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STATE OF CALIFORNIA
CALIFORNIA ENERGY COMMISSION

In the Matter of:) Docket No. 21-IEPR-05
)
)
2021 Integrated Energy Policy)
Report (2021 IEPR))
) RE: Renewable Natural
) Gas
)
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IEPR COMMISSIONER WORKSHOP ON RENEWABLE NATURAL GAS

REMOTE VIA ZOOM

TUESDAY, AUGUST 31, 2021

Session 2 of 2 - Policy Approaches for RNG, 2:00 P.M.

Reported by: Elise Hicks

APPEARANCES

COMMISSIONERS PRESENT:

Commissioner J. Andrew McAllister, 2021 IEPR Lead, California Energy Commission (CEC)
Commissioner Siva Gunda, CEC
Commissioner Karen Douglas, CEC
Commissioner Patty Monahan, CEC
Commissioner Cliff Rechtschaffen, California Public Utilities Commission (CPUC)
Commissioner Darcie Houck, CPUC Commissioner

CEC STAFF PRESENT:

Heather Raitt, CEC

OVERVIEW OF RNG INCENTIVES

Stephan Barsun, Verdant Associates

RNG POLICY AND IMPLEMENTATION

John Mathias, CEC
Karin Sung, CPUC
Jeff Kessler, California Air Resources Board (CARB)
Yuri Freedman, Southern California Gas (SoCalGas)
Sam Wade, Coalition for Renewable Gas

PUBLIC COMMENT

Brian Biering
Michael Boccadoro
Julia Levin
Evan Edgar
Jim Kelly
Mike Florio
Ryan Kenny

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P R O C E E D I N G S

1
2 August 31, 2021

2:00 P.M.

3

4 MS. RAITT: Okay. Welcome to today's 2021 IEPR
5 Commissioner Workshop on Renewable Natural Gas. I'm Heather
6 Raitt, the program manager for the Integrated Energy Policy
7 Report or the IEPR.

8 This workshop is being held remotely, consistent with
9 Executive Order N-08-21 to continue to help California
10 respond to, recover from, and mitigate the impacts of the
11 COVID-19 pandemic. The public can participate in the
12 workshop consistent with the direction in the executive
13 order.

14 This afternoon is the second and final session of the
15 workshop. To follow along with today's discussion, the
16 schedule and presentations are available on the CEC's
17 website. Excuse me. And also, if you are interested, the
18 morning recording is already posted on our website as well,
19 from the morning session. So all workshops, IEPR workshops,
20 are recorded and a recording will be linked to the Energy
21 Commission's website shortly after this afternoon session.

22 Attendees have the opportunity to participate today
23 in two different ways. You may ask questions or upvote
24 questions submitted by others through the Zoom's Q&A feature
25 or make comments during the public comment period at the end

1 of the afternoon or by submitting written comments following
2 the instructions in the meeting notice. And written comments
3 are due on September 14th.

4 And with that, I'll turn it over to Commissioner
5 Gunda. Thank you.

6 COMMISSIONER GUNDA: Thank you, Heather. Thanks
7 again for -- to your team for continuing this conversation.
8 We had a very interesting panel discussion this morning and
9 good information provided. And thankful to Stephan Barsun
10 for setting up the context on the RNG market in California
11 this morning, and he'll be presenting again this afternoon on
12 the policy landscape.

13 Also, I was really happy and to hear the perspectives
14 from the Energy Commission staff, Rizaldo, PG&E, as well as
15 Maas Energy to just kind of think through the boots on the
16 ground reality of some of the projects, the viability.

17 One thing that came up this morning I think a talk
18 was very interesting from a -- from a policymaking
19 perspective is to really get some good data on the future
20 forecasting of RNG, and there was a number of public comment
21 that was made in terms of looking, you know, trying to find
22 those numbers that are more accurate as we think through
23 this, this important trajectory of policymaking.

24 So again, thanks to my fellow commissioners in
25 attendance, Commissioner McAllister, who is the lead

1 commissioner for IEPR this year, and Commissioner
2 Rechtschaffen, and Commissioner Houck from CPUC, to be a part
3 of this conversation this afternoon.

4 But then I wanted to quickly check if any other
5 comment -- any other commissioners would want to make a
6 comment.

7 COMMISSIONER MCALLISTER: Yes. This is Andrew
8 McAllister. I just wanted to quickly thank you, Commissioner
9 Gunda, for leading this discussion.

10 And also, this is, this afternoon particularly, all
11 day really, but I think the policy perspectives are
12 particularly relevant for joint, for this joint, the joint
13 nature of this workshop. Just given that the PUC has
14 particular and very deep authority in this arena. And so the
15 areas that are under the oversight of Commissioners
16 Rechtschaffen and Houck really are critical to the policy
17 direction forward. So we're very, very appreciative of all
18 they're doing in this space and the path they're laying
19 forward to really have a robust discussion in that context.
20 So really appreciate both of you joining us here today.

21 COMMISSIONER GUNDA: Thank you, Commissioner
22 McAllister.

23 Looks like we also have Commissioner Monahan join us
24 this afternoon. Commissioner Monahan, would you want to
25 share anything with the -- before we start?

1 COMMISSIONER MONAHAN: Sure. Well, happy to be here.
2 I'm sorry I missed the morning, I got waylaid by some
3 unexpected work so. But I also am very interested in this
4 policy perspective on renewable natural gas. I think, you
5 know, we had the low carbon fuel standard, which is a policy
6 by the Air Resources Board that is really driving a lot of
7 investment in renewable natural gas for transportation. But
8 the fact that it -- the policy is applicable only to
9 transportation means that we don't have like a comprehensive
10 economywide approach to incentivizing the low carbon fuels
11 that we need across multiple sectors.

12 So I think that is one of the questions that we need
13 to wrestle with as a -- as a state. Just sort of how do we
14 make sure that we are setting the right incentives to ensure
15 that low carbon fuels are going where they are most needed,
16 like renewable and natural gas.

17 COMMISSIONER GUNDA: Thank you. Thank you,
18 Commissioner Monahan.

19 I don't see any other comments from the -- from the
20 dais. So with that, I'll pass it to Heather.

21 MS. RAITT: All right, thank you.

22 So the first speaker, as you mentioned Commissioner
23 Gunda, is Stephan Barsun and he is -- he also spoke this
24 morning and he is the cofounder of Verdant Associates. And
25 so he'll be providing a review of RNG incentives.

1 So go ahead, Stephen. Thank you.

2 MR. BARSUN: Great. So thank you and thank you all
3 for deciding to listen to me talk again this afternoon.

4 Similar to this morning, the intent here is to
5 provide basically an overview. Not really want to dive way
6 down into the weeds on any technical details but, you know,
7 on the Q&A if you want to go there, well, we should go there.
8 But really want to basically present the different incentives
9 that are currently available for renewable natural gas or,
10 you know, even biogas generators within California.

11 So maybe move on to the next slide.

12 And for you -- those of you that were here this
13 morning, this is a repeat, I will admit that, but I do think
14 it's, you know, I did borrow this from our friends at the
15 EPA, but I do think it's valuable to again step through so
16 that everyone has, you know, better well on the same page
17 about different ways that basically a provider of methane, or
18 biogas, or renewable natural gas might be able to make use of
19 that.

20 So the first step is you have to generate that
21 methane. In the case of landfills or other things, that
22 might already be being collected. In case of dairies, you'd
23 have to create a anaerobic digester. In the case of things
24 like forest waste, that's through a different process. When
25 you're done with that, you can have some solids, digested

1 material or solids you can use. And then you've got gas,
2 which I guess I should have thought about the way I would say
3 that, but hopefully somebody got a chuckle out of that.

4 So basically you have, you know, from that
5 decomposition process, you have what would be called bio, you
6 know, the precursor to biogas. To make use of that, you need
7 to do some processing. And then in many cases, that's
8 required to be flared off. So a lot of landfills, a lot of
9 wastewater treatment plants need to remove that methane from
10 the environment by burning it. That still releases CO₂, but
11 CO₂ is much lower carbon intensity than methane. So again, we
12 talked about this morning that what, you know, what you would
13 be doing with that gas is really important for the carbon
14 accounting.

15 If it's just going to be vented to the atmosphere
16 like a large manure crop, that's sort of the worst case, but
17 it also provides the highest potential. Or in the case of a
18 landfill or a wastewater treatment plant, you might still be
19 required to capture that and flare or restore that methane.

20 And then if you want to make use of that, you go
21 again through some renewable processes to remove some of the
22 nasty things that can cause problems with engines, burners,
23 compressors, and then do some compression and then you can
24 have biogas.

25 And why this matters to incentives is that you have,

1 in some ways, two sets of incentives available for a
2 potential generator of renewable natural gas, biomethane, and
3 bio gas. One set of incentives is if they just stop here.
4 So they stop and they don't have negative connotations, but
5 basically you have biogas, but then you can use on site. If
6 you're using that biogas to replace electricity, there are --
7 there is one set of incentives that help encourage that, and
8 that's usually on site.

9 The other path is that you go through a few more
10 steps, compress that to a higher pressure, and then you have
11 what is virtually, you know, chemically identical to natural
12 gas, or renewable natural gas, and that can be injected into
13 a pipeline.

14 So if you go to the next slide.

15 And the reason it matters is that you have sort of
16 this first set of incentives that are meant to help supply
17 renewable natural gas. And again, as mentioned this morning,
18 the large majority of these are going to the transportation
19 industry, driven by California's low carbon fuel standard. I
20 think speaker later after me is going to go into more detail
21 of that.

22 You also have the federal renewable fuel standard and
23 then -- and then you also have the CPUC's Interconnection
24 Assistance Program. So that helps provide, you know,
25 incentives to help dairies connect to the gas distribution or

1 even gas transportation grid.

2 And then one incentive program that covers both of
3 those is the California Department of Food and Agriculture's
4 Dairy Digester Program. So that could be used to either help
5 incentivize dairies to provide natural gas to the pipeline or
6 to provide their own generation. And then within the
7 generation program, generation set, you have a number of
8 incentives, including the Self-Generation Incentive Program,
9 which is very near and dear to Verdant's heart. Since
10 starting at Itron and now at Verdant, we've been helping
11 assess and provide input on that program.

12 You also have a federal program for Rural Energy for
13 America. That's largely a generation program. You have
14 California's BioMAT Program, that's a feed-in-tariff. You
15 sell renewable energy credits. You also have Net Energy
16 Metering. And finally, some federal tax incentives.

17 So again, what you're going to do with the gas, in
18 part, drives what incentives are available to a potential
19 provider of either biogas or renewable natural gas.

20 Next slide, please.

21 So as I mentioned, you know, these are, you know,
22 some of the bigger drivers of incentives available to produce
23 renewable natural gas.

24 And next slide.

25 And the first one is low carbon fuel standard. This,

1 I think, speaker after me is going to give you a lot more
2 detail, but it's based on how much energy you're -- basically
3 how much carbon, not energy, carbon, that you are removing
4 from the atmosphere. So if you're removing a metric ton of
5 carbon from the atmosphere, you get -- there is a price that
6 you will be paid based on market conditions, and this varies,
7 to remove that from the atmosphere. And that currently is in
8 the \$200 a metric ton range. But as we see over time, it
9 varies pretty substantially.

10 And another key factor of this program is it doesn't
11 matter if you get the fuel in or out of state.

12 Next slide.

13 Another program that is available to producers is the
14 federal renewable fuel standard. This is based on not the
15 carbon reduction, but the energy in that fuel. And it's
16 similar to the low carbon fuel standard, but on a federal
17 program trying to provide additional low carbon fuels for the
18 transportation industry. It's based on a gallon of gas
19 equivalent and then the different categories that are
20 available have different values. The majority of renewable
21 natural gas, not all of it, there's some nuances and rules,
22 is what's called D3. So you can see that dark green line is
23 a historical price per MMBtu over time.

24 And if you move to the next slide.

25 So like I mentioned, the renewable -- the low carbon

1 fuel standard is a California-based program, but it's based
2 on carbon reduction. So the price you're getting, which is
3 shown in dark green, and these are approximate values, they
4 do vary, is really dependent on the carbon intensity of your
5 underlying fuel. So dairy -- dairies get a huge, if not -- I
6 don't want to say huge, a larger incentive because they're
7 basically carbon negative. Because in absence of doing
8 something, that methane would be released through the
9 environment, and that's a much more effective or detrimental
10 source of greenhouse gases than just CO₂.

11 The renewable fuel standard, on the other hand, just
12 varies with the price of energy, or varies by energy, so it
13 doesn't vary as much.

14 And then one average that we've heard, and had
15 sources in my, I think my prior slide deck, places an average
16 for renewable natural gas, it's for a contract price, down at
17 approximately \$18 per MMBtu. That's, I think, sort of on the
18 low end. But again, the LCFS and RFS are programs that vary
19 over time as opposed to locking in a contract price with a
20 utility, they might have, you know, lower upside, but you
21 have basically a longer term possibility, or longer term
22 security as a producer.

23 And next slide.

24 And then the other incentive for producers of
25 renewable natural gas is the CPUC's Interconnection Incentive

1 Assistance Program, basically authorized by one assembly bill
2 and then a second assembly bill that allows basically
3 producers to offset up to 50 percent of the interconnection
4 costs, but capped at different values.

5 And then next slide.

6 So in addition to those sort of, you know, long-term
7 and upfront incentives, you also have the California
8 Department of Agriculture Dairy Digester and Development
9 Program. And that's a lot, you know, CDFA, DDE -- DDRDP.
10 Lots of acronyms. But what that is is it's a grant,
11 competitive grant program that provides dairies with
12 financial assistance of basically installing a dairy
13 digester.

14 There's another reminder, probably beaten this to
15 death, is that in the absence of, you know, standard practice
16 at a dairy is that you collect the animal waste. And in some
17 cases, you can spread that on the field, a lot of times that
18 sits in a pond, and that animal waste decomposes and releases
19 methane. So by adding a digester, you capture that, you can
20 process and concentrate that methane and then use it for a
21 number of sources or a number of end uses.

22 In the beginning of this program, it was starting to
23 be used for generation, but most of the remaining projects
24 are being used to -- for providing energy for transport or
25 pipeline. And again, getting incentives through the LCFS in

1 federal RFS.

2 Next slide, please.

3 So if you are a dairy, a wastewater treatment plant,
4 a landfill, if you want to monetize your renewable natural
5 gas, you have upfront incentives with the Interconnection
6 Assistance Program and also the CDFA program if you're a
7 dairy.

8 And then over time, you have two different ways to
9 monetize. And there are probably more that somebody on the
10 phone would -- could add to this of the Transportation
11 Incentive, the California LCFS, the federal RFS. And again,
12 those vary over time so there's some risks with that. Or
13 potentially you have a long-term contract with a gas
14 supplier, maybe at a lower price than you might be able to
15 man with one of those two incentive programs. But maybe you
16 can secure a contract for three, five, or even 20 years so
17 you don't have that volatility as a provider.

18 So those are -- that's a really quick overview of
19 some of the incentives for producing natural gas, for use in
20 a pipeline, or just using use of the natural gas.

