise any  
 10 issues, questions, et cetera, about your very helpful  
 11 presentation.

12 DANIEL CULLENWARD: I have a question for  
 13 Ms. Sahota. You mentioned the inclusion of the carbon  
 14 price in the CAISO -- I suppose you're from the energy  
 15 balance market our cross board electricity trade market is  
 16 one of the areas where you've seen an impact from  
 17 Cap-and-Trade Program on reducing emissions and I wonder  
 18 given the fact we got discussions in Sacramento about  
 19 potentially expanding electricity market CAISO, if the  
 20 board has any thought at this time on how a carbon price  
 21 would be included in a regional market and what that would  
 22 look like if indeed that's an important part of the way the  
 23 board is looking at this issue right now? Thanks.

24 RAJINDER SAHOTA: That's actually a very timely  
 25 question because the regionalization discussion is very

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1 live at the legislature. There's been a series of bills I  
 2 think over the last two or three years on this topic. The  
 3 work that we have been doing with CAISO and the GHG that  
 4 they currently have is for the energy and balance market.  
 5 They are working on a day-ahead market and there was a  
 6 legislative proposal, I believe it's public. That would  
 7 make sure that before they move forward with any day-ahead  
 8 market that it was designed to support California's  
 9 greenhouse accounting and designed to be complementary and  
 10 mesh well with California's climate policies. So the  
 11 technical work on that continues. It is a precondition in  
 12 some proposal legislation before regionalization can  
 13 happen.

14 So the legislature is keenly aware that that  
 15 needs to be resolved. We are continuing to work with  
 16 CAISO. There is no public proposal by CAISO or CARB right  
 17 now about how a day-ahead market will incorporate a carbon  
 18 price.

19 DANIEL CULLENWARD: Sorry, just to clarify. I  
 20 was referring to discussions to expand the regional market,  
 21 not the day-ahead markets or the energy balance market. I  
 22 guess what I would like to know is does the staff of the  
 23 board consider the inclusion of the carbon price regional  
 24 wholesale market to be an essential component of  
 25 maintaining the state's climate policy?

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1 RAJINDER SAHOTA: Well, we definitely see it as  
 2 an important piece in making sure California achieves its  
 3 goals. How that would look as the regional footprint grew  
 4 in the energy and balance market is yet to be determined.  
 5 Our goal right now is to focus on making sure that we're  
 6 able to accurately account for all emissions that are  
 7 attributed to load -- energy serving load to balance in  
 8 California. To the extent that they may spur reductions in  
 9 renewable -- or creation of renewables outside the State of  
 10 California. You know, that would be a great benefit of  
 11 what we do here, but our focus is making sure for the  
 12 California policies we have accurate data and we have  
 13 accurate price signals for what we're trying to achieve in  
 14 our state policy. So for broader climate policy, I think  
 15 that's a little separate than what we're trying to do and  
 16 focused on in California right now.

17 ANN CARLSON: For those of us board members that  
 18 are not in the room Dallas or Meredith, either of you have  
 19 a question?

20 DALLAS BURTRAW: I would like follow up on that  
 21 right on that same point. I also have a question,  
 22 Rajinder. What -- you said balance marketing accounting of  
 23 the emissions associated with the expansion of EIM -- can  
 24 you tell me what point -- the present outcome for 2016, you  
 25 mentioned that the emissions reductions associated with the

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1 EIM contributed to that outcome, and maybe I'm not well  
 2 informed, but I thought that the primary mechanism for  
 3 accounting for the emissions EMAC of the expanding EIM was  
 4 an ex-post retiring of allowances after CAISO sold the  
 5 model, twice and they identified what was the leakage from  
 6 home and retirements from allowances associated with  
 7 potential leaders bound by the EIM. But you're saying that  
 8 the EIM expanded BIM also had a direct impact on the  
 9 utilization of the facility in such a way that it led to  
 10 reductions in emissions. I just want to make sure I  
 11 understand that clearly because that's really interesting.

12 RAJINDER SAHOTA: Right. And that's actually a  
 13 good clarification. So this, first is did expanding EIM  
 14 footprint allow more globals to be available for California  
 15 where it had a load imbalance? Yes, it did and CAISO has  
 16 data that makes that available and apparent.

17 The other is price signal and how do you deal  
 18 with the emissions center not being accounted for properly  
 19 in the system right now. So right now we have a bridge in  
 20 the Cap-and-Trade regulation -- a bridge solution that says  
 21 we will take the data coming out of the CAISO EIM at face  
 22 value and to the extent that it is attributing greenhouse  
 23 gases to people who are importing that power, they will  
 24 face that compliance obligation. But because we know that  
 25 some of the emissions are not fully accounted for, we take

