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LITHIUM VALLEY COMMISSION

In the matter of:

Resources on Developing Geothermal and Lithium Co-Production for the August 26,2021 Lithium Valley Commission Meeting	)))))	Docket No. 20-LITHIUM-01

LITHIUM VALLEY COMMISSION

REMOTE VIA ZOOM

THURSDAY, AUGUST 26, 2021

Reported by:

Elise Hicks

APPEARANCES

CHAIR

Silvia Paz

MODERATOR

Charlene Wardlow

LITHIUM VALLEY COMMISSION MEMBERS

Steve Castaneda

Rod Colwell

Roderic Dolega

Miranda Flores

Martha Guzman Aceves

James C. Hanks

Ryan E. Kelley

Arthur "Richie" Lopez

Luis Olmedo

Silvia Paz

Frank Ruiz

Manfred Scott

Thomas Soto

Jonathan Weisgall

MEDIA AND LEGISLATION

Richard Rojas (Legislation)

Lindsay Buckley (Media)

PRESENTERS

Jim Minnick

Henry Martinez

Susanne Heim

MEMBERS OF THE PUBLIC

Angela Islas

Eric Reyes

Nikola Lakic

Meg Slattery

Vijay Dhar

Cristina Marquez

Shrayas Jatkar

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P R O C E E D I N G S

1:31 P.M

MS. DE JONG: Good afternoon, everyone. Welcome to the Lithium Valley Commission Meeting. Before we get started, we're going to give everybody a few seconds to just finish jumping in and logging into the Zoom call.

Okay, so I think we are ready to get started. Again, welcome everybody. And as you will notice, we are offering Spanish interpretation.

So, before we kick off the meeting, I would like to invite a representative from the CEC Public Advisor's Office, who will speak in Spanish to inform our Spanish speaking audience about the need to select a Spanish channel if they prefer to listen to this meeting in Spanish.

And there is an interpreter in the Spanish channel, interpreting everything said in English into Spanish. I ask for your patience as we create a more inclusive and accessible meeting. Thank you.

Noemi?

MS. AVALOS: Hi, this is RoseMary Avalos. I work with Noemi Gallardo and I'll go ahead and read the portion in Spanish.

[Spanish 00:02:56 to 00:04:47]

CHAIR PAZ: Thank you RoseMary. Gracias. So, if

you are joining us today via smartphone or a tablet, you may need to find the ellipsis or the more button to navigate to the interpretation option.

Again, all the attendees should select a channel, either in English or Spanish. If any members of the public in the Spanish Channel have questions or public comments, they will be given the same opportunity to engage in public comments throughout the agenda.

At the same time that the Chair opens the meeting for public comment for all, the interpreter will provide instructions to those in the Spanish Channel, to be sure that all attendees can use the raise hand feature and be called on to speak.

The interpreter will assist and translate questions or public comment into English for the benefit of the commissioners and attendees in the English Channel.

Unfortunately, the Zoom interpretation function does not work for attendees who are only joining by phone. So, our attendees on the phone will hear the English Channel of this meeting.

The Spanish Channel is intended to provide members of the public the ability to hear the entire dialogue of the Lithium Valley Commission Meeting in Spanish and in real-time.

To ensure that all members of the public have

access to the meeting under Bagley-Keene, we ask that all of the Lithium Valley Commissioners select and remain on the English Channel for the entirety of the meeting, preferably with cameras on.

All attendees who wish to join the English Channel, please look for the small globe icon on the bottom of your Zoom application and select English Channel. Do not select mute original audio. Thank you.

So, I will hand it over to Elisabeth to guide us through some administrative items.

MS. DE JONG: Thank you Chair Paz. This meeting is being conducted entirely remotely via Zoom. This means that we're in separate locations and communicating only through electronic means.

We are meeting in this fashion consistent with Executive Order N-08-21, to continue to help California respond to, recover from, and mitigate the impacts of COVID-19 pandemic.

The public can participate consistent with the direction in this Executive Order.

This meeting is being recorded as well as transcribed by a court reporter. The transcript will be posted to the electronic docket. The recording of the meeting will be available on the Lithium Valley Commission webpage.