21 Next slide.

22 So there is a finite amount of renewable natural gas
23 or biogas available. I think, you know, one of the learnings
24 from this morning and, you know, I think I will fully echo is
25 that having a solid understanding of, you know, what that

1 real, not just the technical availability of that, but you
2 know, the realizable, or the economic potential of that, is a
3 very important thing to understand. But the reason that we
4 want to talk about both of these is that you have a finite
5 availability, and your transportation or renewable natural
6 gas incentives are, I want -- I sort of don't want to say
7 competing, but in some ways are competing with the same
8 sources as you might have for biogas fueled generation.

9 So next slide, please.

10 And the first one of these is the self, that I want
11 to talk about, is California's Self-Generation Incentive
12 Program. The incent -- this can be either with directed
13 biogas or, which is basically contract with a supplier
14 elsewhere to provide that, or with onsite biogas. The
15 incentive is split between an upfront incentive and then a
16 five-year dollar per kWh incentive. And you know, base
17 incentive is at \$2.50 a watt. You can add \$2.00 to that if
18 you're in a resiliency -- an area in need of additional
19 resiliency, and/or that has been subject to, I believe it's
20 two or more PSPS events.

21 And just a little bit of description of what sources
22 are. Historically, within the Self-Gen Program, a good deal
23 of that has been coming from digester gas, which is the dark
24 green. Somewhat smaller number from landfill gas, and then
25 smaller percentage, both by count and capacity from biomass.

1 One thing to note is that currently the way this
2 program and most of these other programs are structured, your
3 incentive doesn't vary with your carbon intensity. So as
4 long as it's a renewable fuel, you're getting the same
5 incentive.

6 Next slide.

7 The other fact, the other incentive or basically
8 benefit, if you're participating within the Self-Generation
9 Incentive Program, is net energy metering. I think most on
10 the phone are probably well aware that we are currently in
11 NEM 2.0, little plug for some work that Verdant has done for
12 the CPUC reporting on, you know, what NEM 2.0 currently is.
13 And then NEM 3.0 is something currently in development.

14 That's subject, you know, that could be covered in
15 many, many, many more hours. But essentially, the rules will
16 be changing. But currently you can get, as long as you have
17 a renewable generator, you can get most of your energy that
18 you export credited at close to a retail rate, not quite a
19 retail rate.

20 Next slide.

21 The other thing you can take care of, that's an
22 upfront incentive, or sometimes an upfront incentive, are
23 some federal tax credits. Most generators, I believe, are
24 going to choose the investment tax credit, or ITC. That
25 varies by your source. And you see down, you know, in the

1 slide at the -- on the bottom left, the alternative would be
2 the production tax credit, where instead of a upfront
3 incentive based on the value of your machinery, you're
4 getting paid on a dollar per kWh basis. By and large, that
5 usually ends up just being large wind, but it is one other
6 avenue open to biogas or renewable fueled generators.

7 And then finally, there's accelerated depreciation.
8 So those are federal tax benefits that you can use, that
9 producers can use to help offset some of the costs of your,
10 you know, upfront for an ongoing basis.

11 Next slide, please.

12 Another program that California has that I believe is
13 getting to be mostly subscribed, but I might be wrong, is the
14 biomass program. This is a separate path, I would say, than
15 going with the SGIP, where the Self-Generation Incentive
16 Program and net energy metering, where a utility contracts
17 directly with the supplier of this energy on a 10, 15, or 20-
18 year term and basically on a dollar per megawatt hourly
19 basis. And you can see what values you can get. The one
20 thing to note is that like currently, I believe, for forestry
21 waste, that's your highest incentive, which I believe the
22 intent here is to help with, you know, reducing fuel for
23 wildfires.

24 But with dairies, you don't get a significantly
25 higher incentive, you know, similar to, you know, think of

1 the graph I showed with the LCFS where your incentive for a
2 dairy if it's close to 10 times what you might get for a
3 landfill, here the differentiation isn't nearly as big. In
4 addition to that, a producer, a biogas fueled generator or
5 biomethane field generator is also, I believe, eligible for
6 renewable energy credits. But that, as you see, is pretty
7 much an order of magnitude lower than the price you might be
8 getting through the BioMAT Program.

9 Next slide.

10 There's also the Renewable Energy for America
11 Program, mostly here for completeness sake. It's sort of a
12 smaller program, but it does provide potential upfront
13 incentives for renewable generators.

14 Next slide.

15 So similar to what is presented earlier about the
16 potential stacking of incentives for generating renewable
17 natural gas, with generation, you have again, two sets. One
18 is you have upfront incentives, half of the Self-Generation
19 Incentive Program. Half of that is upfront with the
20 Renewable Energy for America program. And then also the
21 federal ITC. So those will help offset those upfront costs,
22 although one could argue with the ITC that, you know,
23 sometimes a good year delay, or many years delay, until you
24 can actually monetize that on your taxes.

25 And then over time, you also have potentially the

1 BioMAT feed in tariff. But again, you can't combine that
2 with the Self-Generation Incentive or energy metering. Or if
3 you choose not to go with BioMAT, you have the Self-
4 Generation Incentive Program over time and net energy
5 metering. And then finally, those two federal tax advantage
6 programs.

7 And they -- so the one thing I do you want to --
8 well, a couple comments in addition to this is that as you
9 can see, depending on if a producer wants to generate
10 electricity or generate renewable natural gas for others'
11 use, there are a variety of different incentives that both at
12 the federal and state level are available that help drive
13 these producers to potentially enter the market to produce
14 either energy or electricity or renewable natural gas.

15 What, you know, when we were putting together a
16 report that I think the CPUC is still reviewing on the market
17 and cost effectiveness of biogas fueled generation, one of
18 the things that seemed very apparent and maybe it was
19 apparent as I've been talking, is that there are a number of
20 potentially competing and also complementary incentive
21 programs available at the state and federal level for biogas
22 or renewable natural gas.

23 What I don't believe has been done is somebody to
24 really understand how these might interplay and how that in
25 turn affects something Commissioner -- one of the

1 commissioners, I'm completely spacing on your name, I'm
2 sorry, mentioned at the beginning of this call is that
3 understanding not just the technical potential, but how all
4 these policies may impact the potential availability of this
5 gas. And more importantly, I think, have, starting to have
6 an understanding of how those policies may be adapted and how
7 that might affect generate availability of renewable natural
8 gas or renewable natural gas fueled electricity generation
9 moving forward.

10 One other note is that some that work, one of the
11 other sort of findings is that the -- within the renewable
12 natural gas or the biogas fueled generation sort of market,
13 one -- what we've started to see is that with the current
14 Self-Generation Incentive Program, that's marginally cost
15 effective for producers. But from a total resource cost
16 standpoint when you have a vented baseline, so again, if that
17 methane would have escaped to the environment, especially
18 years from now, the cost effectiveness on what would be
19 called the total resource cost test. And in some ways, the
20 societal cost has a very, very high total resource cost test.

21 So you know, to again, biogas fueled generation from
22 a renewable source, especially if it would be vented through
23 the environment, can have great benefits to society. And
24 then I think the other piece is understanding how that
25 compares with other options.

1 So if you move to the next one.

2 There are also a number of other policies that I
3 believe those coming after me are going to talk about. But,
4 you know, with SB 1383, SB 1440 are both likely to help
5 increase the amount of available basically renewable natural
6 gas or biogas within the market produced to offset natural
7 gas or electricity.

8 And I think that is it.

9 So the next slide.

10 I think that's just my contact if you have questions.
11 I think that -- I believe we have round of questions from
12 commissioners.

13 COMMISSIONER GUNDA: Yes, thank you. Stephan, thanks
14 for setting up the stage again, similar to this morning.
15 Really helpful overview of thinking through all the different
16 incentive mechanisms that currently exist.

17 I do not have any questions. I look forward to the
18 rest of it, but I want to see if any of the commissioners
19 might -- yeah, Commissioner Monahan, please.

20 COMMISSIONER MONAHAN: Yeah, Stephan, that was great.
21 I mean, really helpful to see everything laid out.

22 I'm wondering, you know, my understanding, which
23 could be very wrong, is that the LCFS incentive is so much,
24 is much higher than the others. But am I wrong on that?

25 Like --

1 MR. BARSUN: So, yes. Sorry if I cut you off.

2 COMMISSIONER MONAHAN: Well, I wonder, do you have
3 any slide that could show how these incentives stack up
4 against each other? So which one give dollar per MMBtu, or
5 whatever method --

6 MR. BARSUN: Gets -- we tried to get something that
7 would make sense.

8 COMMISSIONER MONAHAN: It's hard because they're
9 very different. But.

10 MR. BARSUN: Yes, and --

11 COMMISSIONER MONAHAN: I think you could eventually
12 get it down to MMBtu by type of fuel. It's hard. It's
13 really hard.

14 MR. BARSUN: Yeah. So I think we, you know, I do
15 have one slide that shows if, I think it's the third or
16 fourth slide that shows just on, you know, to find natural --
17 renewable natural gas, what the incentives look like from the
18 LCFS and the RFS, and then a line for -- that I would sort of
19 think of as, you know, might be near the floor for long-term
20 renewable natural gas price.

21 But we -- where things get really complicated is
22 then trying to compare that to what a producer would get with
23 a generation -- a generator set because you have a whole
24 bunch of assumptions that have to go through that. And I
25 think it might be possible to get to back to something, but I

1 think what might be a more effective metric but unfortunately
2 takes probably a lot more work is getting back to, you know,
3 putting a dollar on, you know, going this path, and with
4 these incentives, this is the dollar per ton of carbon
5 reduced.

6 That takes -- that, I don't know if -- I mean, I
7 think some of the pathway studies and others have started
8 that but trying to incorporate all these different options
9 and pathways and, you know, the multidimensional matrix that
10 gets complicated.

11 COMMISSIONER MONAHAN: Yeah.

12 MR. BARSUN: And I think --

13 COMMISSIONER MONAHAN: I mean, you can envision --
14 in a very simple world, you could envision LCFS as
15 economywide.

16 MR. BARSUN: Uh-huh.

17 COMMISSIONER MONAHAN: And that would actually get
18 rid of this weird distortion, right --

19 MR. BARSUN: Yeah.

20 COMMISSIONER MONAHAN: -- where you can't figure
21 out where you're going to make the most money.

22 MR. BARSUN: Yeah. So if you were paying --

23 COMMISSIONER MONAHAN: Doesn't seem that hard.

24 MR. BARSUN: -- you know -- that one. Yes.

25 COMMISSIONER MONAHAN: Yeah. Yeah. I mean, that's

1 a really good model for why, you know, the LCFS is -- I mean,
2 no matter what, you're going to get more money by selling it
3 in California because we've got the LCFS.

4 MR. BARSUN: Yes.

5 COMMISSIONER MONAHAN: So it's going to be more
6 than what you're going to get from the federal RFS.

7 MR. BARSUN: Yep.

8 COMMISSIONER MONAHAN: And I think that -- but this
9 is the kind of thing where we want to think about it like
10 what's the best policy for California? Historically, the
11 LCFS, we know the beauty of it was that it was fuel neutral,
12 so it didn't pick winners or losers.

13 MR. BARSUN: Uh-huh.

14 COMMISSIONER MONAHAN: But the challenge of it is
15 that it's transportation only. And so then because you have
16 a distorted market in the transportation where you have this
17 like near, historically it's been a maniacal dependence on
18 fossil fuels. That's changing, right? That's changing.

19 MR. BARSUN: Uh-huh.

20 COMMISSIONER MONAHAN: But historically, every
21 year, everything came with a price of a gallon of gasoline or
22 a gallon of diesel or whatever a barrel, whatever metric you
23 wanted to use. And that's so much higher than what you pay
24 for any other fuel.

25 MR. BARSUN: Yep.

1 COMMISSIONER MONAHAN: And so it has created some
2 weird distortion in where fuels go.

3 MR. BARSUN: Yeah, and I --

4 COMMISSIONER MONAHAN: Anyway, I encourage you to
5 do that laborious.

6 MR. BARSUN: We will give it some thought.

7 COMMISSIONER MONAHAN: I know I'd be fascinated
8 with the results. I think everybody would be in terms of
9 well, what's the -- what are our policies doing in terms of
10 driving the market in certain directions?

11 MR. BARSUN: Yep.

12 COMMISSIONER MONAHAN: And it ought to make it I
13 think more simple for the average business to figure out
14 where to invest and how to invest.

15 MR. BARSUN: Yes. And I think that again, you
16 know, the challenge is simplicity versus accuracy. And, you
17 know, I think there is -- there is potential there. We
18 haven't quite figured it out to just be, you know, brutally
19 honest.

20 COMMISSIONER MONAHAN: Yeah. Well, I appreciate it
21 as complex. But, yeah, maybe that could be something, even
22 if it's imperfect, if it's directional.

23 MR. BARSUN: We'll definitely give it some thought.

24 COMMISSIONER GUNDA: Great. Thank you, Stephan,
25 Commissioner Monahan.

1 Do you have any other comments or questions or --
2 Commissioner Houck.

3 COMMISSIONER HOUCK: I don't have any questions but
4 thank you for the presentation. Very helpful.

5 COMMISSIONER GUNDA: Commissioner Rechtschaffen.

6 COMMISSIONER RECHTSCHAFFEN: I just have one
7 comment. That's you, you mentioned the BioMAT program. It's
8 not close to fully subscribed, we would like to be in that
9 situation.

10 MR. BARSUN: Okay. Thank you for the
11 clarification.

12 COMMISSIONER RECHTSCHAFFEN: That's a problem we
13 don't have yet but --

14 MR. BARSUN: Got it.

15 COMMISSIONER RECHTSCHAFFEN: But thank you for the
16 very comprehensive list of incentive programs. Of course,
17 most of those are administered by the PUC, but thank you for
18 that.

19 MR. BARSUN: You're welcome.

20 COMMISSIONER GUNDA: Commissioner McAllister, I'm
21 not sure if you have any questions. If not, we can go to the
22 next.

23 COMMISSIONER MONAHAN: He had to -- he had to step
24 away. So I don't think he --

25 COMMISSIONER GUNDA: Yes, I see that now. Thank

1 you, Commissioner Monahan.

2 So Heather, I'll pass it back to you. Hopefully,
3 we could save more time towards the later part of the Q&A.

4 Actually, there just came one question from Mike
5 Florio. Maybe I could just take this question and then pass
6 it. Just a quick one.

7 Stephan, it would be also interesting to look at --
8 oh, it's just a comment -- look at who pays for various types
9 of incentives. So thank you.

10 So with that, to Heather.

11 MS. RAITT: Great. Thank you, Commissioner. Thank
12 you, Stephan, again for presenting.

13 So we'll move on to the panel on Renewable Natural
14 Gas Policy and Implementation. And John Mathias, who is in
15 the -- from the Energy Commission will moderate again. And
16 he moderated again this morning.

17 So go ahead, John.

18 MR. MATHIAS: Well, thank you, Heather. Thanks,
19 Stephan and Commissioners.

20 We have another interesting panel this afternoon,
21 and we'll be going into some of the topics we've discussed in
22 a little more detail.