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<p>1 those megawatt hours that are coming through the EIM                  2 transfers and actually multiply them by the default                  3 emission factor -- which is marginal, natural gas in the                  4 western grid, subtract out any compliance obligation that's                  5 already calculated based on the data coming out of EIM and                  6 assign that as being the missing emissions of a program and                  7 retire allowances for that portion.</p> <p>8           The two-path solution that you were speaking to,                  9 that's been in discussion, I think, for almost two years                  10 right now. There's been concerns recently about some                  11 ability to gain that solution or play that solution and so                  12 the two-path solution is not currently in the Cap-and-Trade                  13 regulation. It may be a way to quantify emissions but                  14 we're still working with CAISO. Ultimately that is                  15 something we want included and they would want to                  16 memorialize it in their production dispatch model.</p> <p>17           DALLAS BURTRAW: That was super helpful. And                  18 really quick, let me slip in an important question with                  19 respect to the short-lived climate pollutant and the                  20 scoping plan which is from 5/6. So with other measures,                  21 for example, those covering transportation that are also                  22 covered under the cap, if those programs overachieved or                  23 underachieved, then we would expect essentially the                  24 influence of the carbon price to shrink or grow                  25 accordingly. But if the program's aimed at short-lived</p>	<p>1 last scoping plan was a bit off schedule and came two years                  2 earlier than it was supposed to. But for the SOCP what's                  3 critical to remember is if they don't deliver and we have                  4 to go back and look at the sectors of the Cap-and-Trade                  5 Program, obviously the folks in the Cap-and-Trade Program                  6 or in the sectors that are -- not the SOCP sectors may have                  7 something to say about picking up the reductions that SOCP                  8 is not delivering. And we have been trying to make the                  9 point that not only is it the sectors in Cap-and-Trade, but                  10 don't forgot that there's this whole program out there that                  11 is almost delivering the same amount of reductions that                  12 needs to be implemented well and designed well to make sure                  13 those reductions happen.</p> <p>14           DALLAS BURTRAW: Great answer. Thank you.                  15           ASHLEY CONRAD-SAYDAH: Meredith got dropped.                  16 She's on a speakerphone here.</p> <p>17           Meredith, if you have any comments I can hold you                  18 up to a microphone.</p> <p>19           MEREDITH FOWLIE: Sorry, the past 10 minutes have                  20 been having technical difficulties. So I will -- just for                  21 now I apologize.</p> <p>22           QUENTIN FOSTER: Thank you, Rajinder, for that                  23 presentation I really appreciate the work that you all are                  24 doing on the scoping plan and the work that is currently                  25 underway right now with developing the package you will be</p>
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<p>1 climate pollutants, they ultimately achieve the 217 million                  2 metric ton reduction that is targeted. Would it require an                  3 explicit visitation of the issuance of new allowances under                  4 the cap in order to achieve the 2030 goals, or is there                  5 some automatic relationship between the sort of                  6 out-of-market programs? Because I think the short-lived                  7 climate pollutant are largely out-of-market. I think I                  8 heard you say that. So I'm just wondering how the 2030                  9 goal adapts to the successor or lower potentially                  10 short-lived climate pollutants.</p> <p>11           RAJINDER SAHOTA: Yes, and you are right. And                  12 that they are out of the market. There's no direct                  13 relationship between those sectors and those emissions with                  14 the market program itself. I think our job is to look at                  15 the inventory, monitor progress on all of the programs and                  16 the sectors that we're trying to address for greenhouse gas                  17 emissions, and we need to make sure that we understand that                  18 some sectors are not responding, and if we need to                  19 introduce new policies or intervention to get them on track                  20 or if we have other areas in places where we can maybe make                  21 some more progress.</p> <p>22           I think it's hard to say today that we need to                  23 revisit on some schedule because we do have the five-year                  24 scoping scheduled to look at this very issue. That would                  25 be 2022 -- hopefully 2022 and not earlier than that. The</p>	<p>1 releasing soon. I do have one particular question. Please                  2 forgive my ignorance. I know that there are climate                  3 committee hearings on this subject, a lot of peppering from                  4 members with questions about this particular issue, but I                  5 wonder if you can explain to me how the recent fires are                  6 factoring into how you all are thinking through the package                  7 moving forward to make sure that when we lose some of our                  8 progress because of those particular events, how is that                  9 factoring into your decision making process and your                  10 thinking on capturing those emissions moving forward?</p> <p>11           RAJINDER SAHOTA: Another great question and very                  12 timely because of the fire season that we just had, and                  13 we're upon another fire season. For the natural working                  14 lands and that's where these emissions would be placed that                  15 category is not directly tracked in the AB 32 scope                  16 inventory. But for the state's long-term goal, it's                  17 critical for the natural working land sector to become a                  18 net sink frustration and that will help the state achieve                  19 it's long-term goals.</p> <p>20           The way that we have been talking about it is                  21 that not only do we need to reduce the emissions coming out                  22 of the industrial transportation energy sectors, but we                  23 also need to start removing carbon out of the atmosphere.                  24 Not on an equal basis to what's being reduced in the                  25 sectors that are emitting fossil emissions, but in a</p>