The Spanish interpretation will not be recorded or transcribed. Members of the public will be muted during the presentation, but there will be an opportunity for public comment on each agenda item, and an additional opportunity for public comments towards the end of the agenda.

To provide public comment, please use the raise hand feature in your Zoom application to be called on to speak. When you speak, please provide your name and affiliation.

If you've called in by phone, you will need to dial *9 to raise your hand and *6 to unmute yourself. Before speaking, please say and spell your name for the court reporter.

There is also a Q&A window in the Zoom application, which you may use to take your questions. If you want to provide public comments, but are unable to raise your hand in the Zoom application or by phone, then during the public comment portion of the meeting, you may type your comment into the Q&A window so we can relay your comments.

We'll go over these instructions again during the time for public comment. Please remember to stay muted until you've been called on to speak.

We also have a chat function available for IT

support. We ask that Lithium Valley Commissioners use the chat only for IT support as well. Any other comments are considered substantive to the conversation and should be made publicly and orally for the Bagley-Keene compliance.

Meeting materials, including the notice, presentation slide deck and resource document are posted online in the Lithium Valley Commission docket.

Please note that an updated version of last month's PowerPoint presentation has been uploaded for your reference. And we have provided the link to the meeting materials in the chat.

We're going to move to the roll call of Lithium Valley Commissioners to determine a quorum. I will call your name. Please respond if you are present and turn on your camera if you can. Commissioner Steve Castaneda?

COMMISSIONER CASTANEDA: Yes. Here.

MS. DE JONG: Great. Thank you. Commissioner Rod Colwell?

COMMISSIONER COLWELL: Present.

MS. DE JONG: Thank you. Commissioner Roderic Dolega?

I hear no response.

Commissioner Miranda Flores?

I hear no response.

Commissioner Martha Guzman Aceves?

I hear no response.

Commissioner James Hanks?

COMMISSIONER HANKS: Present.

MS. DE JONG: Thank you.

Vice Chair Ryan Kelley?

I hear no response.

Commissioner Arthur "Richie" Lopez?

No response.

Commissioner Luis Olmedo?

COMMISSIONER OLMEDO: Present. And I Apologize for my camera I still can't get it working.

MS. DE JONG: Thank you. We can hear you, so we appreciate your participation.

Chair Silvia Paz?

CHAIR PAZ: Present.

MS. DE JONG: Great. Thank you. Commissioner Frank Ruiz?

I hear no response.

Commissioner Manfred Scott?

COMMISSIONER SCOTT: Present.

MS. DE JONG: Thank you.

Commissioner Thomas Soto.

I hear no response.

And Commissioner Jonathan Weisgall?

COMMISSIONER WEISGALL: Present.

MS. DE JONG: Okay. So, at this time we have seven Lithium Valley Commissioners. I do believe that commissioner Frank Ruiz will join us late.

But as of right now, we do not have a quorum. We will continue with the meeting without a quorum. We just will not be able to hold any votes unless we do obtain a quorum.

And so, I will go ahead and hand the meeting back over to you Chair Paz.

CHAIR PAZ: Thank you Elisabeth. The agenda for today will be as follows.

The Lithium Valley Commission will consider and may act on the following items. We've done the welcome and the roll call. Under our administrative items, we do have the approval of the July minutes. But once we achieve quorum, we can probably come back to this item for approval.

We will have our informational items from commissioners as well as updates from media and legislative teams. What else? We will have a workshop today and there will be a presentation followed by a panel discussion as part of that workshop.

We will work on determining agenda topics for future meetings that will be followed by public comment and then we will adjourn.

Next slide, please.

Thank you. So, at this point, we are going to be inviting Richard Rojas to give us any legislative updates.

MR. ROJAS: Yes, can you see me Okay?

CHAIR PAZ: Yes, thank you.

MR. ROJAS: Okay, so the legislature has been in full session right now. On August 16th, it came back from the summer recess and tomorrow August 27th is the deadline for those to get through the appropriations committee. Today, was the suspense hearing during which we lost a number of bills, so that's a good thing.

September 3rd is the last date for bills to amend on the floor. September 10th is the last day for any bill to be passed this year. And the governor has until October 10 to sign or veto bills. So, right now, we're in the throes of the first year of a two-year session.