23 So starting off, we will have Karin Sung from the
24 CPUC, followed by Jeff Kessler from the Air Resources Board.
25 Then we'll have Yuri Freedman from SoCalGas, and finally, Sam

1 Wade from the Coalition for Renewable Gas.

2 And as we did in the morning, we'll hold questions
3 and discussion to the conclusion of all the presentations.

4 So the first speaker again is Karin Sung. Karin is
5 a senior energy analyst at CPUC and the Gas Policy and
6 Reliability Branch of the Energy Division. Prior to CPUC,
7 she worked as a mechanical engineer for Intel, LADWP, and
8 Senior Aerospace SSP. She is a nonpracticing attorney and a
9 licensed professional engineer.

10 So I'll hand it over to you, Karin Sung.

11 MS. SUNG: Thank you for the introduction, John.

12 My name, as John said, is Karin Sung, and I will be
13 walking you through CPUC's renewable gas program.

14 Next slide, please.

15 So the main things that we are working on here are
16 the Standardized Pipeline Interconnection Policies, a
17 voluntary Renewable Natural Gas Tariff, and finally, SB 1440
18 implementation, and that's the Renewable Gas Procurement
19 Staff Proposal.

20 Next slide, please.

21 So starting with the interconnection policy.

22 Next slide.

23 We have two policies that we passed last year
24 through a decision. One is a standardized tariff, which is
25 uniform gas quality standards for human health and pipeline

1 integrity. And the second one is a standardized contract.

2 So if you are a developer or you are planning to
3 enter into the California market, you can expect the same gas
4 quality standards and the same exact contract to apply
5 whether you're installing in PG&E territory, SoCalGas as
6 SDG&E, and Southwest Gas. The latter decision also increased
7 our biomethane interconnection incentive, which was discussed
8 earlier from 40 million to 80 million in total.

9 Next slide, please.

10 Next, we have our Voluntary Renewable Natural Gas
11 Tariff.

12 Next slide.

13 This is a decision that was released, accepting or
14 approving SoCalGas and SDG&E's voluntary opt-in tariff. So
15 people, customers in their territory, can opt in to pay more
16 to receive renewable gas. And the program offers different
17 steps, which I will walk you through.

18 The first one is, it's a pilot program. So if CPUC
19 chooses not to continue after the preliminary round, there is
20 going to be an option for cost recovery for the gas utilities
21 if they cannot recover cost from program participants.

22 The next requirement in the program is that 50
23 percent of the renewable gas must comply with the PU code
24 listed here, which in essence is an environmental benefit for
25 State of California. That means the other remaining 50

1 percent can be from renewable gas purchased outside of
2 California, and the procurement process will be overseen by a
3 panel, a review board of sorts.

4 The last requirement is that carbon intensity must
5 be verified through a modified LCFS GREET model so that we
6 can make sure there are additional benefits to the RNG that
7 we are procuring. And this decision is on hold pending our
8 SB 1440 Staff Proposal.

9 Next Slide.

10 That brings me to SB 1440.

11 Next slide, please.

12 So this -- this bill was passed in 2018, and it
13 statutorily requires us to consult with CARB in a biomethane
14 procurement target or goal. And we got some pushback,
15 whether consider means to take that next step and actually
16 adopt a program. But if you move to the next section of the
17 bill, Section B says if the Commission adopts. Right? And
18 then it delineates, enumerates a number of things that we
19 must consider. And so we took that as direction to move
20 forward with establishing targets and goals.

21 Next slide, please.

22 So in deciding how to procure, it was really quite
23 difficult because of the variety of feedstocks, the varying
24 cost between all the feedstocks. So we decided to approach
25 this in a way that would best support other state policy.

1 And the biggest state policy that we knew that we wanted to
2 support, and other agencies want to support, was for short-
3 lived climate pollutant reduction.

4 As you can see here in the methane emissions are
5 largest for dairies, well, livestock in general, but we have
6 over fifty -- we have 54 percent from livestock. That's
7 primarily dairy biomethane. But there's already a market for
8 that. There's already this dairy biomethane. The pilot
9 projects and other in the LCFS market.

10 The -- but there are programs also to prevent
11 methane leaks. So there's a methane leak abatement program.
12 What isn't -- but the biggest slice of the pie here that's
13 remaining is landfills. So landfills are regulated. We did
14 see earlier that landfills are the primary source of
15 renewable gas in -- that we purchase into California.
16 However, it is still 21 percent of the methane emissions in
17 the state.

18 And according to a 2017 JPL NASA study, it is the
19 largest point source emissions of methane in California at
20 about 43 percent of point source emissions. So even though
21 there is a requirement, statutory requirement to capture,
22 use, or destroy, landfills are still emitting massive amounts
23 of methane.

24 And so that brings me to my next slide.

25 We decided to support CalRecycle in their organic

1 waste diversion. So there is a shortfall in infrastructure
2 to meet CalRecycle's 2025 goal. In their recent progress
3 report update released last year, they anticipate 10 million
4 tons of capacity and -- but they need in order to meet their
5 2025 goal, they need to divert 18 million tons of organic
6 waste. That's where we step in.

7 So we want to help support diverting that
8 additional 8 million tons of organic waste that cannot go to
9 compost or the existing co-digestion or existing anaerobic
10 digestion facilities into new co-digestion facilities. And
11 that really, it's not really that new.

12 So there are wastewater treatment plants that
13 exist, and as we heard earlier this morning, there's 154.
14 And there's also standalone digesters. So those are the two
15 big ones.

16 We decided to exclude dairy biomethane in the
17 proposal. There has been feedback that we should be source
18 neutral in feedstocks, and there also has been feedback that
19 we should ban all livestock altogether for environmental
20 justice purposes. But we really want to stress here that our
21 program was also crafted with environmental justice in mind.
22 These landfills and wastewater treatment plants are generally
23 located in disadvantaged communities. And so in order to
24 make sure that the communities are impacted less and also
25 benefit from cleaner air, we wanted to create a policy around

1 that that would help benefit these communities.

2 Next slide, please.

3 So we have existing infrastructure. Like I said,
4 earlier today it was said 154 CASA had released, California
5 Association of Sanitation Agencies released a paper with 153.
6 So we're close. But there are 153 existing wastewater
7 treatment plants that already have anaerobic digesters and
8 with some modification, can actually increase their capacity
9 and take in organic waste to co-digest it.

10 There are also a standalone digesters. Right now,
11 currently nine. We expect more as we ramp up because,
12 according to State Water Board study, the wastewater
13 treatment plants have a capacity of about 2 to 3 million
14 tons. Standalone digesters will help support the additional
15 amount.

16 Next slide, please.

17 And then, so that was just the short-term target.
18 So that's just 2025, we want to do 8 million tons. Our
19 medium term, which is by 2030, is more of a -- of an economic
20 feasibility analysis. So we know that diverting all that
21 organic waste from landfills will result in 4 million metric
22 tons reduced in GHGs. So that -- calculating that, we
23 reached 75.5 million MMBtu, and that works out to about 12
24 percent of 2020 core gas demand in California.

25 So this market, I just want to remind everyone, we

1 have jurisdiction over core gas, the core customers. And so
2 our -- this passthrough costs will be analyzed within that
3 respect.

4 So that brings me to the next slide.

5 Medium-term targets we -- because this is an
6 economic feasibility analysis, we want to open up to various
7 feedstocks, we don't want to just limit it to that. But we
8 also want to focus on SLCP reduction. So that means
9 supporting Cal Fire in their woody biomass waste, what is
10 collected through forest thinning through the MOU that was
11 established between the state and U.S. Forest Service to
12 support whatever woody biomass that comes out of there or any
13 agricultural waste that we see throughout California.

14 There is currently a ban on open burn for
15 agricultural waste because of poor air quality in the San
16 Joaquin Valley. And so these programs can actually help
17 provide some method to discard it. That's not what wood
18 chipping, because Julia Levin raised a point that wood chips
19 are just kindle for more fire. So when people decorate their
20 homes with woodchips, they're actually setting up a fireplace
21 near their house, surrounding their house.

22 And you've already seen this diagram of what a
23 gasification plant or a pyrolysis plant would look like. But
24 this San Joaquin renewable facility is currently flowing into
25 SoCalGas pipeline system, and you can see that they're using

1 almond shells and pistachio shells.

2 So when you think of woody biomass, it's more than
3 just the wood itself. But it's the grasses, invasive
4 species, anything that we can do to help support and prevent
5 additional wildfires because black carbon is also one of our
6 statutory mandated GHGs that we must reduce, SLCPs that we
7 must reduce under SB 1383.

8 Next slide, please.

9 So there's -- we are also required to establish a
10 cost effectiveness test. This is quite complex. So this,
11 since this is such a dense slide, I'm not going to go through
12 everything. But just know that we want to establish and work
13 with the gas IOUs in establishing cost effectiveness tests.
14 We want to make sure there is a full economic analysis on how
15 it will impact ratepayers, how much fossil fuels will be
16 avoided by using renewable gas, which is not much.

17 We heard Stephen say earlier today that biowaste,
18 we want to make sure that it's only waste streams, but that
19 biowaste is a limited resource. We do not want to grow
20 purpose growing crops for this program. It will -- it's
21 wasteful for water. It's not necessarily that efficient. So
22 if we just take care of the problem of our methane emissions,
23 we might have a chance at reaching our 1.5 degree goal.
24 Reducing our methane will at least get us to within 66
25 percent chance. And so this is quite urgent with regard to

1 climate change, but there are additional tweaks that we put
2 in here.

3 The last element on the slide at the very bottom,
4 you see tiered prices for review. I just want to make sure
5 everyone understands these tier prices are not a cost
6 effectiveness test. They are merely a procedural mechanism
7 for which we review the contracts that come in. So when a
8 gas IOU decides to procure from a developer, then we will
9 review it.

10 So our 1770 was based on some market analysis, and
11 it aligns to the \$18 that was mentioned earlier. Even though
12 it's on the low end, we understand that there's some room for
13 addressing this, but that would be a Tier 1 Advice Letter.
14 So that would be the lowest bar, but it would still give us
15 the authority to reject it if we don't think it provides
16 additional benefit.

17 Tier 2 goes from the medium price range, or the
18 average price range, to the social cost of methane. And that
19 social cost of methane is calculated from the most recent
20 Biden administration update.

21 Finally, Tier 3, if we are procuring from say, a
22 small producer that has the same overhead as a large producer
23 but provides significant co-benefits and benefits for
24 environmental justice, we don't want to rule it out. We want
25 to still give it an opportunity to be accepted into the

1 program. And so we allow for Tier 3, which is the most
2 burdensome in procedural review, but it allows us to at least
3 review what other benefits that this facility may give and
4 receive a cost effectiveness test that it has to run through.

5 Next slide, please.

6 So this brings us to our environmental and social
7 justice goal. We have an action plan at CPUC. There are
8 nine goals. I've only listed one here and this was a pretty
9 critical in our analysis in establishing this plan. It's to
10 increase investment in clean energy resources to benefit
11 ESJ communities, especially to improve local air quality and
12 public health.

13 So the additional steps, the additional
14 recommendations that we have on the next slide walk through
15 all of our ESJ action plan goals.

16 Next slide, please.

17 There's a lot here, but I'll go through it quickly.
18 We want to make sure hydrogen sulfide is limited in gathering
19 lines so that because it is such a deadly gas that no one is
20 harmed if they are digging near gathering lines.

21 The next one is low carbon or zero carbon fuel
22 trucks. Because trucking will increase within the wastewater
23 treatment areas, it'll decrease near landfill gas regions.
24 Regardless, we want to make sure that the trucks that are
25 delivering this organic waste is clean or low carbon so that

1 we don't add to the local air quality pollutants. We don't
2 decrease the local air quality. We don't want to add PM 2.5
3 or PM 10 to the region. We want to prioritize from
4 facilities that cap burning biogas because -- so earlier we
5 saw a lot of discussion about generating electricity. A lot
6 of those electricity generators run on combustion engines,
7 and that usually means it's raw biogas. And raw biogas can
8 add to NOx and other particulate emissions to the local
9 region, and we want to make sure to prevent that as much as
10 possible without undermining other state policies.

11 So we want to cap burning biomethane. We want to
12 make sure that since we will be procuring biomethane for
13 pipeline injection, these facilities already have the
14 capacity to purify their biogas. And if they are purifying
15 it, then they can run on fuel cells. Those fuel cells are
16 more efficient, about approximately 30 percent more
17 efficient. So since we're running with limited resources and
18 limited biomethane, to increase the fuel efficiency in
19 electricity generation would be an additional benefit.

20 The next one is carbon capture and storage. That
21 once biogas is separated from the methane and -- my time is
22 over.

23 But you can review all these additional points and
24 how much we thought about how to improve the lives for the
25 local community.

1 Thank you very much.

2 MR. MATHIAS: Thank you, Karin, for the very
3 comprehensive presentation.

4 So let's see, our next presentation is from Jeff
5 Kessler.

6 Jeff Kessler is in air resources engineer at the
7 California Air Resources Board. And he currently works in
8 the short-lived climate pollutants policy section.

9 I'll turn it over to Jeff.

10 MR. KESSLER: Great. Thanks so much.

11 I'll jump into the first slide.

12 So I'm going to be giving a short overview on mostly
13 the short-lived climate pollutant policy side of things and
14 how that relates to methane and renewable natural gas. So as
15 has been discussed already today, short-lived climate
16 pollutants are a pretty potent greenhouse gas. This includes
17 methane but it also includes black carbon and some
18 fluorinated gases, so the HFC and refrigerants. And these
19 are relatively short atmospheric lifetimes with high global
20 warming potentials. And so the science has unequivocally
21 shown that we need to immediately reduce emissions of SLCPs
22 as quickly as possible due to their outsized impacts on
23 climate.

24 And so I'm going to walk through sort of what the
25 state has been looking at to address these emissions and

1 where we stand kind of what the steps going forward are going
2 to be.

3 So if you want to jump to the next slide.

4 So the legislator -- legislature also recognized the
5 immediate climate benefits that could be achieved from
6 controlling SLCPs and so they passed SB 1383 and that
7 required CARB to adopt and begin implementing short-lived
8 climate pollutant strategy by January of 2018. In addition
9 to requiring us to adopt and implement the strategy, 1383
10 requires the emissions of methane and HFCs to be reduced by
11 up to 40 percent below 2013 levels by 2030. There's a ton of
12 health benefits from also reducing black carbon which it
13 requires to be reduced for anthropogenic sources only by 50
14 percent below 2013 levels by 2030.

15 And so CARB has created an SLCP reduction strategy
16 and that was adopted in March of 2017. And the measures in
17 the strategy, our key parts of the state's 2017 Climate
18 Change Scoping Plan. And they will continue to be a huge
19 part of our current scheduling plan process which we'll get
20 to in a little bit.

21 If you want to jump to the next slide.

22 So methane has been discussed probably by almost all
23 other presenters. It originates from a variety of different
24 sources in California. The largest sources are dairy and
25 livestock operations, landfill organic waste, and then oil

1 and gas facilities. To provide a little bit of context
2 there, California's total greenhouse gas emissions in 2018
3 were 425 million metric tons of carbon dioxide equivalence.
4 And the methane emission portion of that represents over
5 9 percent of the California total greenhouse gas emissions.

6 In addition to being a pretty powerful greenhouse
7 gas, methane also contributes to global background levels of
8 ozone in the lower atmosphere and it makes it hard to attain
9 health based ambient air quality standards in California.