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<p style="text-align: right;">Page 65</p> <p>1 greater amount to compensate what's already been admitted  2 into the atmosphere as part as the industrial age and so it  3 has a tremendous role.</p> <p>4           On wildfires themselves there's a couple of  5 things there. One is the emissions are really hard to  6 quantify. There's work underway at natural resources, ARB,  7 and some of the universities to try to get a better handle  8 on doing that. The other is what practices are really  9 important to make sure that if we have a wildfire, it's not  10 going catastrophic. It's something that's manageable, you  11 have minimal loss, and that goes back to forest management  12 activities. So there's that work. I think the other piece  13 is how do you forecast or potentially manage a potential  14 situation for a fire in that's forecast modelling, they are  15 sporadic, you have no idea when they are going to be  16 happening or where they are going to be happening or what  17 the size is. Again, it falls back on climate conditions,  18 drought conditions, rain conditions, and particularly for  19 last year -- if you guys want to indulge me -- we had a  20 long period of drought and we had a very heavy rainfall  21 season and things grew, I mean they -- it was like a whole  22 new landscaping in regions of California because of the  23 extensive rainfall, and then we had a drought again, and  24 then you had a wildfire with high temperatures.</p> <p>25           Not only is that indicative of climate changes</p>	<p style="text-align: right;">Page 67</p> <p>1 standards waiver, transportation is critical from both air  2 pollution and greenhouse gases. We have very smart  3 attorneys at ARB that are on this. And I am pretty sure  4 that we may see a delay, but we will not anticipate that we  5 will lose something here.</p> <p>6           ANN CARLSON: Now's the opportunity for public  7 comments on this particular portion of this presentation.  8           Hearing none, Emily you're up.</p> <p>9           DANIEL CULLENWARD: May I quickly ask the vice  10 chair, just want to make an observation, it's 11:10 and the  11 committee essentially has done no work so far so I hope we  12 will be able to get to discussing what we will be doing  13 after the presentation with Emily Wimberger.</p> <p>14           ANN CARLSON: Yeah, trying.</p> <p>15           EMILY WIMBERGER: Thank you for the opportunity  16 to talk. I'm going to follow up a lot of what Rajinder was  17 talking about and dive a little deeper into the economic  18 modelling that we did both for the scoping plan and focus a  19 little bit on the Cap-and-Trade Program, which as Rajinder  20 mentioned is currently undergoing immense?</p> <p>21           So I'm going to start out with a bit of a general  22 overview on what we did for the scoping plan. So the goal  23 was really to evaluate the economic impact of all of the  24 different options that we had for achieving the 2030  25 greenhouse gas target. So we estimated -- we had different</p>
<p style="text-align: right;">Page 66</p> <p>1 and extreme climate events, but it's also indicative of  2 public health because the PM emissions from that required  3 notification -- emergency notifications in several regions  4 across the state, and so like I said for long-term climate  5 goals, it is critical that we get a handle on the natural  6 working lands piece. It's probably less easier for us to  7 do that because as engineers, we all go for -- let's put a  8 meter on it and meter it and let's figure out what the  9 technology is to reduce those emissions and make this more  10 efficient. For a biological system, it doesn't care about  11 our meters, and that's going to be a challenge we need to  12 keep dealing with.</p> <p>13           ANN CARLSON: So what happens in the waivers  14 revoked and what's the backup plan on transportation?</p> <p>15           RAJINDER SAHOTA: That's a great question. So in  16 every scoping plan and the first one that was in 2008,  17 we've always had a line that if there was a delay in  18 federal action in supporting activities that we need to  19 undertake in California to meet our climate goals, we will  20 pursue our reductions on our own, and we will fight  21 strongly and quickly to make sure that any federal waiver  22 that we saw was approved or on the verge of being approved  23 is quickly moved forward.</p> <p>24           For the waiver that you're speaking -- I don't  25 know is the vehicle waiver the standards -- the vehicle</p>	<p style="text-align: right;">Page 68</p> <p>1 scenarios that puts together different bundles and measures  2 and policies and we wanted to estimate the economic impact  3 of different technology pathways and different carbon  4 pricing mechanisms to see what will help us achieve our  5 2030 target, which was the number one goal of the scoping  6 plan, but think about it in a way of doing it that's cost  7 effective, that does not overly burden California  8 households, that does not cause extensive leakage, and has  9 a slow and steady price on carbon.</p> <p>10           Another goal of this was really to help think  11 about looking at the cost of technology, how could that  12 help us put together the measures and the policies that  13 we're going to need to achieve these targets. So again the  14 scoping plan contained sort of rough cuts of different  15 measures. There was the large measure that was the  16 short-lived climate pollutant strategy, but there's no  17 individual regulations yet to find to achieve those  18 reductions. So some of the work that went into the  19 economic analysis, you know, really evaluated the cost and  20 some of the reductions that we can anticipate from  21 different pathways and that really can help us think about  22 the technologies that we want to see promoted. It can help  23 us think about new research and development that needs to  24 happen so we really can get these reductions.</p> <p>25           So to do so -- to do economic modeling, we use</p>

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1 two tools. The California pathways model and this was an  
 2 external research contract. It's developed by E3 which is  
 3 based in San Francisco and it's a stock rollover model. So  
 4 they basically look at technology costs and the greenhouse  
 5 gas emissions associated with different technologies and  
 6 they basically forecast the stock changes in capital and  
 7 fuels that would be required to achieve the greenhouse gas  
 8 emissions reductions and calculate those technology costs.

9 To think about the macroeconomic impacts of the  
 10 scoping plan, we internally ran the REMI model, regional  
 11 economic models. So this is something that we use in-house  
 12 and in requirements for SB 617, so there is a requirement  
 13 through the Department of Finance for any regulation that  
 14 has an impact over \$50 million or more in a 12 month period  
 15 that we'll do more extensive macroeconomic modeling. The  
 16 Department of Finance has endorsed REMI as a tool that can  
 17 be used for that and so we did look at the macroeconomic  
 18 impacts of the scoping plan and other major regulation  
 19 using this model.

20 This is a really lovely schematic that I've tried  
 21 out many times. And this really gives you an overview of  
 22 what we did in the modeling for the scoping plan. So again  
 23 the two blue boxes are the model -- or the blue box is the  
 24 pathway analysis and red box is the REMI model, those are  
 25 the models that were used but really a lot of the inputs

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1 were -- they came from publicly available information. So  
 2 essentially what we did is we put together a reference  
 3 scenario, which is more difficult you think, to predict  
 4 what's going to happen in the California economy in the  
 5 absence of additional climate policies.

6 But basically we mapped out through 2030 what  
 7 does business as usual look like if we continue on the  
 8 path? Because given sort of, you know, the -- where the  
 9 economy is going that prices are falling in terms of  
 10 renewal even absent additional climate action, we  
 11 anticipate we're going to see larger penetration of zero  
 12 emission vehicles and also renewable energy. So part of  
 13 the challenge was really parsing what's going to happen  
 14 naturally versus what is required to be motivated by  
 15 additional action.

16 So in order to do that we looked at a lot of the  
 17 existing data out there. Different forecast and energy  
 18 demand, demand our fuel prices. We looked at what we said  
 19 in our SIPS, our climate commitment, and what we're going  
 20 to need to do in terms of our vehicle population in order  
 21 to achieve air quality reductions in California. And then  
 22 we put together different scoping plan measures. So we had  
 23 different bundles of policies and measures that we put  
 24 together that would outline different fuels, different  
 25 capital requirements that can help us achieve our

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1 reductions to get to 2030 target above and beyond where we  
 2 would be in the referenced scenario.

3 So all of that information came from public  
 4 sources. We solicited information from all of the state  
 5 agencies. We also consulted with economic reviewers who  
 6 provided some feedback on some of these assumptions that  
 7 we're raising. And this is all information that was fed  
 8 into the pathways model. So the output of the Pathways  
 9 models were GHG emissions and also the cost and/or savings  
 10 associated with the stock change in capital and fuel. So  
 11 then what we did -- and this is where I should note this is  
 12 for all of the measures, that are not carbon prices. So  
 13 pathways does not have the capability given that's just  
 14 looking at capital and fuel, it does not have a carbon  
 15 pricing module inside of that model.

16 So for all of the measures, the short-lived  
 17 climate pollutants, thinking about the mobile source  
 18 strategy, the 50 personality RPS, and energy efficiency,  
 19 all of those different programs and policies were modeled  
 20 in the scoping plan measures and put into pathways. You'll  
 21 see the green dotted lines on the other side. What was  
 22 done on Cap-and-Trade and for the carbon tax assessment is  
 23 we did those calculations of the cost and the GHG emissions  
 24 that we can anticipate offline. We did that internally at  
 25 ARB and all of that was done and put into the REMI model to

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1 figure out what the economic impact of our overall suite of  
 2 measures was on the California economy.