There are two bills that I reported on last month. They're both Henry Stern bills, SB423, that requires the Energy Commission along with CPUC, CAISO and CARB by December 31st of 2022, submit an assessment of emerging renewable energy and earn zero carbon resources to the legislature.

The bill amended in the Spence hearing today, to pushed that deadline date off one year. So, the assessment would be required by 12/31/2023.

The second bill was the SB551 that would have created a California zero emission vehicle authority from the governor's office to coordinate deployment of ED infrastructure.

However, that bill was held in committee today, which means that it is dead for this year. It could conceivably come back up next year in a different form.

Both of those bills in their findings and declarations specifically mentioned the urgent need for lithium ion battery storage deployment and for the battery supply chain to use lithium ion from the Salton Sea. So, those are specifically mentioning the need for more lithium.

And there was a bill that I'd mentioned two months ago, I think, 8983 was Eduardo Garcia. And that bill dealt with workforce development in public contracting. However, the author pulled it from a hearing on June 30th and so that won't be heard this year. That could come up in January of next year. And that is all I have unless you have questions.

CHAIR PAZ: Are there any questions from Lithium Valley Commissioners? Seeing none … go ahead.

MS. DE JONG: Sorry. This is Elisabeth. I just wanted to add that a summary of that legislative report has been posted on the Lithium Valley Commission webpage.

MR. ROJAS: Thank you.

CHAIR PAZ: Thank you. I don't see any questions, so we will move on to our media update.

MS. BUCKLEY: Greetings Chair Paz and members. Over the last three months from May to July, we tracked more than two dozen articles on Lithium Valley topic and mentioned the Lithium Valley Commission for significant local coverage from the Imperial Valley press, Desert Review, Calexico Chronicle, Desert Sun, NBC Palm Springs, and News Channel 3, who also ran a piece in Spanish.

Additional coverage on a statewide and national level from LA Times, KCRW, Politico, Vice, Fortune, S&P Global, Spectrum News, Green Car Congress, and EME News. So, a lot of coverage over the last three months.

We feel that four major inquiries here -- major inquiries, meaning took over work and we provided some information or interviews.

We heard from the Associated Press who wanted some information on what the state has done to support Lithium Valley to date. We also heard from Marketplace, the radio program on background, they're going to be developing a podcast series going into production this fall and going to be diving deep into the issue.

NBC also reached out to us for a documentary they're producing on lithium mining and production in the

United States, and so was able to do an interview with them.

And then ENE News also reached out to us in July following the announcement of controlled thermal resources deal with General Motors.

We provided some background on the Lithium Valley Commission and a quote from Commissioner … who noted the significance of the deal, how it illustrated that the region's important to electrifying transportation in the most environmentally responsible way possible.

And also, noted that it was encouraging milestone towards realizing the vision of Lithium Valley. And she also discussed how we're helping to support that through the convening of the Lithium Valley Commission as well as awarding grants and research dollars.

And the last update I have is that we are still working on a fact sheet on just general information around Lithium Valley facts and Lithium Valley Commission membership, and hoping to wrap that up very soon.

That's it for me, unless anyone has any questions.

CHAIR PAZ: Any questions from commission? Okay. Thank you, Lindsay.

Okay, so at this point again, we're going to be going through the list, calling on the commissioners to see

if they have any updates on the work related to the Lithium Valley Commission that they're doing.

Elisabeth, do I hand it back to you so you can call on us?

MS. DE JONG: Yes. Thank you. I'll go ahead and go through the list again in alphabetical order. So, if you would like to provide updates, Commissioner Castaneda?

COMMISSIONER CASTANEDA: Sorry about that. Yes.

MS. DE JONG: Great. So, we're just going through offering, so maybe up to a three-minute update on any of the related work that you've been working on and we're starting with you, if you have anything to say.

COMMISSIONER CASTANEDA: Oh, sorry but I really don't have anything to add at this point. But thank you.

MS. DE JONG: Okay. Thank you. Commissioner Colwell?

COMMISSIONER COLWELL: Yeah, Elisabeth, just a brief update on what's going on since the General Motors announcement.