10 If you want to jump to the next slide.

11 California has more than 1300 dairies and 1.7 million
12 milking cows in the state. As a result, the dairy and
13 livestock operations are the largest source of statewide
14 methane emissions representing over half of the state's
15 methane emissions. And dairy and livestock sectors' methane
16 emissions are roughly split between enteric and manure
17 emissions. And so both enteric and manure emissions will
18 need to be reduced through a variety of strategies at some
19 point going forward.

20 And SB 1383 requires that the dairy and livestock
21 manure methane emissions be reduced by up to 40 percent below
22 the 2013 levels by 2030. And the focus is on achieving these
23 reductions through voluntary incentive-based measures until
24 at least January 1st, 2024. So meeting that target in rough
25 translation would be about 9 million metric tons of CO₂

1 equivalence annually that would have to be reduced by 2030.

2 Next slide, please.

3 So there are a handful of policy mechanisms in place
4 across different state agencies that will help work to
5 achieve those reductions. So CARB administers three of these
6 programs. So under cap and trade, there's been a compliance
7 offset protocol for livestock projects which allows
8 qualifying dairy and livestock anaerobic digestion projects
9 to generate and sell carbon credits within the carbon
10 markets.

11 Similarly, the low carbon fuel standard allows dairy
12 and livestock digestion projects to generate and sell low
13 carbon fuel standard credits. So you can do that for not
14 only renewable fuel that gets injected to the pipeline, but
15 you can also generate electricity with that and generate
16 credits if it gets delivered into the transportation sector.

17 Today, dairy and livestock projects have achieved the
18 lowest LCFS carbon intensity scores. And as the terrific
19 presentation by Stephan indicated, the carbon intensity
20 scores are set really low because they avoid methane that
21 would otherwise be in the atmosphere.

22 And then there's a handful of programs that are not
23 administered by CARB directly. So U.S. EPA has their
24 renewable fuel standard which Stephan also discussed quite
25 well which allows for RIN generation which creates a pretty

1 substantial value stream for higher renewable natural gas.
2 And the state also provides grants through California climate
3 change investments which is funded by the cap and trade
4 auction proceeds.

5 And so the CCI programs have provide almost 289
6 million for methane reducing dairy digester and alternative
7 manure management projects in the past six years. And that
8 program has been administered by the California Department of
9 Food and Ag. In addition to these programs, CPUC has a
10 handful of other great programs, and Stephan's presentation
11 touched on this, including the bioenergy market adjusting
12 tariff or BioMAT, and also various funds that have been
13 allocated for supporting biomethane in pipeline injection
14 projects.

15 And the combination of these projects has actually
16 led to a substantial amount of development for dairy and
17 livestock emission reduction projects and still need
18 additional projects to occur to meet those 2030 SLCP
19 reduction targets from within.

20 Okay, I want to jump to the next slide.

21 So starting in on methane. After you leave dairies
22 or landfills - after you leave the dairy side of things, the
23 landfill methane is a substantial portion of the overall
24 methane emissions. Landfill methane is the second largest
25 source, it makes up over 8 million metric tons CO₂ equivalence

1 on a statewide emission basis. And it primarily comes from
2 the decomposition of organic waste in landfills. And organic
3 waste makes up about half of the landfilled waste stream.

4 If you want to go to the next slide.

5 So there are a variety of actions and charges that
6 can be used to limit landfill methane emissions. We need to
7 employ a variety of these in order to meet the methane
8 reduction -- methane reduction goals. And so that includes
9 things like diverting new waste from ever entering landfills
10 in the first place which also helps us recover valuable
11 nutrients, can improve soil fertility. It could also be used
12 to generate clean energy.

13 The organic waste stream includes an estimated
14 1 million tons of edible food. And that food could be
15 recovered through food rescue programs that could combat
16 hunger in communities throughout the state and increase food
17 security.

18 We can also recycle the inedible materials into
19 composts or other energy and nonenergy products. And by
20 doing that, we could avoid generating over 4 million metric
21 tons of CO₂ equivalence which the CPUC presentation touched on
22 a little bit.

23 And these strategies pursuing any of these is likely
24 to create and support additional jobs and produce valuable
25 products in the state, including renewable natural gas as

1 well as compost. And taken together, these strategies can
2 help demonstrate real benefits for soil health and food
3 security.

4 We also need to validate new technologies in the
5 energy practices to improve control systems at landfills. So
6 we do have a landfill methane regulation in place that
7 requires landfills to implement, capture and control
8 technology. When leaks do occur, they're hard to monitor and
9 hard to discover and so there are a handful of new
10 technologies that can really go a pretty far way in just
11 monitoring and identifying methane hotspots and leakages when
12 they occur. And when these things can be remediated quickly,
13 that can really help a lot to reduce methane emission
14 reduction.

15 So CARB's research division has recently concluded a
16 successful pilot program to show that fluctuating leaks can
17 be located by aerial methods and remediated on the ground by
18 landfill operators which is quite neat.

19 If you want to jump to the next slide.

20 Similar to dairy and livestock sector, the state has
21 a multitude of actions that have been implemented to start
22 reducing methane emissions for landfills. So CalRecycle is
23 currently working to ensure organic material is directed to
24 its highest and best uses such as compost creation use rather
25 than going to the landfill. And for over six years now,

1 CalRecycle has been using the cap and trade auction proceeds
2 to fund grants and loans for compost and anaerobic digestion
3 and edible food recovery projects.

4 CalRecycle has also recently finalized regulations,
5 their SB 1383 regulation that recover -- require diversion of
6 75 percent of organic waste from being landfilled by 2025.
7 And recover at least 20 percent of the edible food that is
8 destined for landfills. Both CalRecycle's incentives and the
9 regulations will help minimize the landfilling of organics
10 which in turn will eventually reduce future methane emissions
11 from landfills.

12 CARB also has policies that we're doing so the
13 landfill methane regulation requires gas collection and
14 control systems. And so current measurements suggests that
15 when you implement capture control systems, you can capture
16 about 75 percent of methane coming from landfills to the
17 heterogeneity and other features from landfills. It gets
18 really tricky to try and increase those capture efficiencies
19 and that would require better fitting different technologies
20 and it just gets pretty tricky.

21 Second, CARB has the low carbon fuel standard which I
22 think everyone has touched on in quite a bit of detail which
23 provides incentives for organic waste pathways that use
24 anaerobic digestion. This includes things like code
25 digestion at wastewater facilities and can achieve negative

1 carbon intensities actually can also come from these
2 wastewater facilities because you would be avoiding potential
3 methane from landfills. And so with that, you can achieve
4 negative carbon intensity scores and generate, you know,
5 credit which might be as much as \$30 per MMBtu in the LCFS
6 going through those sorts of pathways.

7 Moving forward, we expect that CalRecycle's organic
8 waste regulations will significantly address and reduce new
9 methane emissions from diverting waste. CARB's incentive of
10 these programs will help support additional biogas collection
11 use. And the landfill methane regulation will help address
12 emissions from waste that does end up being deposited in
13 landfills that cannot be diverted to other uses.

14 Next slide.

15 So we're starting to look at and address some of this
16 in the upcoming scoping plan. So what is a scoping plan
17 exactly? Scoping plans are actionable plans to lay out cost
18 effective and technology feasible pathways to ensure that we
19 can meet our statewide greenhouse gas reduction targets.
20 Each plan has included a set of policies, has never relied on
21 one approach for reducing emissions.

22 So each in combination of incentives, regulations,
23 carbon pricing can really help to achieve some of these
24 goals. AB 32 requires that we update them at least once
25 every five years. Last scoping plan was 2017. The previous

1 scoping plans are designed to provide greenhouse gas and air
2 pollution emission reductions. We are also required to
3 minimize emission leakage which is the situation where
4 production of goods and jobs leaves the state so you don't
5 end up real emission reductions, you just end up with the
6 emission reductions in the California balance.

7 AB 32 also requires us to facilitate subnational and
8 national collaboration and make sure that we have cost-
9 effective and flexible compliance options.

10 Next slide.

11 For that 2022 scoping plan, CARB will assess the
12 status of (indiscernible) in relation to the established 2030
13 emission reduction targets. This is the 1383 targets as well
14 as the legislated targets for overall midterm greenhouse gas
15 emission reductions. We also are going to use the scoping
16 plan process to lay out a path for achieving carbon
17 neutrality by no later than 2045.

18 And the scoping plan process started earlier this
19 year. We've had a handful of workshops which if you have not
20 checked out, I would encourage you to take a look at.
21 They're posted on our website. And we plan to release a
22 draft of the 2022 update sometime next spring with the final
23 version being released in the fall of 2022.

24 Next slide.

25 So for SLCPs, specifically that includes methane,

1 black carbon, and the fluorinated compounds so refrigerants.
2 We have an upcoming scoping plan workshop on the 8th, so
3 that's just next week. And that looks specifically at the
4 contribution of short-lived climate pollutants towards
5 California's greenhouse gas emissions. For this workshop, I
6 encourage those interested in the sort of thing to attend.
7 We'll highlight the progress, the State has made in reducing
8 SLCPs and also seek public comments to better understand what
9 mitigation opportunities exist that are out there and what
10 strategies and mechanisms might further be used to
11 decarbonize SLCPs after 2030.

12 And so with that, I think that's all I have. And so
13 I'll end there.

14 MR. MATHIAS: Thanks very much, Jeff.

15 So our next panelist is Yuri Freedman. He's a senior
16 director of business development at SoCalGas. He has broad
17 experience in development and acquisitions of energy
18 infrastructure assets. His current role, he manages
19 SoCalGas's portfolio of both initiatives and R&D activities.
20 Previously, he held the position of director of commercial
21 development for Sempra LNG. And also held a position --
22 positions of director of infrastructure investments and
23 director of corporate mergers and acquisitions at Sempra LNG.
24 I'll turn it over to Yuri.

25 MR. FREEDMAN: Thank you very much, and thank you for

1 the opportunity to present on this important topic.

2 Let's go to the next slide, please.

3 I'd like to start with recapping our position with
4 the company with regards to what we call clean molecules and
5 they're all off our renewable natural gas in that. We firmly
6 believe that the zero-emissions energy future is going to
7 need clean molecules as much as it needs the clean electrons.
8 And we see it as our mission to make sure that our system can
9 provide our customers these clean molecules.

10 RNG is part of those and we made commitments
11 including some very near-term commitments to grow RNG system
12 which are quickly how I work up here. By next year, we are
13 looking to replace 5 percent of all core supply with
14 renewable natural gas and we are well on our way to
15 accomplishing that objective.

16 By 2030, we're going to replace as much as one-fifth
17 of our core supply with RNG. So I think that these numbers
18 involved are a testament to how seriously we take RNG. How
19 much, we're looking forward to working with stakeholders,
20 policymakers, the developers to make those -- this vision a
21 reality.

22 Let's go to the next slide, please.

23 I think that many speakers before me recapped the
24 benefits of RNG so touch on this very briefly. One of course
25 is that it's a drop-in fuel. It can be used immediately

1 without any modifications to the infrastructure.

2 Second one is that it's important pathway of
3 decarbonization of hard to decarbonize sectors such as
4 chemical, heavy industry, and others. And last is the one
5 that Stephan covered very well. RNG can be carbon neutral,
6 it can be carbon negative because of course by using this, by
7 capturing this to avoid emissions of methane to the
8 atmosphere hence the negative carbon intensity.

9 Next slide, please.

10 What are the challenges on the way to broader
11 adoption of RNG? In our opinion, one of the biggest
12 challenges is again something that Stephan touched on before.
13 It's the lack of certainty in market price. And I'd like to
14 talk a little bit about that because I think it touches upon
15 the point that Commissioner Monahan made before.

16 To me, it's important to have the market price in
17 which it will be transparent but also market price that can
18 be guaranteed to a developer, to the off taker for long term.
19 And that's something which ultimately is a good foundation
20 for penetration of a certain decarbonization commodity into
21 various sectors.

22 The best example I think is right here in California.
23 That's exactly what happened with renewable power. That's
24 something where the long-term fixed price agreements would
25 create worth for entities. So like if utilities is what I

1 think resulted in the spectacular growth of the electric
2 sector of renewables and equally spectacular cost reduction.
3 And we believe that the path to adoption of RNG at scale
4 blaze through the similar trajectory and we'll talk about
5 this a little bit more later in the context of SB 1440.

6 We see now a challenge to adoption of RNG to the
7 exact issue Commissioner Monahan related to which to say
8 today RNG wants to go to the transportation sector because
9 that's where the economic incentive points it to. LCFS is a
10 mechanism works extremely effectively in direction of low
11 carbon molecules sector. Ultimately if the aim is to
12 decarbonize economy in general will of course should look at
13 mechanisms that are going to drive penetration of the
14 commodities in sectors where it makes feasible economical
15 sense for them to be applied.

16 And the third is a project scale. This is an
17 important topic because some of the RNG projects are medium
18 to small size. And for them, the interconnection cost
19 actually is meaningful element of the project's economics to
20 the extent we are providing such as this to project
21 developers in the state to allow them to build their projects
22 that's important part of their calculation where and that can
23 make or break a project.

24 Next slide, please.

25 From challenges, I think the burned of opportunities

1 are. The policies to drive RNG adoption are in place today
2 and I'll show you later the map that I think demonstrates
3 that. This policy should be successful. RNG is growing,
4 volumes are up, and we at SoCalGas are working hard to make
5 sure that we can be partners with developers in their
6 success.

7 However, to take it to the next level, to drive this
8 at scale, we believe that SB 1440 and the staff proposal
9 I'll talk about later is a very important step as is the
10 implementation of 1383.

11 We also believe that incentives and grants are very
12 important mechanisms. And they have played a major role in
13 the outcome of projects actually getting built. It's the CEC
14 grants, is the CDFA grants, and other financial incentives
15 are very important for developers.

16 Next slide, please.

17 SB 1440. We at SoCalGas strongly support the CPUC
18 staff proposal, and we believe that a very important element
19 to that is describing the procurement framework which in our
20 mind is going to take the volumes of RNG and the scale of RNG
21 in California to all new levels. We also believe that
22 implications of CalRecycle, implementation of organic waste
23 diversion are going to be tremendously important for RNG
24 development for the state because by fulfilling this
25 obligation and by directing this organic waste to the

1 digester facility, we're going to produce RNG. We are going
2 to increase the volumes of RNG very dramatically so I think
3 this is going the right direction to firmly support that.

4 Next slide, please.

5 I think the previous speaker has covered SB 1383 and
6 I'll just say that we at SoCalGas has worked with the
7 developers to implement recommendations to put a pilot
8 project in place by having a report that sound this project
9 that already inject into the grid. We expect in our service
10 territory, all of them to be in this position by the end of
11 this year. So again, that supports the point I made earlier
12 that the policies in place work.

13 And we can go to the next slide.

14 They work across that range of the various designs,
15 I'll show this a little bit later. Because of course RNG can
16 be produced at wastewater treatment plants, at landfills, at
17 waste collector facilities, and also greenfield sites.

18 Next slide, please.

19 And that's the map in my mind demonstrates the
20 success policy up to date. And our service territory that
21 has today eight projects that are ingesting RNG into the
22 grid. So again, this would be significant larger and I
23 believe with the policies in place, the policies which are
24 advancing we are going to have the larger volume. But even
25 as we speak today, there are significant volumes of renewable

1 natural gas being injected to pipeline grid.