3 And you also see other monetized cost and savings  
 4 as another box. So we did also try to include changes in  
 5 health expenditures related to avoid health impacts that we  
 6 can anticipate because of air quality, co-benefits from  
 7 reductions in GHGs. So we did calculate -- there's a slide  
 8 later, but we did calculate avoided premature mortalities,  
 9 avoided hospitalizations, and avoided ER visits and we  
 10 quantify those and monetized the change in household  
 11 expenditures that would result from that also was fed into  
 12 our REMI model.

13 Okay. So this gives you a little more detail.  
 14 It just gives you a little bit more background on sort of  
 15 what Pathways and REMI do and the data sources that were  
 16 included. I think it's important to note that we did use  
 17 the technology and fuel cost from the Pathway's model as  
 18 the input into the REMI model. And the REMI model again is  
 19 thinking about not just the direct cost of those changes in  
 20 capital and fuel but also one of the indirect impacts on  
 21 associated industries and also what are the induced impacts  
 22 and changes in household expenditures. You know, if zero  
 23 emission vehicles, if those requirements by zero emission  
 24 vehicles are households then increasing the amounts they  
 25 are spending on vehicles and reducing the amount of money

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<p style="text-align: right;">Page 73</p> <p>1 they have for everything else in their budgets? And,  2 again, we did this in the scoping plan for what turned out  3 to be the final scoping plan scenario as well all the other  4 alternatives.</p> <p>5 Just to give you a little flavor of what this  6 actually looks like, I will say that we do have a really  7 dense 100-page appendix that outlines excruciating amount  8 of detail. But this is really what came out of Pathways.  9 And so we calculated basically all of the different changes  10 in capital fuel for all of the different measures that are  11 proposed, and this outlines it by unused sector, and it's  12 in 2015 dollars. So you can see that there are changes in  13 capital costs and then also for a lot of places declines in  14 fuel cost, and this is due to the suite of measures. There  15 are capital requirements. People are going to be buying  16 more vehicles. But there's also going to be fuel cost  17 savings if you're spending less on fuel because you're  18 driving a zero emission or a low fuel efficient vehicle.</p> <p>19 So this gives you a sense sort of how the  20 breakdown was done. You can see different sectors  21 experiencing different amounts of costs. The industrial  22 sector, there's an increase in capital costs but decreases  23 in fuel costs and no net impact on petroleum refining.</p> <p>24 ANN CARLSON: Can I just interrupt you?  25 EMILY WIMBERGER: Yes.</p>	<p style="text-align: right;">Page 75</p> <p>1 to today, but there's a slight slowing in growth in the  2 California economy because of the implementation of these  3 measures. Overall it will take the California economy  4 about three months to make up this difference, so we get to  5 the point, the GDP point at which it would have been in  6 2030 three months later if we went with the scoping plan.</p> <p>7 And, again, this is a projection of the current  8 California economy, so we take the industries that we have  9 in California today. We're not imagining -- we're not  10 forecasting contrasting major changes. And this is all  11 based on the Department of Finance forecast. So there  12 really is room for dramatic transformation, we just don't  13 really know how to model that. So this is really -- it's a  14 conservative way to think about it. There's a lot of  15 uncertainty here, but it does give us some sense of what  16 the impacts will be on this program.</p> <p>17 I think another important thing we did is we  18 compared all of the impacts across the different  19 alternatives. So, you know, confining all of the different  20 scoping plan, we had, you know, just a command and control  21 descriptive measure alternative, we have a carbon tax  22 alternative. Comparing all of those across each other, we  23 did find that the scoping plan scenario was a suite of  24 policies that did have a very low impact on the California  25 economy and a very high probability of achieving the 2030</p>
<p style="text-align: right;">Page 74</p> <p>1 ANN CARLSON: Just as a going forward, I think  2 we're going to try to go to 12:30 as long as everybody is  3 available on the committee. We do need to give you a break  4 at some point, so we will do that after her public  5 comments. If that's alright with everybody we can still  6 lodge time. Thank you.</p> <p>7 EMILY WIMBERGER: And this ledge shows the final  8 economic modeling -- so the macroeconomic impacts of the  9 scoping plan scenario that was published in the scoping  10 plan, the main economic indicators that we look at are  11 changes in California GDP, changes in employment, and  12 changes in personal income. And it should be noted -- so  13 you'll see that there's absolute change and there's  14 percentage change. So this is not relative to today, this  15 is relative to future projected 2030 reference case. So  16 really what we're measuring is the incremental impact of  17 implementing the scoping plan policies relative to the  18 California economy where we don't implement those policies.</p> <p>19 As you can see there is a pretty modest change in  20 terms of the percentage change across all of these major  21 economic indicators. The California economy through 2030  22 is projected to continue to grow. I think the California  23 economy is projected to go from \$2.4 trillion currently to  24 \$3.4 trillion in 2030. So when we see negative numbers,  25 it's not that there's a contraction in the economy relative</p>	<p style="text-align: right;">Page 76</p> <p>1 target. So even sort of in model comparisons, this suite  2 of measures came out pretty well.</p> <p>3 We did also look at additional impacts. So we  4 did an estimation as I said of the avoided health impacts  5 that include premature mortality, hospitalization, and ER  6 visits. And those economic, those additional impacts in  7 2030 could range from 1.2 to \$1.8 billion, so that's not  8 insignificant.</p> <p>9 We also evaluated the social cost of the scoping  10 plan. There's a requirement of AB 197 that we can consider  11 the social cost of any policy that goes beyond our 2020 GHG  12 target. And so what we did is used a social cost of carbon  13 and a social cost of methane because we do have methane  14 reductions that were to be looked at under the short-lived  15 climate pollutant strategy. And then we estimated -- we  16 did use the Obama era social cost of carbon and we will  17 continue to use that until there is new science that is  18 reliable. So we did use the social cost of carbon to  19 evaluate the avoided environmental damages of what we're  20 doing in the scoping plan. In 2030 that evaluation ranges  21 from 1.9 to \$11.2 billion.</p> <p>22 So this gives us a sense of, you know, some of  23 the benefit side and we do want to continue to work -- as  24 Rajinder said there's a lot of discussion now in looking at  25 the impacts of natural working lands, both in terms of</p>