We're in negotiations now with a second party for lithium uptake. That'll be announced shortly. We're also, you know, part of the environmental part of this, I guess, is where we've actually … an MOU will be announced next week on a basically a vault metal sulfide deal, including silica.

We managed to negotiate that deal which that makes CO2 free cement. So, it's quite exciting and additional work going on with Power Purchase Agreements. Thank you.

MS. DE JONG: Thank you. Alright. Commissioner Hanks?

COMMISSIONER HANKS: Yeah, I'd just like to announce that with the expansion of geothermal, there was an announcement at our board meeting of plans to develop additional geothermals both for energy production and for lithium production, that I'm sure some of the other commissioners will add onto that. Thank you.

MS. DE JONG: Great. Thank you. I see Vice Chair Kelley has joined us. If you would like to go ahead and give an update.

VICE CHAIR KELLEY: Sure. Elisabeth, we had our local meeting about lithium development geothermal yesterday, updates on some questions we had pending. So, a good conversation. Some movement, infrastructure improvements are already being fast tracked.

Accessibility, workforce development, a lot of good coordination with our education partners and SDSU has now become very engaged in that, talking about a stem building on the Brawley campus and Imperial County and also a regional planning being coordinated by SDSU Research

Foundation.

So, lots of good news and all plays into what we're talking about today.

MS. DE JONG: Okay. Thank you. Commissioner Olmedo?

COMMISSIONER OLMEDO: Yeah, hello Elisabeth. I apologize. I just stepped back in. I'll be honest with you, I'm having to go back and forth two equally important state advisories that just overlapped for me.

MS. DE JONG: Yeah. Thank you. Well, if you have any updates that you'd like to provide, this as a great time, but otherwise, we appreciate your attendance.

COMMISSIONER OLMEDO: I do not at this time.

MS. DE JONG: Alright. Thank you. Chair Paz?

CHAIR PAZ: Yes. I have a couple.

First, I wanted to update other commissioners that there will soon be an outline of the report posted, and I will encourage you once that is posted and Elisabeth will let us all know when that is. If you can take the time to review and then we'll be ready to take your feedback on that outline.

And then the second update is that I've been working with the CEC stuff and the Assembly Member Garcia's office in planning our community engagement meeting. We're looking at the month of November for that meeting since

that's the months where we don't meet a commission.

Once we have a select a date, we'll make sure that it gets on your calendars as soon as possible. That way you can plan to attend.

Those are all my updates. Thank you.

MS. DE JONG: Thank you. Commissioner Scott?

COMMISSIONER SCOTT: No, I don't have nothing to say.

MS. DE JONG: Okay. Thank you. And Commissioner Weisgall?

COMMISSIONER WEISGALL: Just a couple of quick updates. Our two demonstration projects are on track. The beginning stage of construction for the first demonstration project is underway. We're still on that spring 2022 timeframe. Engineering on the second demonstration project, that's the one with the US Department of Energy, on track as well.

Let me just add on to the comments, both from Commissioner Kelley and Commissioner Hanks. I think that it's really terrific to see the enthusiasm and coordination at the local level that Commissioner Kelley has put together on whether it's improved infrastructure for county roads, or as he stressed, workforce development incentives in the lake, so excellent coordination there.

And piggybacking on Commissioner Hank's comment,

there's just no question that the CPUC June 30 order directing an additional thousand megawatts of what essentially will be geothermal power. I mean, 80% capacity factors in the lake just really dovetails beautifully with lithium development, one plays into the other.

If the lithium market takes off, there will be more pressure for more geothermal development and with the geothermal order that just conflates beautifully with the increased lithium production.

So, kind of the stars seem to be aligning after, I would say a good 30 years for overall geothermal development in Imperial and the important bolt on technology of lithium. So, all looking good. Thank you.

MS. DE JONG: Thank you. That concludes that agenda item. Chair Paz, if we want to go back to the meeting action minutes.

CHAIR PAZ: Yes, thank you. Okay, so at this point, we can … either any questions from commission members or comments about the July action minutes?

I see a hand up. I don't know if it's related to this -- Henry Martinez?

MR. MARTINEZ: I'm sorry. I did not raise the hand. It is my mistake. Apologies.

CHAIR PAZ: Thank you. Okay, so seeing no comments or questions, we will open this item for public

comment, Elisabeth.