2 Next slide, please.

3 A quick overview of some of these projects is just
4 meant to give you a sense of diversity of their sites and
5 diversity of their feedstocks. The Point Loma project is a
6 wastewater treatment plant. It's been running for almost a
7 decade now. The project with CR&R, it's a real large-scale
8 project and we will need I think as a state many more of
9 those, specifically in the context of CalRecycle 75 percent
10 obligation.

11 Next slide, please.

12 The Calgren Dairy Fuels in Pixley is the first dairy
13 digester in the state. And the Anaergia facility in Rialto
14 is sound. We started injecting relatively recently but now
15 successful project.

16 So bringing this all together, I do think that
17 variety demonstrates that capital and the development efforts
18 are following the economic incentives, they are following the
19 policy signals. And what we see today is the direct result
20 of those signals.

21 I think taken the signals to a level where we can
22 provide consistency to the developers and consistency of
23 price and the long term of that offtake is really what's
24 going to bring the capital provider as well as integrity on
25 that side. That has two effects. That actually brings

1 capital to build projects but also reduces the cost of
2 capital which results on even lower cost of that commodity.
3 So I think that the continuation of this policy and further
4 implementation of SB 1440 is going to be the step in that
5 direction.

6 Let's go to the next slide, please.

7 And at the very or top of my presentation, I want to
8 touch upon another important pathway which in our opinion is
9 going to be important complement to the conversation as well
10 as RNG, and that's creating synthetic natural gas by
11 combining the electrolytic hydrogen which can produce by
12 splitting water, using renewable power, and carbon dioxide.

13 That is, as you see on the diagram background. In
14 one instance that we are involved has been accomplished using
15 bacteria and we are working on that with the National
16 Renewable Energy Laboratory. But the reason I wanted to
17 bring this up is to link and to come back to the beginning of
18 the -- my conversation about to link this RNG conversation a
19 broader topic of clean molecules. Because I and we firmly
20 believe that we will need all of them. We will need hydrogen
21 and I was delighted to hear earlier today that hydrogen shot
22 summit at the DOE. We will also need biomethane RNG and I
23 think we should work hard of making sure that these clean
24 molecules will become an important part of California's zero-
25 emissions future.

1 With that, I thank you for your attention and look
2 forward to the Q&A.

3 MR. MATHIAS: Great. Thank you very much.

4 Now we'll go to our final panelist of the day, Sam
5 Wade. Sam Wade serves as the Director of State Regulatory
6 Affairs of the Coalition of Renewable Gas. Previously, Mr.
7 Wade worked as chief of the transportation fuel branch at the
8 California Air Resources Board where his work including
9 oversight of the low carbon fuel standard program for four
10 years.

11 So I'll turn it over to Sam.

12 MR. WADE: All right. Thanks a lot, John, pleasure
13 to be with everybody today.

14 It's always nice to go last. There's been a lot
15 covered already. I'll do my best not to be duplicative.

16 If I could have the first slide, I'd just like to
17 tell you a little bit more about who we are at the RNG
18 coalition. We're the national trade association in U.S. and
19 Canada for pipeline interconnected RNG industry. And we
20 really span the entire supply chain. We have over 300
21 members and we represent 98 percent of the RNG supply in
22 North America.

23 So the next few slides show a sampling of our
24 membership and we can just go past those quickly here.

25 Next slide, please. And then pause on the one after

1 this, please.

2 So our academic members are really important in
3 shaping our long-run vision of how the RNG industry should
4 grow and how it should relate to the gas and the power
5 sectors as they exist today. So a lot of what I'm saying is
6 informed by speaking to smart folks at these institutions.

7 On the next slide, I'm going to just quickly touch on
8 things that previous panelists have already said, the IPCC
9 report which called climate change, you know, Code Red moment
10 for humanity. Contains an entire chapter about reducing
11 short-lived climate pollutants and specifically talks about
12 methane capture and recovery from organic waste streams as a
13 critical strategy to avoid the worst effects of climate
14 change in the next 10 to 20 years.

15 So we have to take action on methane from organic
16 waste soon and as quickly as we possibly can. And CARB
17 recognized this in their 2017 SLCP Report which has already
18 been touched on. That's the other document shown on this
19 page. None of those concepts have changed since the 2017
20 report, but we do have some important on the ground
21 experience.

22 So on the next slide, just as sort of a status
23 update, I wanted to point two other documents. One from
24 CalRecycle and one from CARB. The one from CalRecycle talks
25 about organic waste diversion and how we're doing. And as

1 Karin pointed out, it says we need additional capacity to be
2 able to handle these organic wastes in the lowest carbon way.

3 And so obviously RNG production facilities either
4 standalone digesters or integration with wastewater treatment
5 plants is a great way to do that, as is increased, you know,
6 efficiency of gas capture at landfills as Jeff touched on.

7 The CARB report touches on the dairy sector and it's
8 more positive because we are farther along there due to the
9 sort of suite of incentives we've already heard about today.
10 But they both say we need to do more and we need to do more
11 in a coordinated way across all the agencies represented here
12 today as well as CalRecycle and CDFA. So that's why it's so
13 exciting to see this be an emerging and important topic in
14 both the IEPR cycle and in the scoping plan. If we can get
15 this right, I think it's going to help across both the ag
16 sector, the waste sector, and of course the gas space.

17 So that's not easy, though, right?

18 So on the next slide, wanted to just point out we
19 are -- we are making progress across all of North America.
20 We're growing rapidly as an industry. In 2011, we had 30
21 pipeline interconnected RNG projects and now we're up to 188
22 operational with a large amount of those being located in
23 California. Obviously a lot more under construction as well
24 and in the planning process.

25 So people are responding to the incentives the

1 policymakers are beginning to set out, most notably the
2 incentives coming from California.

3 Next slide, please.

4 So people have already explained what the low-carbon
5 fuel standard is, I think we can sort of skip past this to
6 the way it works on the next slide. It's a performance-based
7 incentive program, right? I mean, it's about every year the
8 fuels in the program have to show that they're getting
9 cleaner and cleaner to begin to, you know, sort of make the
10 full transition toward carbon neutrality that the state's
11 aiming for. And so that's a simple concept as Commissioner
12 Monahan pointed out. It's a concept that makes sense across
13 the entire economy. Right? Like our transportation fuels
14 need to get cleaner over time in line with our long run
15 decarbonization goals as does our natural gas. In our, you
16 know, whatever gaseous system we have in the future gaseous
17 fuels system, we have to have low-carbon molecules, as Yuri
18 put it, moving through that system in the long run. And
19 developing a strong performance standard for that system is a
20 smart way to go.

21 So fuels that are better than the standard are going
22 to generate credits in the LCFS and we want to see that same
23 thing on the gas side and eventually, you know, use the same
24 sort of lifecycle scoring to evaluate biomass when it's used
25 on the power side as well because lifecycle scoring is the

1 right way to approach biofuels and the LCFS proves that.

2 Next slide, please.

3 So within the actual scoring for the RNG projects in
4 the LCFS, you can kind of break out the sliding scale carbon
5 intensity to three general categories. The first and, as
6 folks have said, the highest volume category right now is the
7 landfill projects and they, you know, don't have the super
8 carbon, negative carbon intensity scores but they're still
9 dramatically better than fossil gas. And they can get better
10 over time as they reduce the energy inputs into capturing the
11 gas, increase capture efficiency, and obviously move the gas
12 to California or the end market in a smart way. So there's
13 opportunities with landfill projects.

14 The next tranche or category is really once the
15 organic material can be brought out of the landfills and put
16 into dedicated digesters or wastewater treatment plants,
17 you're going to avoid the remaining emissions from methane
18 that Jeff touched on because natural gas capture facilities
19 are not 100 percent efficient. So, you know, if you can take
20 them out put them in dedicated vessels, your leakage rate is
21 going to be much less and your overall carbon performance is
22 going to be better. So that's the future for a lot of this
23 organic waste as we meet the 1383 goals.

24 And then finally, you have the ag manure projects
25 which are really right now almost completely uncontrolled.

1 Right? And that's why they have such dramatic methane
2 benefits. And the LCFS is obviously doing a good job driving
3 those projects as we've heard from Daryl and others this
4 morning.

5 Next slide, please.

6 So just as far as overall penetration rate, like I
7 mean it's worked, we are now completely RNG in the natural
8 gas vehicle space, 98 percent RNG, at least, according to
9 CARB's data. And that's, you know, fantastic, right? I
10 mean, and that same trend could be replicated for the entire
11 gas system in the long run, assuming we're willing to engage
12 in the same sort of thinking. Right?

13 One thing I would say here is, you know, due to
14 COVID, the natural gas vehicle demand has dipped a little bit
15 in the last few years and that has created RNG on RNG
16 competition. You know, as Daryl touched on earlier today,
17 like the dairy stuff is displacing some of the landfill gas
18 projects and some of the wastewater treatment plant projects.
19 So that makes them available for use in other parts of
20 California's economy that currently use fossil gas, 90
21 percent of which is imported comes as far away as Canada, if
22 we want to use it that way. Right? So let me talk a little
23 bit more about that.

24 And then the next slide.

25 Oh, sorry, first just everyone is paying attention to

1 what California's done with this program and beginning to
2 follow. Right? I mean, there are other states that have
3 already adopted this policy, the clean fuel standard, our low
4 carbon fuel standard idea, for example, Oregon. And there's
5 many other states that are looking at it and trying to follow
6 California's lead. The entire federal government of Canada
7 is halfway through their regulatory process on this system.

8 So that's great. We're creating, you know, change at
9 the national, international level here with what California's
10 doing. But that also means we're going to be facing more and
11 more competition for the RNG supply. And we might want to
12 be -- remain out in front, remain, you know, sort of locking
13 in the access to low carbon resources as much as we can.

14 So on the next slide, this is my sort of evaluation,
15 similar to what Stephan did about all of the policies in
16 California and how they -- how they relate to each other that
17 drive RNG or biogas use. The main observation I have is that
18 current policy promotes project creation and use in
19 transportation or empower in some of the limited instances
20 but not used in the largest gas demand sectors which are
21 residential, commercial, and industrial.

22 And so how do we change that? I mean, we develop
23 some sort of policy that motivates utility procurement for
24 core customers through the SB 1440 conversations. And then
25 we also develop a policy that works for noncore and largely,

1 you know, industrial users. And I think CARB is sort of
2 beginning to consider that in the scoping plan conversations.

3 So next slide, please.

4 The major concepts from the LCFS that can easily be
5 moved in the other policies that promote RNG use and sectors
6 would be primarily lifecycle scoring as we sort of already
7 touched on because that's going to motivate the best outcomes
8 for RNG supply.

9 First, a lot of people's concerns about, you know,
10 creating RNG from, you know, high carbon intensity energy
11 crops or something will be removed because that does not
12 happen under the LCFS scoring, those would have poor scores
13 and would not be incentivized.

14 Similarly, they will not -- you will not have highly
15 leaking projects with a high amount of methane leaks because
16 less leaks equals better scores. And obviously if you have
17 high revenue associated with your score, you're strongly
18 incentivized to minimize your leaks at your projects and
19 along the supply chain of your projects to California. So
20 that also means that projects that have to move their gas a
21 long way to get to California, all else equal will have worse
22 scores because those embedded emissions are captured in the
23 lifecycle analysis model.

24 So we think that's the right set of incentives to
25 create for any program that involves RNG use and luckily the

1 PUC has, you know, tentatively agreed in the draft paper on
2 SB 1440 and then SoCalGas's voluntary tariff. And so, you
3 know, we're beginning to talk more about, you know, how can
4 the utility structure procurement policy around that type of
5 lifecycle scoring. And I think at the end of the day, each
6 year the gas suppliers, you know, either the utilities are,
7 you know, from serving noncore customers could show how many
8 GHG reductions are achieving on a lifecycle basis if this
9 type of accounting is adopted.

10 And eventually the same framework could incent
11 biomethane and then eventually hydrogen in the same program,
12 assuming we worked out, you know, interconnection spec issues
13 and other things like that for hydrogen. You know, you don't
14 want to just rely on the color system as sometimes people use
15 for hydrogen, you want to get down to the actual lifecycle
16 GHG performance of it. And you want to promote the best
17 practices across all methods of making hydrogen as well.

18 So we're thinking long term here, we're thinking
19 about both biomethane and hydrogen in our group.

20 Next slide, please.

21 And so we're not the only ones thinking this way. As
22 I said, on the utility procurement of renewable gases side of
23 things, there are other parts in North America that are
24 moving just as quick as we are, if not a little bit quicker.
25 It's not a big surprise, these jurisdictions have been

1 actively partnering with California for a long time on
2 climate action. For example, Quebec now is a partner in the
3 western climate initiative cap and trade relationship. BC
4 and Oregon are Pacific Coast collaborative partners. And
5 these are the ones who are a little bit out ahead of us, I
6 would say. They already have, you know, utility procurement
7 rules in place.

8 In the case of the Canadian provinces, they have both
9 sort of baseline amount procured for core customers and with
10 cost recovery for noncore customers. And then they have
11 voluntary programs above and beyond that. So if a customer
12 wants to go beyond this sort of 10 percent that's required in
13 Quebec's rule, they can and they can pay more for that.

14 And so, you know, Quebec's saying they're going to
15 get 10 percent of the pipeline, current demand by 2030 will
16 be RNG. BC's saying they're to get 15 by 2030, I believe, as
17 well. And Oregon is saying that they're going to get to
18 15 percent by 2030.

19 So like when Karin's talking about a 12 percent of
20 core demand served by RNG in California under 1440, that's a
21 very reasonable goal. And then when Yuri says we want to go
22 beyond that to 20 percent, that also should be allowed.
23 Right? I mean, if I want RNG in my house or if a business
24 wants RNG to meet its corporate sustainability goals, we have
25 to create a framework that allows that to maximize the

1 adoption rate of this important low carbon fuel.

2 So on the next slide.

3 The World Resources Institute did a great job of
4 writing a good summary for policymakers on RNG and I
5 encourage everyone to take a look at the link provided here.
6 One core element I want to pull out from that study is they
7 did a little bit of a literature review on deep
8 decarbonization studies. And they said, you know, it looks
9 like almost every study that's been done so far sees a role
10 for RNG but they disagree about which sector it should be
11 used in. And of course that makes -- the problem -- the
12 investor's feeling comfortable about which policy to rely
13 upon very challenging. I think you heard that already today.
14 I mean, everyone sort of said there's a wide mix of
15 incentives and it doesn't seem like they're all super clear
16 to policymakers about what we're driving toward here.

17 So on the next slide, I just wanted to give our
18 suggestion for how CEC should treat this in the IEPR and how
19 CARB should look at it.

20 In the near term, we should focus on methane emission
21 reductions. Building RNG projects from AD of organic waste
22 and avoiding methane is critical from hitting the SLCP goals
23 and for CalRecycle's organic waste diversion goals. So that
24 will begin to decarbonize the gas system and that should be
25 the near term focus rather than fighting about, you know,

1 which sector should use it in the long term.

2 So, you know, as much as we can level incentives
3 across all end uses. And then the midterm as RNG supply
4 begins to approach a noticeable, you know, proportion of
5 total gas demands, we have to begin to prioritize. But
6 hopefully at that point we'll have a better idea about which
7 sectors really need a gaseous fuel that is storable and
8 dispatchable. Right?