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<p style="text-align: right;">Page 77</p> <p>1 their ability to be a carbon sink and then to also make  2 sure that we are fully quantified in the ecosystem service  3 impacts of what we're doing in our policy framework.  4 We also looked at the household impact of what  5 we're doing. So the estimated household impact using  6 changes in personal income that was modelled in the REMI  7 model and changes in population from the Department of  8 Finance. What we find is that the suites of the scoping  9 plan to achieve the 2030 target will result in an estimated  10 cost to households of \$115 dollars to \$280 in 2030, and  11 that's again relative to no suite on the policies.  12 ANN CARLSON: Is that annual?  13 EMILY WIMBERGER: That's annual, yeah, and it  14 change -- it depends on implementation timing. We also did  15 look at the distributional impact of what we're doing. We  16 wanted to make sure that different regions of California  17 would not be adversely impacted, and also we were  18 considering disadvantaged communities. So to do that, we  19 used a slight variation of a REMI model. We do have a REMI  20 model that has all the California counties.  21 And what we did is we looked at the impact on the  22 wages employment and sector valley added just sort of like  23 a regional GED and we compared -- so parsed all the impacts  24 by county and then we also did match up the CalEnviroScreen  25 2.0, cause this was a while ago, the census tract to sort</p>	<p style="text-align: right;">Page 79</p> <p>1 documents look very precise, they do represent estimates  2 and we do want to be very transparent with the fact that  3 these are uncertain.  4 Unless you have a crystal ball trying to predict  5 what's going to happen in the future is quite difficult.  6 And so to get a handle on how changes in California economy  7 might impact both the cost of achieving the 2030 target and  8 the ability to achieve the target, we did do an uncertainty  9 analysis. We basically looked at what would happen if the  10 California economy grows faster than we anticipate, what if  11 it grows more slowly than we anticipate.  12 We also looked at the uncertainty related to  13 fossil fuel prices, you know, we did plus or minus 20  14 percent on what we were predicting, on what we were using  15 as a reference case for our fossil fuel prices. We also  16 looked at the uncertainty of what if the other measures --  17 the non-Cap-and-Trade measures, what if they overperform or  18 if they underperform? What would that do to the cost of  19 achieving the target as well as our ability to achieve the  20 target. And then we also looked at another source of  21 uncertainties, what are the emissions reductions that we'll  22 achieve for different prices in the Cap-and-Trade Program.  23 So we played with all these variables. We did a  24 Monte Carlo analysis and ran 10,000 different resolutions  25 and what we found was that the scoping plan scenario on the</p>
<p style="text-align: right;">Page 78</p> <p>1 of map those to the REMI California county model, and we  2 were able to look at individual impacts on disadvantaged  3 communities and did census tracts that were not  4 disadvantaged and what we did find -- again, these are  5 estimated impacts, but we did not find any discernable  6 difference in the results by region in California nor  7 across census tracts that are labeled as disadvantaged  8 communities and those that are not throughout the state.  9 So I think we do want to make sure that we're  10 digging into those issues further. This was sort of the  11 first time we really tried to do something. It's very much  12 in line with what is done in different regions of  13 California, the South Coast Air Quality Management District  14 has done similar distributional impacts to come up with  15 similar results.  16 The last piece I am going to talk about on the  17 scoping plan is we did do an uncertainty analysis. I think  18 one thing that Secretary Rodriguez mentioned, we had  19 two-day symposium posting in Santa Barbara where we  20 discussed how you actually evaluate the impacts of  21 California's climate policies? How do you parse the  22 impacts from one program relative to a suite of measures?  23 And the really big overall thing is "Oh, there's a lot of  24 uncertainty here." And so I think we want to be very  25 cognizant about it and while a lot of our numbers and our</p>	<p style="text-align: right;">Page 80</p> <p>1 suite of measures had about a 96 percent likelihood of  2 reaching the 2030 target. And again, this is a model  3 result, but we did try to make sure that we are thinking  4 through some of the likely sources of uncertainty, and  5 we're able to say something about that. We did a -- and  6 this was the highest percentage of -- this was the highest  7 probably of achieving the target of any of the different  8 alternatives that we did measure.  9 So then giving a little bit to the evaluation of  10 the Cap-and-Trade Program within the scoping plan, I do  11 think we want to recognize the difficulty in isolating the  12 impact of one program from a suite of measures, let alone  13 in the California economy. These are really hard modeling  14 questions, I'm glad we have an expert panel to weigh in on  15 them, but it is difficult. So I think there's a lot of  16 things we do not consider when looking at one policy or  17 program isolation. There are a lot of interactive effects,  18 you know, why is the facility making a decision? Is it  19 because they want to comply with the Cap-and-Trade Program?  20 Is it because of some other reason? A tax reason?  21 So I think there's a lot of difficulty in  22 understanding the sort of rationale and trying to parse and  23 assign benefits or emission reductions to assist with their  24 program. It's also difficult to understand baseline  25 conditions. We have a reference case with the California</p>