MS. DE JONG: Yes. Thank you. So, before we move to vote for the meeting action minutes, we'll open the floor to public comments.

If you're joining us by Zoom on your computer, please use the raise hand feature. And if you've called in, please dial *9 to raise your hand and then *6 to unmute your phone line.

First, we'll go through hands raised on the Zoom application and then any on the phone.

I have a hand raised by Larry and I've gone ahead, you should be able to unmute yourself.

Larry Rillera … I am probably saying it wrong. Okay, I'm going to go ahead and move on to the next. Angela Islas.

MS. ISLAS: Hi, can everyone hear me?

MS. DE JONG: Yes.

MS. ISLAS: Okay, great. So, good afternoon, everyone. My name is Angela Islas. I am the Chair for the Disadvantaged Communities Advisory Group under the California Energy Commission, as well as California Public Utilities Commission.

We are one of the standing advisory groups that are assisting both the Energy Commission and the Public Utilities Commission in advising in respect of SB350.

And I have had the pleasure to get an announcement during our -- I think I believe it was in June or July, we had a presentation from someone who had publicly commented about the Lithium Valley Commission and you all starting up on your efforts with exploring on these different strategies for lithium, as well as public engagement, et cetera. And has been something that has been catching my attention as well as other members that are in our DACAG group.

And we've been in conversations with Energy Commission, we're just getting more information about the work that you are all doing and how the DACAG can actually participate and be able to just kind of learn a little bit more about these efforts during our monthly meetings.

So just wanted to really just introduce myself to you all and let you all know that we are keeping this pretty close in our radar. And we're just excited to kind of see how this evolves and how much we can support you all in the best capacity as an advisory group.

And we just look forward to really kind of collaborating with you all, hopefully in the next months of this development of this commission. Thank you.

MS. DE JONG: Thank you so much. I see another raised hand from Eric Reyes.

MR. REYES: Hello (indiscernible) community-based

organization. We've been involved with the lithium made locally on the ordinance and development in Imperial County as chaired by supervisor, Ryan Kelley. We thank him for engaging us locally.

And this is my issue is that traditionally when we have state agencies engagement, we have a lot of missteps, miscommunications and lack of true engagement.

Whereas you mark the box that you have engaged the community is not really coming out meaningful. So, I'm hoping as you move forward that community-based organizations and stakeholders will truly be engaged, will truly be asked as to what our needs and wants are as you move forward. Thank you.

MS. DE JONG: Thank you. And I have another hand raised by Nikola Lakic.

Oh, I'm sorry. You should be able to unmute now.

MR. LAKIC: Alright, can you hear me now?

MS. DE JONG: Yes.

MR. LAKIC: Can you see me also?

MS. DE JONG: No, we're not able to, but I don't believe that we can as …

MR. LAKIC: Okay. Well, I just want to say a few words.

I respectfully urge on commissioners to invite me, especially Chair Silvia Paz to explain to commissioner

new breakthrough technologies in harnessing lithium.

I sent some seven-page letter, I hope you read it recently. And I respectfully urge not to make big decisions before they see my proposal because it's losing time and money.

My proposal incorporates everything that has been sent in several meetings so far. You all want more lithium, you all want more clean environment. You all want more money. I'm providing that. So, I don't know where animosity is coming from some systematic ignorance or something.

Please invite me. You are not losing nothing if you learn a little bit more about new technology. It's nice to be close-minded and self-serve just think that you know everything. There is new technology, it’s coming. I'm a guy who has it.

And I don't know why you are … what you’re afraid of to learn a little bit more about new technologies.

I just want to raise that. Please invite me some of these days and don't make big decisions before you see new technology that incorporate clean environment, restoration of the Salton Sea and production, more lithium and more energy, and tourism, beaches. Please do that.

There is no reason. Yeah, I see separation between harnessing lithium and another panel is restoration

of the Salton Sea. It should be together. I market it. I make that together.

There is no reason to be persistent in something that is doomed to fail.

Yes, well, what I'm seeing from these meetings so far, group of people pushing for getting rid of lake. They want a known geothermal reservoir area. They want to lease that area and to reduce lake.