9 And then the long term, we need to think hard about
10 the transition to a system that primarily relies on hydrogen,
11 potentially with some CCS or a good amount of bioenergy of
12 CCS according to like folks like Lawrence Livermore to
13 achieve carbon negative performance from these biological
14 feedstocks.

15 So that's -- one more slide sort of concludes and
16 summarizes all that. I feel like I'm almost out of time here
17 according to the chat.

18 So let me just say, you know, I think there's a lot
19 of lessons we can learn from the success of the LCFS and
20 import into California's RNG policy generally. And if we do
21 that effectively, we're going to find a way to reduce
22 methane, begin to decarbonize the gas pipeline, and really
23 align, you know, our leadership with what's happening in the
24 rest of the country. Because the rest of the country is
25 listening as is Canada, and we don't want to be in the

1 situation where we lose our leadership edge.

2 So I'll stop there. My next slide has my contact
3 info if folks are interested.

4 Thanks.

5 MR. MATHIAS: Thank you very much, Sam.

6 All of those presentations were very interesting and
7 informative this afternoon. And I will just turn it over to
8 the commissioners for discussion and questions.

9 COMMISSIONER GUNDA: Thank you so much, John, for
10 moderating the panel. That was intense information,
11 especially for me just kind of getting the sense of just the
12 policy of this is new to me. So I do appreciate kind of a
13 30,000-foot level framing so I do want to just pick up on the
14 thread of what Sam kind of provided in one of his last slides
15 on the treatment of the policy goals in the near, mid, and
16 long term.

17 So if I can just ask the question, Sam, like when you
18 put together those near, mid, and long term, what's the time
19 frame you're thinking about? Is it, you know, a decade for
20 the midterm? Or just kind of having some boundaries would
21 really help for me as I think it through.

22 MR. WADE: Yeah, I think the near term is between now
23 and 2030, that's when most of the SLCP goals are targeted
24 around. And honestly, it takes a long time to change public
25 policy. So, you know, a decade or so is the near term for

1 me.

2 I think the midterm could come sooner if a percentage
3 of RNG in the gas system became higher sooner. Right? And
4 as soon as you're starting to think about, you know, a
5 relationship between a decreasing demand and increasing
6 supply of RNG, like those coming close to overlapping, you
7 need to begin to prioritize where to put it. But we're
8 nowhere close to that. Right? I mean, we're at less than
9 1 percent of total gas demand served by RNG right now, almost
10 all of it in the transportation sector.

11 So we don't need to worry about where to prioritize,
12 if you ask me. I mean, almost anywhere that currently uses
13 fossil gas could use RNG and would be a lower carbon
14 solution. Right? So it's not critical -- because of the gas
15 system is interconnected and we could move the gas to, you
16 know, the remaining end uses, I don't think we have to decide
17 now where it has to be used, we just have to be sure the
18 incentives are strong enough to get the projects built and
19 interconnected.

20 COMMISSIONER GUNDA: Thanks, Sam. I just want to ask
21 the other panelists real quick on Sam's kind of framing of
22 this mid -- near, mid, and long-term goals. And just if you
23 might want to opine on what's your thoughts on that, do you
24 differ, agree, anything that you might want to add.

25 COMMISSIONER RECHTSCHAFFEN: Commissioner Gunda

1 concern, the panelists not the other commissioners, they may
2 be waiting for us to talk.

3 COMMISSIONER GUNDA: No doubt.

4 COMMISSIONER RECHTSCHAFFEN: But I do have a question
5 while they're waiting.

6 Sam, is your thought on the midterm and longer term
7 targets more based on what supplies -- what the supply is or
8 what the demand is in the hard to elect -- the need is and
9 the hard to electrify sectors?

10 MR. WADE: Yeah. I'm trying to look at it both ways
11 but because I think we don't fully know which sectors are
12 hardest to electrify yet. And so I think the midterm, you
13 know, when we get to the midterm will be because we start to
14 figure out and these sectors are the ones that have the
15 highest priority.

16 Because, I mean, if you look at what CEC and CARB
17 were saying even in the 2017 timeframe, we were saying at the
18 time that the transportation sector was going to be a primary
19 user of RNG. And in fact, IEPR said that and, you know,
20 early CARB document said that. But now the pace of battery
21 electrification is maybe making it so that it won't be the
22 highest priority to put it there. And that -- we have to be
23 flexible in our policy framework if that occurs. I mean,
24 that's why the LCFS incentives are so strong. And, you know,
25 I mean, it's working, it's getting the projects built. But

1 if that ends up being not the best long-run home for it, it's
2 okay because those projects will still be useful in the
3 future.

4 COMMISSIONER MONAHAN: Can I ask a question? Unless
5 anybody wants to respond to Commissioner Gunda.

6 So I -- I'm wondering, and I think again this might
7 be to Sam. What are the barriers to expanding this LCFS like
8 approach to other sectors? It hasn't happened yet. Right?
9 I mean, areas are talking about it but nobody has moved yet
10 in that direction. And ultimately, that's how we get a more
11 rational energy policy when -- so I'm just curious about what
12 you're learning from in California, maybe. Commissioners
13 Rechtschaffen and Houck can speak to this but from other
14 states as well and even other countries.

15 MR. WADE: Yeah, I think, you know, the barriers are
16 related to sort of acceptance of RNG overall, right? I mean,
17 there's certainly some folks who still are concerned about
18 aspects of it which we're trying to be sensitive to and be
19 responsive to.

20 But there are like other states and provinces have
21 adopted lifecycle scoring in their nontransportation
22 policies. And that's the key element that I think we need to
23 bring over. I mean, in 1440 and SoCalGas's voluntary tariff,
24 we're talking about it already. Right? So that's the right
25 thing to do.

1 And then in BioMAT, they're beginning to talk about
2 can we use lifecycle analysis more fully to provide a sliding
3 scale of incentives.

4 So I think that's the first step. If you want to in
5 long run link all those policies and make sure there's a
6 levelized cost for project developers across everything,
7 that'd be great. It would make project developers' lives a
8 lot easier. But if the state wants to use each of those
9 separate policies to steer it more toward one of the end uses
10 in the midterm, you might want to retain that flexibility.

11 So I think the key thing is the benefits are the
12 benefits. There are actual GHG benefits on the project and
13 if a policy doesn't recognize those benefits, you know, RNG
14 is not going to look attractive relative to some other
15 options. And that's why in the RPS, for example, you know,
16 the biofuels just didn't really win that much. Right?
17 Obviously solar wind, they came way down in price and they
18 did, that's great, that's fantastic. But if we needed a
19 dispatchable, storable resource that also has big carbon
20 benefits as it's made, you know, it needs to be -- those
21 benefits need to be recognized in the policy.

22 COMMISSIONER MONAHAN: And in the, you know, as you
23 pointed out, the LCFS provides an incentive for using RNG,
24 this electricity that's then used in a -- an electrical
25 vehicle, is anybody capitalizing on that? Is that being --

1 MR. WADE: Yes, my understanding --

2 COMMISSIONER MONAHAN: -- how is that being used.

3 MR. WADE: Daryl mentioned one of the few projects
4 that haven't been able to get a pathway for that thus far
5 from a dairy digester than has a small genset. And Jeff
6 could probably comment further, although not to put you on
7 the spot, Jeff.

8 But there are a few -- and of course if like a
9 project can't pipeline interconnect because it's, you know,
10 very far from the gas system, and the economics just don't
11 work. We're very happy to see projects go to power as well.
12 We just think there's going to be, you know, some remaining
13 local air pollution when that happens, et cetera. And we
14 like the pipeline interconnected projects for the mix of
15 benefits they provide. And because of the scale they can
16 provide as a utility scale asset.

17 MR. KESSLER: Yeah. So there's definitely pathways
18 that have been approved for electricity generation that goes
19 to EVs. The process in claiming those kinds of credits that
20 uses book and claim accounting similar to how the Low Carbon
21 Fuel Standard also treats renewable natural gas for some
22 applications. And so there have been some projects there.

23 I think the other thing, there was a question raised
24 about sort of midterm, long term kind of the usages of RNG.
25 So the CARB scoping plan process is going to help start

1 exploring some of those tensions and tradeoffs between a lot
2 of these things.

3 There is certainly also a tradeoff between energy
4 uses and nonenergy uses and applications. You don't
5 necessarily need to put everything into a energy stock,
6 especially if you start looking at organic waste diversions.
7 There's definitely pathways that will produce more RNG and
8 pathways that will reduce less RNG. Also using, you know,
9 biomethane as chemical feedstock or other applications are
10 interesting. So there's a ton of uncertainty and questions
11 that remain in this. And, you know, CARB is really looking
12 to explore this more, especially after start talking about
13 carbon neutrality after 2045.

14 COMMISSIONER MONAHAN: That's great to hear. It's
15 great to hear that the scoping plan is going to explore these
16 kinds of connections between cross sectors and how we have a
17 policy that will work most effectively across our entire
18 economy.

19 MS. SUNG: One thing to consider as well for pipeline
20 injection is that the pipeline system has storage capacity
21 that these developers might not have. And so dispatching
22 electric generation may not be as flexible through these
23 developers as it would be when dispatching through our
24 pipeline system.

25 COMMISSIONER GUNDA: Commissioner Houck, do you have

1 any questions?

2 COMMISSIONER HOUCK: No, I don't have any questions
3 right now.

4 COMMISSIONER GUNDA: Commissioner Rechtschaffen,
5 please.

6 COMMISSIONER RECHTSCHAFFEN: Yuri, can I ask you,
7 right now you have a goal of 2 percent renewable gas by 2022.
8 What is the percentage of renewable gas right now? Where is
9 it coming from and what is the cost of it?

10 MR. FREEDMAN: I think for this question,
11 Commissioner, I may not have all the numbers at my fingertips
12 and I'll be happy to get back to you.

13 Just to recap, the goal of 2022 is 5 percent of core
14 supply, that's what we are targeting and we are well on our
15 way to this goal. I'd be happy to come back to you with a
16 specific number as to where we are today as well as what the
17 costs of RNG are. And I think the previous presenters show
18 the range of energy cost, I think we're in the ballpark. But
19 I'd be happy to come back with more detailed information.

20 COMMISSIONER RECHTSCHAFFEN: And where's most of
21 it -- yeah, sorry I said 2 percent rather than 5 percent.
22 What is -- where's -- where are you procuring it from? From
23 what sources?

24 MR. FREEDMAN: That's something we shall be happy to
25 come back to with. I think there's -- the distinction here

1 that I think if I understand the question correctly is that
2 it is one fact that we have projects that are on our system
3 that are injecting physical renewable natural gas today or
4 will do so by the end of the year. I show that map.

5 And there's a separate question, how are we procuring
6 renewable natural gas or, you know, for the third parties.
7 And we'd be happy to come back to you with a breakdown of
8 that. But these two are separate, if you will, datasets, if
9 that makes sense.

10 COMMISSIONER RECHTSCHAFFEN: So is your goal to have
11 5 percent flowing in your pipelines or 5 percent for core --
12 5 percent for core customers? What is --

13 MR. FREEDMAN: Our goal is to have 5 percent of our
14 core customer through next year. As you know, the RNG has
15 been procured today by other parties, some of them is
16 procured in state, some of it is procured out of state by
17 book and claim accounting. And that's why I'd like to come
18 back to with a more granular breakdown so we can reconcile
19 and give you the date for this answer.

20 COMMISSIONER RECHTSCHAFFEN: Okay. Thank you.

21 MR. FREEDMAN: Thank you.

22 COMMISSIONER GUNDA: Thank you, Commissioner
23 Rechtschaffen.

24 Just a couple of I think questions. I think maybe
25 I'll begin with just restating my question earlier. Within

1 the IEPR I think we do want to tackle this question of how to
2 begin to frame the RNG kind of dialogue as a whole. And I
3 think Jeff kind of reacted as well to the near- and mid- and
4 long-term kind of goals that we could -- we can bucket in the
5 context of the policymaking.

6 Karin, do you or Yuri want to comment at all with
7 what Sam presented and how you see it from your vantage
8 point?

9 MS. SUNG: Go ahead, Yuri.

10 MR. FREEDMAN: Well, I'm sorry, maybe I'm thinking
11 about answering this as a general well but I think what you
12 are getting to, Commissioner, maybe is a more granular
13 question?

14 As a general statement, I think that what Sam's
15 talked about is very much in line how I'm thinking about that
16 in terms of the procurement mandate or procurement mechanisms
17 that allow to accomplish what I think Commissioner Monahan
18 was referring to. Reaching both RNG not in the one sector
19 that's called initial framework work, it works now but
20 getting this growth multiple end use sectors. So we're in
21 full alignment with the view. If that's what the question.
22 If it's more granular, then perhaps I can ask you to ask it
23 in a more precise way, I'd be happy to answer.

24 COMMISSIONER GUNDA: Yes. No, I think what I really
25 liked in terms of Sam's framing was, you know, I think it's

1 consistent with some of the comments we heard this morning
2 which is really prioritizing the methane management in
3 California was one of the core kind of targets as of this
4 morning that was framed.

5 And also there was at least some public comment on
6 ensuring that we do not continue the incentive mechanisms,
7 our policy structures to then incentivize, you know, things
8 that we might not want to have in the system.

9 So I think the thing that I appreciate about Sam is,
10 Sam's kind of framing his focus on, you know, the kind of
11 reduction of the methane emissions to begin with and then
12 kind of moving to in a more sectoral contributions of RNG and
13 having a little more clarity in the midterm. And then in the
14 long term, kind of transition to potential other energy
15 carriers and other technologies is kind of how I understood.

16 And so would that be consistent, Yuri with your
17 thinking as you kind of set your goals earlier today.

18 MR. FREEDMAN: Yeah, I think Commissioner, I think
19 that's entirely consistent with the way we think about that.
20 And I know that there was a comment that Commissioner Monahan
21 made that, again, in ideal world, this decarbonization, any
22 decarbonization mechanism has to be agnostic as to the
23 demand, both the supply sector and demand sector.

24 Ultimately, you know, carbon price would be the best
25 way to get there, but the second best would be to make sure

1 we have metric that accounts apples to apples for carbon
2 intensity of this factor on supply side which is what CI
3 factor is for RNG.

4 But we also want to be sure that it reaches all the
5 demand sectors so that users can make their decisions to
6 adopt that which is not what's happening today which is why
7 we're having effectively almost a market saturation because
8 there's only so much you can put on transportation. That
9 should not be the case and I think expanding that by
10 broaden -- what is broaden LCFS or creating the procurement
11 mechanism. In my mind, that's absolutely the way to grow
12 this market.

13 COMMISSIONER MONAHAN: Well, and since -- I think to
14 maybe add to that which Karin really highlighted in her
15 presentation, too, is that there are -- and Sam alluded to in
16 terms of some of the barriers to this policy we're migrating
17 more broadly is that there's some sustainability concerns and
18 concerns about local air quality impacts, local water quality
19 impacts, and all those have to be factored in as well.

20 So there's a sustainability metric on top of the
21 carbon metric that we have to think about.

22 MS. SUNG: Exactly. The feedback that we got from
23 the environmental justice community is that reducing
24 emissions is just one thing, but to make sure that we don't
25 leave these communities behind as we try to meet our climate

1 goals.