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<p style="text-align: right;">Page 81</p> <p>1 economy but what does that look like sector by sector?                  2 What does it look like when you're thinking of an                  3 individual facility or individual fleet owners motivation                  4 to make different decisions and choices and also                  5 uncertainty? Again, so there's a lot of uncertainty in                  6 sort of both the estimation of costs and benefits and also                  7 trying to think about rationale and motivation for                  8 different actions.</p> <p>9 I do think that something that Rajinder mentioned                  10 is really important for us, are really understanding the                  11 right metrics for tracking our progress. We deal with the                  12 emissions inventory and we do want to continue to think                  13 about indicators. And so trying to parse out the impact on                  14 one programs on one California GDP is very difficult in                  15 sort of a larger portfolio. Also employment impacts, we                  16 have a lot of policies that work together and so because of                  17 the Cap-and-Trade Program, there is a pot of funds -- the                  18 greenhouse gas reduction funds, that those funds are used                  19 to further reductions in greenhouse gases in California.                  20 So I think there's a lot of difficulty in trying to parse                  21 what are the impacts of the Cap-and-Trade Program on the                  22 California economy relative to the decision to where we                  23 sort of put these different funds and how those benefits                  24 improve in different sectors across California. I also                  25 think about research and development and how those monies</p>	<p style="text-align: right;">Page 83</p> <p>1 floor and then at this upper bound level. So that gives us                  2 a range of the economic impacts for the Cap-and-Trade                  3 Program. When we're thinking about how to assign these                  4 costs to different sectors, we look at the emissions                  5 obligations based on historic data and so we have that two                  6 digit mix code and then we just decide the REMI model.</p> <p>7 In terms of how we model the return allowance                  8 value, as Rajinder mentioned, there is industrial                  9 allocations to minimize leakage. There's also allocation                  10 to electricity and natural gas utilities on behalf of rate                  11 payers, and then we think about how the values were turned                  12 to California consumers, how we're modeling it so far --                  13 and this is open to suggestion -- we basically looked at                  14 historic GGRF for appropriations and assigned specific                  15 tranches of funds to those sectors and then any remainders                  16 we return to the California households as sort of per                  17 capita dividend. So that's been the structure of how we                  18 modeled that return value. I will say that a lot of the                  19 givens of the modeling structure both of REMI and our                  20 methodology choices, the return of value has a huge impact                  21 on the overall economic benefit or cost to California. So                  22 I think those decisions are sort of outside the scope of                  23 the regulatory process with the Cap-and-Trade Program, but                  24 they are related and they do have a huge impact on the                  25 overall benefit that we will see in California of the</p>
<p style="text-align: right;">Page 82</p> <p>1 are spent, it's really hard to understand sort of where                  2 those costs are assigned from one measure within a                  3 portfolio.</p> <p>4 I'm going to talk a little bit about                  5 Cap-and-Trade. So the Cap-and-Trade Program -- and we're                  6 currently thinking about modeling the economic impact of                  7 the Cap-and-Trade Program for the regulation right now                  8 because the amendments are ongoing. But really what we                  9 want to do within the REMI model is we estimate the impact                  10 by change and expenditures to reflect the need to purchase                  11 allowances to reflect the free allocation of allowance to                  12 cover sectors and we do also model the return allowance                  13 value from the auction of state-owned allowances through                  14 the greenhouse gas reduction fund.</p> <p>15 So we do try to consider all the different costs                  16 REMI model in the Cap-and-Trade Program and given that is a                  17 market-based program, it's difficult. We don't say "Okay,                  18 we know that you're going to implement technology and it's                  19 going to cost Y dollars." So what we do is look at                  20 abounding arguments, so we look at there is an auction                  21 reserve price. So there's a minimum of allowances that you                  22 can buy at auction and then there is an upper bound. And                  23 so what we've done is we look at the costs to California's                  24 economy and to different sectors of assuming that the price                  25 of the allowances that were made to purchase were at the</p>	<p style="text-align: right;">Page 84</p> <p>1 Cap-and-Trade Program.</p> <p>2 So just in terms what we will be doing in the                  3 next -- through December when we are looking at the                  4 Cap-and-Trade, the economic analysis related to the                  5 Cap-and-Trade regulation. So there's three major                  6 regulatory requirements that will be completed. So the                  7 first thing that the public will see is what's called the                  8 SRIA, the Standardized Regulatory Impact Assessment, and                  9 this is -- as I was mentioning this is -- whenever there's                  10 a regulation classified as major, so a \$50 million impact                  11 in 12 months DOF, Department of Finance, requires us to do                  12 a sort of a very early cut of the macroeconomic impacts of                  13 the proposed regulation. And that is that that is sort of                  14 the first thing that is public whenever there is a major                  15 regulation. We also will do -- there will be an economic                  16 analysis in the staff report or initial statement of                  17 reasons, as well as a form 399 or an economic fiscal impact                  18 statement that is part of the rule-making package and is                  19 submitted to the Department of Finance.</p> <p>20 In terms of how we are in the impact that we're                  21 assessing, we do look at impacts on small businesses,                  22 individuals and households in California, fiscal impacts on                  23 local and state government, we look at the impact on                  24 California business. It's a very California specific plan.                  25 The overall California economy, employment, investment,</p>

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1 personal income, incentives for innovations, and we do  
 2 consider competitiveness of California businesses when  
 3 we're looking at the cost of the benefits. So these are  
 4 really the types of impacts that we're going to be looking  
 5 at, and have historically looked at, but looking forward  
 6 very much to the input of the IEMAC committee on some of  
 7 those major issues and I'll stop there. Thank you.

8 ANN CARLSON: So I want a little input from my  
 9 fellow committee members about whether you'd rather take a  
 10 little bit of time to ask questions, or whether you want to  
 11 just move into public comment and use the remainder of our  
 12 time to have a conversation about our workload going  
 13 forward.

14 QUENTIN FOSTER: I'm fine with public comment.

15 DANIEL CULLENWARD: I have a brief question I  
 16 would like to ask.

17 ANN CARLSON: Dallas, what are you thinking?

18 DALLAS BURTRAW: I think that brief questions are  
 19 highly valued because it gives opportunity to get some  
 20 clarification. So I think we should take just a couple  
 21 minutes to do that, and I have one in the queue also.

22 ANN CARLSON: And Meredith, I think said  
 23 something similar. So let's go for ten minutes, that will  
 24 leave us about 40 minutes after we take a break.

25 Dallas, you want to start us off?

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1 DALLAS BURTRAW: Emily, if I understood you to  
 2 say that revenue have a huge impact on the economic outcome  
 3 which is understandable based on the literature and what we  
 4 know, but I think you said that that was evaluated in a  
 5 comparative way, or you're only doing a representation of  
 6 what is now the full prescription due to various influences  
 7 beyond the scoping fund?