2 And I think that there's a happy medium here that
3 where we can meet both goals and we can protect our community
4 through a pipeline injection mechanism or at least a
5 fossil -- or fuel cell electric generation mechanism. Our
6 primary goal really is to reduce as much methane emissions as
7 possible.

8 The UN report said that our agriculture and our waste
9 streams are massive sources and that just within California
10 we see proof of that with the CARB GHG inventory. And the
11 future of RNG really is up in the air. We could use it. We
12 could convert it to hydrogen if one day we decide to not use
13 fossil fuels anymore at all. We could convert it to hydrogen
14 pretty easily through other mechanisms that create
15 incentives.

16 So then hydrogen could be our long-term energy
17 storage. It's the only mechanisms that I've studied so far
18 that provides weeks long energy storage. Batteries provide
19 hours, maybe days but under extreme conditions, we do need to
20 look towards really long-term energy storage and biohydrogen
21 is one of those options.

22 So developing these programs to capture the methane
23 is just one step. There are many mechanisms to use this fuel
24 in the future that could benefit our overall energy goals.

25 MR. KESSLER: If I can also jump in and add some

1 things. I think when you start talking about midterm, long
2 term, and where we are currently, there's also a lot of
3 tension and tradeoffs with path dependency. So what we've
4 seen through various carbon neutrality workshops and other
5 things is that depending on where uses go, you could
6 potentially crowd out some other technologies.

7 So there definitely is a tension on directing stuff
8 in the midterm to ensure that you don't potentially lock off
9 pathways that you might need longer term. And so the current
10 scoping plan process, we're also looking at exploring that a
11 little bit more and the tradeoff and balances between, you
12 know, some of this longer term utilization. And if you do
13 have concerns with allocation to some sectors versus other
14 sectors.

15 And I also thought it would be worth noting that of
16 current methane emissions in the inventory pipeline fugitive
17 methane accounts for about 10 percent of the overall methane
18 side of things which I think is also worth being cognizant
19 of.

20 MR. WADE: And quickly respond to -- sorry, Yuri.
21 Just with respect to being crowded out, I mean, the RNG
22 community has experience with that. Right? I mean, we
23 initially received some RPS contracts and then were crowded
24 out as other renewables came down in price.

25 In the transportation space, obviously doing well

1 under the current programs but obviously, there's a strong
2 push from CARB on the EV side of things. So we're fine
3 being, you know, the bridesmaid, not the bride maybe some of
4 the time. But, you know, at the end of the day, we think we
5 will be utilized in a low carbon future.

6 And so, you know, I think when you design your
7 policies to move things around and be flexible, we're a very
8 flexible resource that can be used anywhere conventional gas
9 is used. And we just want to see the supply get built to
10 allow for that flexibility.

11 MR. FREEDMAN: Thank you, Sam. And just as a real
12 brief, again, I do reflect and we're aware the space maybe a
13 decade or so ago where we did not know back then which solar
14 or wind technology is going to prevail all the debates that
15 we had about the single tracker, the double tracker, the
16 space near versus mobile panels, the thermal versus PV.

17 I don't think we know any more about the technology
18 of choice today going 20 years out. And that's okay because
19 I think the effect of the mechanism put in place, the RPS the
20 DPAs is ultimately allow the markets to figure out what is
21 going to gain scale and drag cost down.

22 I think they we're in that very point now in the
23 molecules are where the electrons maybe a decade ago. And so
24 applying the policy framework is what allow the market to
25 then bring the capital and figure out what's going to be

1 best.

2 COMMISSIONER GUNDA: Yeah, thank you, Sam, Yuri,
3 Jeff, and Karin for all your kind of talks.

4 I think I just want to commend the scoping plan
5 process Jeff as you are articulating, I think it's an
6 important conversation at a very important time in kind of
7 discussing some of these tradeoffs.

8 And Karin, to you and Commissioner Monahan, thanks
9 for raising the equity piece as well as an important
10 consideration in this as we think through the planning.

11 So I don't have any further questions. We don't have
12 any Q&A that came through the chat so the next step would be
13 to public comment.

14 But before that, I want to just check one more time
15 with the commissioners if any further questions on the dais.

16 I do not see any. Then I'll pass it to Heather to go
17 to the next step.

18 MS. RAITT: Great. Thank you. And thank you so much
19 to the panelists and to John for moderating.

20 So next we will move to RoseMary Avalos from the
21 Public Advisors Office to moderate public comments.

22 Go ahead, RoseMary.

23 MS. AVALOS: Thank you, Heather.

24 Comments and please allow one person per organization
25 make a comment. And comments are limited to three minutes

1 per speaker. I'll first go to the hands raised in Zoom.

2 Let's see, what I would like you to do is to state
3 your name and also if you can spell your name and state your
4 affiliation, if any.

5 And the first commenter is Brian Biering. Go ahead,
6 your line is open.

7 MR. BIERING: Hi, this is Brian Biering,
8 B-I-E-R-I-N-G, for Dairy Cares. Dairy Cares represents
9 dairies, dairy processors, and dairy digester developers in
10 California.

11 I wanted to tie back to the morning presentations and
12 some of the comments we heard this morning about smaller
13 dairies in California being, you know, harder to decarbonize
14 and that, you know, a lot of the cost of the interconnection
15 equipment is not scalable as compared to large dairies, you
16 know, it's still as expensive to build a cleaning and
17 conditioning facility interconnection pipeline, so forth.

18 And tie that back to Commissioner Monahan's question
19 from earlier about the role of LCFS pricing. There's been a
20 lot of discussion about the LCFS, you know, through
21 essentially hogging the market for this, you know, important
22 biogas resource. And that is true that dairies have a very
23 low -- high carbon intensity score, low carbon intensity
24 score, they're very, you know, they reduce carbon compared to
25 gas. And that will change over time as electrification takes

1 hold, CARB's goals, take effect and the carbon intensity
2 score, you know, is all relative to what gas and diesel are
3 and what the demands for LCFS credits are by the people that
4 are selling and gas and diesel in the market thus have an
5 LCFS obligation.

6 And so the point is that LCFS can't really be relied
7 on in the longer term. We think the supply is going to
8 decline over time -- or the supply will continue to increase
9 of credits as more people are selling LCFS credit. The
10 demand is going to decline over time. For smaller, harder to
11 decarbonize areas, the opportunity to have a longer term
12 contract to support the cost of developing those
13 interconnection facilities could be really valuable. It
14 could help get, you know, kind of deal with the risk as, you
15 know, compared to the LCFS market at least you could get a
16 longer term contract with the utility.

17 And that was why in our comments on the staff
18 proposal, there was a lot of conv -- discussion on the SB
19 1440 staff proposal. Really flag it really ought to be tech
20 neutral among SB 1383 sources that, you know, as Karin put it
21 earlier, our primary goal was to reduce emissions as much as
22 possible. And this is still a sector that really has a lot
23 of emission reductions that are needed.

24 So we hope, you know, in the context of refining that
25 staff proposal effect, the Commission will take into account

1 a tech neutral proposal that, you know, could be structured
2 almost like BioMAT where the utilities don't, you know, it
3 doesn't make sense for those projects to enter contracts with
4 the utilities. The utilities simply won't sign the contracts
5 and that's what we saw with BioMAT where onsite generation, a
6 dairy biogas just doesn't really make sense because it does
7 create criteria pollutants in local communities and we are
8 trying to avoid those things and address all of the
9 environmental, you know, consequences of any kind of
10 development and sensitive. So we are sensitive to that and
11 really hope that the Commission will take a broader view of
12 that.

13 Thank you for the opportunity to speak.

14 MS. AVALOS: Thank you. And our next commenter is
15 Michael Boccadoro.

16 Please for the record, state and spell your name and
17 state your affiliation, if any.

18 MR. BOCCADORO: Yeah, Michael Boccadoro --

19 MS. AVALOS: You're now unmuted.

20 MR. BOCCADORO: Michael Boccadoro, Agricultural
21 Energy Consumers Association. Boccadoro's spelled,
22 B-O-C-C-A-D-O-R-O.

23 I very much appreciated Brian Biering's comments and
24 that was going to be one of the points that I made as well.
25 But since he's done that, I'll take a little bit more of a

1 ratepayer-based approach to my comments.

2 We've heard a lot about California's SLCP goals and I
3 want to be very clear and this is going to be very important
4 as we move forward. Our SLCP goals are California only
5 goals. They relate only to in-state methane and other short-
6 lived climate pollutants in California.

7 We need to make sure the policies that we develop are
8 focused on those in-state goals and that our resources are
9 focused on those in-state goals and that in-state methane
10 reduction and biomethane production.

11 SoCalGas's vision of purchasing a bunch of renewable
12 natural gas and landfills and other cheap sources out of
13 state do nothing to achieve California's short-lived climate
14 pollutant goals. Their 20 percent methane by 2030 is only
15 good for SoCalGas's bottom line, it is not good for the
16 ratepayers. In fact, their ratepayers, my clients, will pay
17 to achieve their goals through much higher rates.

18 Renewable natural gas is an important resource that
19 we need to put to the highest and best use. And in some
20 cases that may be in residences in buildings. But we need to
21 limit it because it's five to ten times more expensive than
22 fossil gas. So the gas company's grand vision here is to put
23 all those costs on the backs of the ratepayers. It's
24 something that only a monopoly utility could love. Customers
25 don't have that same luxury. We don't get to pass on 100

1 percent of our cost. We certainly don't get to guarantee
2 rate of return of 10 percent on all of our investment.
3 They're tone deaf by not listening to their customers. And I
4 understand why because they're a monopoly.

5 But it's really, really important that we focus our
6 goals on in-state projects. California residents and
7 taxpayers should not be expected to fund reductions in other
8 states or subsidize reductions in other states. We need to
9 focus our dollars, our resources, and our efforts here. And
10 so it's really critical that we get our policy goals to focus
11 on our climate goals. And that means focusing on in-state
12 projects here in California.

13 My last point is we hear a lot about the hard to
14 electrify sector and I represent a lot of the food processors
15 who are some of the largest natural gas users in this state.
16 RNG and our processes are not achievable because of the
17 expense. We are forced to compete nationally and
18 internationally. Dairy processing would be a great example
19 of that. We simply cannot compete with a very large portion
20 of our operating costs associated with energy if we're going
21 to be expected to pay five to ten times more for up to 20
22 percent of our gas supply. That's a nonstarter, it'll simply
23 lead to emissions and reductions here in California leakage
24 and here in California.

25 Thank you.

1 MS. AVALOS: Thank you. Our next commenter is Julia
2 Levin.

3 And for the record, state and spell your name and
4 state your affiliation, if any.

5 And Julia, your line is open.

6 MS. LEVIN: Good afternoon. Julia, J-U-L-I-A; Levin,
7 L-E-V-I-N, with the Bioenergy Association of California.

8 I want to thank the Commissioners and staff and
9 presenters for spending most of the day talking about
10 essentially short-lived climate pollutant reductions.
11 Climate science is really clear that that is our last lever
12 to avoid totally catastrophic climate change. And so I think
13 this has been time really well spent and the focus is really
14 important.

15 Having said that, the single largest source of short-
16 lived climate pollutants in California is actually black
17 carbon, not methane. So while I strongly support the focus
18 on methane as well, we need to have an equal focus on black
19 carbon reductions. And the largest sources are wildfire by
20 far but also controlled burns of forest and agricultural
21 waste, and then diesel.

22 And so in discussions like this, we really need to
23 consider those other organic waste sources and we also need
24 to consider every possible measure to get rid of diesel as
25 soon as possible both in the transportation and in the

1 electricity sectors. So I really encourage both agencies and
2 presenters to focus equally on black carbon emissions.

3 And on the forest side, since we're now supposed to
4 be talking about policy recommendations. The board of
5 forestry adopted a forest biomass utilization plan last
6 November that includes I think ten different recommendations
7 for converting additional forest waste to energy in that
8 plan. And so I urge the CEC staff in developing the IEPR to
9 look at those policy recommendations.

10 Similarly, the California Natural Resources Agency
11 with U.C. Berkely is working on a set of recommendations
12 specifically to convert forest waste to transportation fuels.
13 Sam Wade and I and others are participating in that group as
14 well. And those should be done soon as well.

15 Moving on to the CPUC draft staff proposal and
16 biomethane procurement. We think that Karin and Nick and
17 others on the team did a really fantastic job laying out that
18 proposal and that it's really critical for the PUC to move
19 forward with a biomethane procurement requirement.

20 Having said that, we don't think that the target is
21 ambitious enough, although it represents 12 percent of core
22 gas use, it's only 4 percent of overall gas use in
23 California. And that is so far out of alignment with the RPS
24 and LCFS target. So we think the overall goal needs to be
25 increased and we really think that the focus on, again,

1 forest and agricultural and urban wood waste needs to be
2 increased.

3 And specifically, we urge the Commission to follow
4 the example from SB 1383 which calls for five pilot projects
5 just in dairy sector where interconnection would be rate
6 based. And we urge the PUC to do the same thing now with
7 forest and agriculture and urban wood waste.

8 Finally, back to the transportation sector, I hope
9 Commissioner Monahan is still around. The state really needs
10 to prioritize -- prioritize getting diesel trucks off the
11 road as quickly as possible. As soon as there is a ZEV heavy
12 duty truck, we will happily support it. But in the meantime,
13 we've got to continue to incentivize near-zero emission
14 vehicles that can run on carbon negative biogas. That is
15 critical.

16 Thank you.

17 MS. AVALOS: Thank you. Our next commenter is Evan
18 Edgar.

19 And please, for the record, state and spell your name
20 and state your affiliation, if any.

21 Your line is open.

22 MR. EDGAR: Hello. My name is Evan Edgar, E-V-A-N,
23 E-D-G-A-R. I'm an engineer on behalf of the California
24 Compost Coalition. We are RNG producers, compost producers,
25 and fleet operators.

1 And great presentations today about the RNG
2 marketplace, how critical the short-lived climate pollutant
3 program is and the success of the low carbon fuel standard.
4 And the future of RNG should not be up in the air. I think
5 the future RNG is with the low carbon fuel standard and
6 transportation fuel. Because in a near term, it can do some
7 heavy duty lifting in order to reduce not only greenhouse
8 gasses but criteria pollutants.

9 At one time, the California Energy Commission was a
10 champion RNG. Some of my clients were able to get RNG, were
11 able to get anaerobic digestion facilities and RNG production
12 facilities funded by CEC grants using AB 118 money. Used to
13 get three or four projects a year, about \$12 million. That
14 money is dried up. So CEC quit providing grants for RNG
15 production.

16 At the same time, CEC quit funding near zero NOx
17 trucks using the CNG engine. There was over \$10 million a
18 year available for that. So we were actually deploying a
19 circular economy by rolling out RNG production facilities
20 with these near zero NOx trucks and we're getting off diesel.
21 CARB told us to get off diesel and we have been with half of
22 our 15,000 fleet and now our CNG using RNG. So we'd like to
23 have CEC be a champion of RNG again.