8 EMILY WIMBERGER: Well, I will say historically  
 9 we played around with it and looked at, you know, what  
 10 happens if you do -- if you return all value to consumers.  
 11 This was a pre-AB 398, when we were thinking, you know,  
 12 there is a large -- you know, there are many possibilities  
 13 in terms of what the final rule would look like. We did  
 14 play around with some of this and looking at what happens  
 15 if you return to different sectors if you assume that it's  
 16 all per capita dividend. So we did do some of that  
 17 background work.

18 I think what we're trying to do now as we move  
 19 forward there are specific -- there are specific  
 20 requirements, there are specific tranches for some of these  
 21 greenhouse gas reductions that's outlined in AB 398, so we  
 22 have been trying to match to the extent that we can in a  
 23 macroeconomic model, but I do think that does sort of --  
 24 understanding the impact of those revenues is really  
 25 important, and I think, you know, we are -- has to pass to

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1 legislature there directing where the response go, but I  
 2 think it is an important consideration to see sort of where  
 3 we could have potentially a larger impact on California's  
 4 economy. We haven't yet sort of done that in the current  
 5 rulemaking. I think we've tried to think sort of what  
 6 we've done in the past and try to conform at least what we  
 7 can with AB 398.

8 ANN CARLSON: Meredith, do you have --

9 MEREDITH FOWLIE: Yeah, I'll keep it brief and  
 10 focus on this one issue. Emily, if you could comment  
 11 briefly on how REMI deals, or accommodates or doesn't  
 12 accommodate freight flows both with other states and other  
 13 companies because in the list of impacts you analyzed with  
 14 surprising results, there wasn't much discussion of leakage  
 15 (inaudible) on that side of the state. So can you help us  
 16 understand to the extent that they accommodate analyses of  
 17 these trade flow impacts on leakage or not?

18 EMILY WIMBERGER: Yeah, that's a great question.  
 19 It's limited I would say. We do -- REMI has -- we have the  
 20 California version of REMI and then there is outside of  
 21 California. And then there is a matrix that sort of shows  
 22 for every dollar in California that is based on the EA  
 23 data, you know, for every dollar in -- a certain dollar in  
 24 California X percent goes outside of California. So we did  
 25 try to play around with that a little bit. The ability for

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1 REMI to do it is pretty limited I will say and so we tried  
 2 to things that we can to think about the impacts of  
 3 leakage. And we've done -- as Meredith was a part of a  
 4 different external analysis to really try to dig into some  
 5 of this, but the ability for REMI to do that is limited.  
 6 We can look at cross sector impacts and there's  
 7 regionalization within REMI but the ability for it to sort  
 8 of predict or to quantify specific leakage impact is  
 9 limited.

10 ANN CARLSON: Danny.

11 DANIEL CULLENWARD: Thank you, Dr. Wimberger.  
 12 First thing I just want to say is I appreciate how  
 13 complicated these questions and issues are and you've done  
 14 a really thorough job in providing an overview. I have a  
 15 question about slide 9. You mentioned that in your  
 16 analysis that the board found a 96 percent likelihood  
 17 meeting the target based on the uncertainty analysis. And  
 18 you held up that lovely thick copy of Appendix E of the  
 19 scoping plan.

20 I want to point out to my fellow committee  
 21 members that that analysis is an uncertainty analysis based  
 22 upon some assumptions in Appendix E about the price induced  
 23 mitigation that the Cap-and-Trade Program is assumed to  
 24 deliver but there's no citation or explanation at least in  
 25 Appendix C. So my question is whether or not the board is

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<p style="text-align: right;">Page 89</p> <p>1 going to offer more background on where that number came  2 from and whether or not the board has done a sensitivity  3 analysis of some of the lower numbers that other studies  4 have put out instead?</p> <p>5           EMILY WIMBERGER: Yes, that's a very good point  6 and we definitely want to be transparent that there are a  7 lot of assumptions that we had to make to conduct that  8 analysis. And we, you know, this was part of a two and a  9 half year scoping plan process and we did solicit feedback  10 on those numbers and got no input. So we felt that was  11 also slightly disheartening, we were hoping that we would  12 get something. But we did do sensitivity --</p> <p>13           (Telephone interruption.)</p> <p>14           EMILY WIMBERGER: Going back to your question, so  15 the quick answer is, yes, we did sensitivity analysis and  16 part of this is trying to parse the impact of that -- I  17 think this was the Monte Carlo analysis of trying to  18 understand the impact of that one assumption relative to  19 all the other assumption we have made, and the other answer  20 is, yes, there will be more information sort of released  21 about why those ranges were chosen and looking forward to  22 thinking about, you know, how we can think about different  23 -- the cost of different technologies and how that plays  24 into the analysis and in the future, so yes and yes.</p> <p>25           ANN CARLSON: So, I have a question actually for</p>	<p style="text-align: right;">Page 91</p> <p>1 assuming that they are going to be implemented in a way  2 that maximizes the benefits for those policies. And  3 understanding, you know, are there better ways to think  4 about uncertainty? Are there ways to think about how they  5 could potentially overperform or underperform, and how  6 frequently we should potentially act on the information  7 that we get knowing that we get information once a year  8 from the GHE inventory. We have the five-year period but  9 you know one year or two years may not be indicative of a  10 long-term trend that requires an action today. Thank you.</p> <p>11           EMILY WIMBERGER: I think she stole all of my  12 suggestions. I do think it's --you know, given a lot of  13 what I think we could use assistant with is thinking about,  14 you know, how do we best convey -- these are very compl  15 kited processes and we relied on some complicated modeling  16 and I think where we could use input is what are the  17 public -- what could we put out publicly that would be  18 helpful to sort of convey the messages around, you know,  19 reductions, environmental performance, economic performance  20 of both Cap-and-Trade and the larger suite of climate  21 policies. I think that that would be -- that's an area  22 that I think your input would be great.</p> <p>23           Also I think there's a lot of uncertaintiesaround  24 interactive effects of policies and understanding, yes,  25 how, you know, how all our suite of vehicle measure put</p>
<p style="text-align: right;">Page 90</p> <p>1 both of you and that is if you could ask the committee --  2 or let me put it a different way. Where are your biggest  3 areas of uncertainty in both of your reports and where  4 could you use the most help with feedback from us?</p> <p>5           RAJINDER SAHOTA: So thinking back on the recent  6 legislative hearing and some of the discussion that played  7 out last year, one of the things that we grappled with was  8 how we show what specific policies are producing in terms  9 of economic or environmental impacts on the state?</p> <p>10           For Cap-and-Trade it's a little challenging just  11 because we have a few year of data points. But I think as  12 the program continues that question is going to keep coming  13 up just as it will for some of the other policies. And so  14 we would welcome any advice or any suggestions from the  15 committee on how to begin to look at the policy in  16 California and then how to try and isolate to the best of  17 our abilities as we need the different impacts of different  18 programs because I think that will continue to be an  19 ongoing question, and rightfully so, with members of the  20 legislature, members of the public, and our own board.</p> <p>21           In terms of uncertainty, I think that just goes  22 back to the scoping plan and that we had certain  23 assumptions about how business as usually scenario would  24 play out over the next 13 years in California. We have  25 assumptions about what our policies are going to deliver,</p>	<p style="text-align: right;">Page 92</p> <p>1 together and if you take out one piece of that, where can  2 we pick up additional reductions and what would that look  3 like. I think the interactive effects answer to that is,  4 you know, there's a lot. And, yes, if you have crystal  5 balls, please give them to us. But again, I think a lot of  6 it is too is related to, you know, the -- if there are  7 suggestions for different analyses or different public  8 information we can put out that could provide clarity and  9 if there are better ways and different sources for  10 assumption that we can use, I think those all would be  11 great things but I think Rajinder hit pretty much  12 everything right on the head.</p> <p>13           ANN CARLSON: Thank you. Any public comments?</p> <p>14           MEREDITH ALEXANDER: I'll just ask a few  15 questions in a group if you don't mind. My name is  16 Meredith Alexander and I'm here representing SMUD,  17 Sacramento Municipal Utility District for those who aren't  18 local. A couple of questions for Emily and the committee  19 to consider I guess as well. You mentioned you talked  20 about the fact that how funds are returned to Californian  21 is really important in terms of overall impacts to the  22 state because I'm assuming households get money back and  23 they reinvested and obviously we didn't know that the  24 legislature directs where the funds go ultimately, but  25 having not read everything you put out, how much</p>

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<p style="text-align: right;">Page 93</p> <p>1 information do you include in there about those  2 macroeconomic impacts of how funds are spent so that the  3 legislature can make more informed decisions?  4         EMILY WIMBERGER: So that's a great question. I  5 think part of it is sort of the modeling structure that we  6 use, it's slightly unsatisfying because it's at, you know,  7 the 20,000-foot level. So how we really model that is we  8 take -- you assume there's X amount of funds and you say  9 historically there's been, you know, up to \$2 billion spent  10 in different tranches, so we will say "Okay, this sector as  11 defined by a very generic code in REMI, we'll get ten  12 percent of whatever funds we assume are going to come back  13 GGRF.  14         So it's a pretty course cut, but it has shown us  15 that, you know, a lot of the assumption at least in the  16 model when it comes to how those indirect impacts are. If  17 you give money back to people, you see people increase they  18 go out and they spend money in like restaurant. So you see  19 different changes that might have different employment  20 impact relative to, you know, if you're funding high-speed  21 rail that has large construction accolade and what what  22 does that look like. So I think it's just thinking about  23 the trade-offs and that there are different benefits that  24 kind of accrue if we decide to parse these money in  25 different places.</p>	<p style="text-align: right;">Page 95</p> <p>1 it's related to the GHG side instead of work the co-benefit  2 quantification is on the right.  3         ASHLEY CONRAD-SAYDAH: Emily, I want to weigh in  4 here. There's an annual report to the legislator on the  5 greenhouse gas reduction fund additionally. This year for  6 the first time we're asking agency to report more than  7 once, so there will be two reports from agencies under the  8 greenhouse gas reduction fund and the upcoming guidelines  9 based on public comments, there will be an addition of  10 reporting requirements for those co-benefits. So stay  11 tubed for the July board meeting when these guidelines  12 would be up for public comment.  13         ANN CARLSON: Let's take a five-minute break and  14 come back at 11:56.  15         (Off-the-record at 11:51 A.M.)  16  17  18  19  20  21  22  23  24  25</p>
<p style="text-align: right;">Page 94</p> <p>1         There is internally at ARB on the GGRF side,  2 there is a quantification of this. The staff is looking at  3 the co-benefits of the GGRF spending project by project so  4 we are trying to think about this more internally, but it  5 does raise -- it's an important note that a lot of the  6 benefits are in these funds and that where we do put them  7 does make a difference. There's a little bit in the  8 scoping plan appendix where you can see we made different  9 assumptions for the scoping plan scenario, which has a  10 Cap-and-Trade and on the carbon tax scenario where we just  11 returned all of the value as per capita dividend from the  12 tax. You can see that there are different impacts related  13 to those additions and choices.  14         And for the GGRF programs there's like a X post  15 analysis that's available for the legislature. If -- I'm  16 not -- I will have to get back to it. Right now they are  17 working on quantifying that and they are collecting data  18 and trying to figure out when you do get direct funds to  19 program along with quantifying the greenhouse gas  20 reductions that are resulting from these programs. You do  21 also want to be able to speak to the co-benefits of that in  22 terms of changes of glutens, changes of employment and so  23 those are discussions are currently ongoing. We're still  24 working to iron that out. There is some information that  25 we do put out publicly on those programs and results but</p>	<p style="text-align: right;">Page 96</p> <p>1         REPORTER'S CERTIFICATE  2  3  4         I, LaCreisha Vaughn, CSR No. 13945, a Certified Shorthand  5 Reporter in and for the State of California, do hereby  6 certify:  7         That said meeting was taken before me at the time and  8 place set forth and was taken down by me in shorthand and  9 thereafter reduced to computerized transcription under my  10 direction and supervision, and I hereby certify the  11 foregoing deposition is a full, true, and correct  12 transcript of my shorthand notes so taken;  13         I further certify that I am neither counsel for, nor  14 related to, any party to said action, nor in any way  15 interested in the outcome thereof.  16  17         Dated this 13th day of July, 2018,  18         At Sacramento, California.  19  20  21  22  23  24  25</p>