24 What was told at the time was that CARB was going to
25 pick up funding for near zero fleet. They never did. It's

1 not part of core, it's not part of HVIP, so CARB has dropped
2 the ball enforcing electrification over RNG production and
3 squeezing out RNG use after 2030 as part of their scoping
4 plan where it shouldn't stay in the transportation sector.

5 The solid waste community sector is committed to not
6 only collect organic waste diverted from landfills in our CNG
7 trucks take it to RNG facilities, make RNG and put it back in
8 the same truck. It's like Back to the Future, Part 2.

9 Instead of having the banana peel in DeLorean, it can take
10 food waste and make RNG put it right back in the same truck.
11 And this is here and now, it's one of the most cost-effective
12 programs under cap and trade. Now that it can be deployed,
13 with regards to 10 to 55 bucks per ton. So it's a great
14 program. We have enough capacity coming up for in-state RNG
15 production.

16 So the policy question here is can CEC become a
17 champion of RNG again by funding RNG production facilities
18 and near zero NOx trucks with their AB 118 money?

19 Thank you.

20 MS. AVALOS: Thank you. Our next commenter is Jim
21 Kelly.

22 And again, for the record, state and spell your name
23 and state your affiliation, if any.

24 Your line is open, Jim. You may need to unmute on
25 your end, Jim.

1 MR. KELLY: I'm sorry about that --

2 MS. AVALOS: Okay.

3 MR. KELLY: -- can you hear me now?

4 MS. AVALOS: Yes.

5 MR. KELLY: Apologies. Yes, my name is Jim Kelly,
6 J-I-M, K-E-L-L-Y. I'm the director of natural gas, I'm
7 representing Engenera. We're a developer, owner, and
8 operator of renewable natural gas fired microgrid solutions.

9 In terms of policy support for the further
10 development of RNG in the state, policies across the various
11 energy agencies must treat the use of RNG as consistent with
12 the state's clean air goals, RNG use in the transportation
13 sector is broadly accepted and encouraged.

14 But for use in the energy sector, policy has not been
15 clear or supportive for RNG fired resources to participate in
16 programs like the Integrated Resource Plan, demand response,
17 or microgrid tariffs despite the robust supply and
18 commercially ready technology.

19 California's energy agencies order to coordinate --
20 sorry, I'm reading from my notes here. I apologize.

21 California's energy agencies should work to
22 coordinate a more consistent and clear treatment for RNG
23 fired resources as clean and renewable to participate in the
24 market. This -- it would helpful if agencies adopted the
25 CEC's RPS guidebook requirements for qualification of RNG

1 fired resources to participate in energy programs rather than
2 developing separate definitions and qualifications.

3 For example, using low carbon fuel standard
4 certification even though other energy programs do not
5 currently model life cycle carbon intensity scores for other
6 resource types participation. Narrow focus on specific
7 renewable sources excluding RNG perpetuate the use of higher
8 emitting resources such as diesel for backup generation.
9 Because as of today, solar and battery resources still cannot
10 match diesel on performance or economics. In the energy
11 sector, it's also important for policymakers to allow long-
12 term contracts for supply from RNG fired resources.

13 (Indiscernible) for supply that have been authorized
14 year after year perpetuate the use of diesel generation.
15 Ten-year supply contracts would allow RNG fired resources to
16 contract economically and spur additional development of RNG
17 supply.

18 (Indiscernible) also has long-standing policies
19 designed to protect disadvantaged and environmental justice
20 communities which tend to be disproportionately impacted by
21 the harmful health effects of low air quality caused by
22 diesel generation.

23 Policy support for further RNG development will help
24 displace diesel generation and improve local air quality for
25 disadvantaged and EJ communities.

1 kind of RNG requirement, you're going to get pretty strong
2 pushback from the people that have to pay when other people
3 don't. So I think that's a very important thing to keep in
4 mind.

5 The core and noncore distinction in gas is a little
6 different from what we have in electricity but not that
7 different. If you're a direct access provider or a CCA or a
8 utility, you're subject to the same RPS. And I think without
9 something like that, you're in for a world of pushback.

10 Thank you.

11 MS. AVALOS: Thank you. Our next commenter is Ryan
12 Kenny.

13 And again, please, for the record, state and spell
14 your name and state your affiliation if any. Your mic is
15 open.

16 MR. KENNY: Yes, good afternoon. My Ryan Kenny with
17 Clean Energy. R-Y-A-N, K-E-N-N-Y.

18 Great presentations today, appreciate the time of all
19 presenters. I do want to offer some supporting comments from
20 previous speakers here that -- and as far as the policy
21 recommendation, the CEC has largely put the motivation to get
22 RNG into transportation with ARB. Of course a couple of
23 years ago the clean transportation program incentivize
24 vehicles which has been done for several years. And
25 basically, it was because it was assumed that CARB would

1 handle it through the HVIP program. But of course CARB last
2 December cut out low NOx trucks out of the HVIP program by
3 changing the definition to -- from .02 to .01. And of course
4 there aren't any .01 vehicles out there.

5 Carl Moyer really is the last incentive program for
6 low NOx trucks operating on renewable natural gas. And that
7 program is not working. If you -- maybe, you came across a
8 letter from the South Coast AQMD executive officer recently
9 outlining the challenges of the Carl Moyer program and
10 getting the low NOx trucks into the public fleet as soon as
11 possible, private fleets as well.

12 That's because the commercial rightness of heavy-duty
13 ZEV is just is not there. Looking at probably a good decade
14 or so if not more until heavy duty ZEVs can be on the road
15 and displace diesel. As Julia Levin mentioned earlier, it's
16 all about diesel and getting diesel off the road. And really
17 addressing planet pollutants and black carbon especially.

18 So the near term focus has really been -- been not a
19 consideration. I think it over at CARB relative to the more
20 longer consideration. And of course the governor's executive
21 order for heavy duty ZEVs had a deadline of -- or a timeline
22 goal of 2045 and that's only where feasible. So the near
23 term really is not being considered and we think that that
24 should be obviously considered with the use of renewable
25 natural gas.

1 Couple of things that are worth noting, according to
2 CARB's data, 90, 92 percent of all on the road fuel used in
3 natural gas vehicles in California in 2020 was renewable
4 natural gas. For the first time, renewable natural gas
5 received a carbon negative rating in 2020 according to CARB
6 data. So the fuel is available, the vehicles are available,
7 they're just not being incentivized to switch over from
8 diesel. Adoption of natural gas trucks, buses, and other
9 vehicles grew by 25 percent across California from 2019 to
10 2020.

11 And again this is -- where the fuel goes, goes the
12 vehicle. So if you get vehicles road you will follow. The
13 industry really isn't concerned about infrastructure.
14 Infrastructure is paid for by private investment. So if you
15 incentivize the vehicles, you'll get more RNG industry and
16 plenty of RNG to be able to incentivize those vehicles in
17 California.

18 Thank you.

19 MS. AVALOS: Thank you. And that concludes the
20 comments from those on Zoom.

21 We'll move on to folks on the phone. And as a
22 reminder to those phone users, use -- dial star 9 to raise
23 your hand and star 6 to mute and unmute your line.

24 I'll give it a few seconds here to see if any phone
25 users would like to raise their hands.

1 Okay. Seeing that there are no raised hands, that
2 completes public comments.

3 I turn now to Commissioner Gunda.

4 COMMISSIONER GUNDA: Thank you so much, RoseMary, for
5 facilitating the public comment. Again, thank you to all the
6 commentators on providing your perspectives. I'd like to
7 repeat that your participation and your perspectives help
8 improve the conversation and the dialogue and make sure that
9 we are adequately considering all the options.

10 I know it takes a lot of time for a lot of people to
11 attend these meetings. I just want to applaud your
12 commitment in making sure the public policy is as robust as
13 possible.

14 We heard a lot today. It was a really good
15 substantive conversation in terms of information and record
16 for the IEPR. Really want to thank Stephan for both setting
17 up the context this morning on the RNG market and on this
18 afternoon on the overview of the policy, landscape, and
19 instant centers which was very helpful.

20 And then the natural gas perspectives we heard from
21 CEC, PG&E, and Maas Energy this morning. And just a policy
22 and implementation from CPUC, CARB, SoCalGas, and Coalition
23 for Renewable Gas today.

24 So I, you know, given that I'm still learning this,
25 there's one kind of key takeaway I'm taking from all this is

1 that there's still a lot of data that needs to be clear here,
2 there's still a lot of (indiscernible). It would be helpful
3 the team, IEPR continues to think through, the stuff. I just
4 compile the comments and the information to ensure that the
5 overarching RNG availability and the future is well
6 understood and contextualized for the IEPR as we continue to
7 use the document for future policy.

8 We are really glad that we had two CPUC Commissioners
9 Rechtschaffen and Houck join us today. Given, you know,
10 Commissioner Rechtschaffen's history on these issues and
11 work, I'd really like to ask Commissioner Rechtschaffen if
12 you would provide your high level takeaways from today and any
13 closing comments you might have.

14 COMMISSIONER RECHTSCHAFFEN: Thank you very much,
15 Commissioner Gunda.

16 Thank you for your staff and all the panels for a
17 very informative discussion. I think there was a lot of good
18 level setting as you indicated and we learned about progress
19 in the market from -- from Maas Energy this morning, from Sam
20 Wade and the renewable natural gas coalition this afternoon.
21 I think that's very, very helpful.

22 The market is changing. We are finding things out
23 all the time. And our policies are changing or have to
24 change. We heard a very good overview from Stephan as you
25 indicated about the various policy levers that the federal

1 and state government. And for supply and also for
2 generation.

3 We need to continue to think about where our policies
4 should go. It's one of the reasons why I was very glad to
5 have this workshop and to have three agencies participating.
6 The discussion is very relevant to what the CEC does in its
7 grant programs and its other work. Extremely relevant as we
8 heard for -- from Jeff for the development of the scoping
9 plan which is going to take a more holistic look at these
10 issues as well as further progression of the short-lived
11 climate pollutant strategy.

12 It's very helpful and I appreciate the numerous
13 comments we gotten here and we're getting in our own
14 proceedings for implementation of SB 1440, the consideration,
15 what kind of -- one, if any, renewable gas performance
16 standards we should have as well as the many other CPUC
17 programs that were touched on today. SGIP, BioMAT SB 1383,
18 the interconnection incentive program and so forth.

19 Commissioner Monahan gave us a lot of food for
20 thought talking about should we have something like a low
21 carbon fuel standard or a performance-based lifecycle
22 standard for gas utility structure or thermal needs that goes
23 beyond transportation. We at the PUC have limits in what we
24 can could non core sector for industrial and commercial
25 customers, that's one of the focus of our staff proposal for

1 renewable natural gas is on.

2 Core customers and a proposal like Commissioner
3 Monahan discussed and went back and forth with with some of
4 the panelists has some interesting merit to it.

5 I should note that there are other states that are
6 looking at ideas like this. I think perhaps Washington
7 state, maybe Colorado, maybe New York. It's starting to gain
8 some currency, this concept of a more holistic performance-
9 based standard for reduce -- decarbonizing the thermal
10 sector.

11 I especially appreciated the interchange at the end
12 with Commissioner Gunda and Jeff and Sam and Yuri and others
13 about short-term, midterm, and long-term goals. I think it's
14 very, very important. We all are feeling the climate
15 imperative now more than ever, the need to act is as urgent
16 as it's ever been, it's now more so and some of our speakers
17 at the end alluded to that.

18 And we have to reduce emissions from short-lived
19 climate pollutants because they have an immediate and
20 dramatic bang for the buck, there's no question about that.
21 But we have to be very thoughtful about how to do that in a
22 way that doesn't undermine our midterm and long-term goals.
23 I think there's a lot of food for thought in some of the
24 discussion that we had.

25 I also think we are -- we are very concerned. This

1 administration under the current governor and the prior
2 governor, and more than ever now, we're very, very concerned
3 about the equity implication to our policies.

4 We heard from Karin Sung at the PUC and I want to
5 make sure she heard how complimentary people were for a staff
6 proposal because I agree, she did a fantastic job. But we
7 heard how the PUC is trying to wrestle with those issues,
8 other agencies are as well. And I think it's very important
9 that we continue to keep those issues front and center in
10 what we do.

11 So overall, there's a lot to take away from this and
12 I'm very grateful that I was able to join in the workshop and
13 hear from all the stakeholders and experts on this important
14 topic.

15 COMMISSIONER GUNDA: Thank you, Commissioner
16 Rechtschaffen. I know Commissioner Monahan has to jump, so
17 I'll pass it to her next.

18 COMMISSIONER MONAHAN: I do. I have a hard stop at
19 4:30 but I've got to say, what's left to say after
20 Commissioner Rechtschaffen summed up the entire day as did
21 you, Commissioner Gunda. I have very little to add.

22 The only remark I think I'll make is, you know, we --
23 it's clear the transportation sector, I know it's our number
24 one source of greenhouse gases, it's the number one source of
25 toxic diesel particulate cleaned up ASAP. I agree with what

1 Julia Levin said about, you know, we need to reduce emissions
2 from heavy duty vehicles as quickly as possible.

3 I think what we have learned in the space of
4 especially battery electric vehicles and hopefully fuel cell
5 vehicles will soon follow is that prices -- because there's a
6 global transition happening, price is falling rapidly. And
7 in natural gas, we're not seeing that same phenomenon play
8 out. So we don't see that big market scaleup. But there is
9 definitely a potential for near-term emission reduction
10 from -- from harmful fumes.

11 And I do think there's a lot of great lessons learned
12 from the low carbon fuel standard. It is a beautiful
13 simplistic policy at its face. And when you get down to the
14 actual carbon metrics, it's very complicated. But the
15 simplicity of it and as Sam's chart showed how RNG has just
16 taken over in transportation. I mean that -- to me, that was
17 like the take home chart of the day which shows the power, a
18 simple policy can change markets. And so that potential for
19 us to do it in other places, I think is good and something
20 worth exploring.

21 And thank you. And I'm sorry I have to bow out.

22 But.

23 COMMISSIONER RECHTSCHAFFEN: I think we have our new
24 slogan, a beautiful policy. Only an energy regulator -- only
25 energy regulators like us could find beauty in a policy like

1 most of us. So I'm going to go with it, Commissioner
2 Monahan.

3 COMMISSIONER MONAHAN: I mean, it's a harmonious
4 beautiful policy. Yeah.

5 All right. Thanks, everybody.

6 COMMISSIONER GUNDA: Thank you, Commissioner Monahan,
7 thank you for being here.

8 Commissioner Houck.

9 COMMISSIONER HOUCK: Yes. I just -- I don't -- won't
10 repeat. I think everybody summed up the day really well.
11 There was a lot of great conversation.

12 I appreciate all of the presenters and all of the
13 stakeholders, participants, and public comments that we
14 received today. Lots of good discussion and I look forward
15 to learning more as we move forward with the information and
16 the progression with both the IEPR and the policies moving
17 forward at the PUC. Thank you.

18 COMMISSIONER GUNDA: Great. Commissioner Houck,
19 thank you so much. Commissioner Rechtschaffen, thank you for
20 summarizing the day for us.

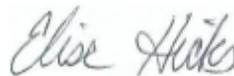
21 I just want to thank all the participants again, the
22 IEPR team, the staff for pulling together such an important
23 discussion for the IEPR and all the presenters and
24 commentators for your time as well as expertise in kind of
25 driving our policy conversations out.

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