It's wrong direction. We can have full lake and you still can use your known geothermal reservoir for extraction lithium.

But what I'm adding to it is harnessing lithium from salty water of the lake, and yes, I forgot name but I think was … I forgot the actual panelist last meeting was, well, it is technical talking, it's mine.

Mine means you have beginning and you have end. And sometimes that is 40 years for exploration. In my system, we have forever because we are importing seawater 45 to 50 million pounds salt. I can produce lithium, please invite me. Thank you.

MS. DE JONG: Thank you. And we have another hand raised by Meg Slattery.

MS. SLATTERY: Okay. Am I unmuted?

MS. DE JONG: You're good to go. Yes.

MS. SLATTERY: Okay, thanks Elisabeth. Hi

everyone. This is Meg Slattery. I'm a PhD student at UC Davis and the intern with the Lithium Resource Research and Innovation Center at Lawrence Berkeley National Lab.

We've been analyzing transcripts of the Lithium Valley Commission meetings and created a brief survey based on topics that have been frequently mentioned by commissioners, presenters and members of the public.

The purpose of the survey is to have a structured way to get feedback about what potential positive and negative impacts are most important to all the people who might be involved in or be affected by the lithium extraction.

We will use this information to inform our research and make sure we're asking questions that are useful to this committee and other stakeholders. So, for example, by recommending which impact categories should be included in lifecycle assessment.

The survey will be available in Spanish and English and should take no more than 10 minutes to complete, and that will be live starting on September 1st on the Lirric website@L-I-R-R-I-C.ldl.gov/lvc.

So, we just wanted to make that announcement and put that on people's calendars and encourage everyone to take advantage of that survey as a structured means to provide your input on this process, and also to share it

with your networks if possible. And we greatly appreciate your time and feedback. And thank you for allowing me the opportunity to comment.

MS. DE JONG: Thank you. Alright. That is all the public comment at this time. Back to your Chair Paz.

CHAIR PAZ: Thank you. At this time, I will entertain a motion to adopt the action minutes.

VICE CHAIR KELLEY: So moved, Jonathan Weisgall.

CHAIR PAZ: Thank you Jonathan. Is there a second.

COMMISSIONER COLWELL: Second. Rod Colwell.

CHAIR PAZ: Thank you, Rod. Roll call, Elisabeth.

MS. DE JONG: Thank you. So, when I call your name, please let me know if you vote yes, no, or to abstain from approving the previous month meeting action minutes.

Commissioner Castaneda?

COMMISSIONER CASTANEDA: Yes.

MS. DE JONG: Thank you. Commissioner Colwell?

COMMISSIONER COLWELL: Yes.

MS. DE JONG: Thank you. Commissioner Hanks?

COMMISSIONER HANKS: Yes.

MS. DE JONG: Thank you. Vice Chair Kelley?

VICE CHAIR KELLEY: Yes.

MS. DE JONG: Thank you. Commissioner Olmedo?

And Commissioner Olmedo, if you're able to unmute yourself, we haven't heard you yet.

Okay, I'll move on. Chair Paz.

CHAIR PAZ: Yes.

MS. DE JONG: Thank you. Commissioner Scott?

COMMISSIONER SCOTT: Abstain.

MS. DE JONG: Thank you. And Commissioner Weisgall?

COMMISSIONER WEISGALL: Approve.

MS. DE JONG: Thank you. If we can circle back Commissioner Olmedo, if you're able to unmute.

Alright, if not I would actually like to consult with legal on this call that would put us lower than a quorum of having provided a vote. Are we able to proceed with the vote or do we need to wait until the next meeting?

MS. WEBSTER-HAWKINS: Hi Elisabeth, this is Renee. Yes, we have a quorum and an abstention doesn't disrupt that for purposes of taking this vote.

MS. DE JONG: Alright. Thank you so much for confirming. So, we have a majority vote to approve the meeting action minutes from the previous meeting. They are so approved. Thank you.

CHAIR PAZ: Thank you. So, now we will move to the workshop for today.

The workshop designed to address sections that

will support the future development of geothermal power that has the potential to provide the co-benefit of lithium recovery from existing and new geothermal facilities.

Charlene Wardlow from, the Geothermal Program Manager at the California Department of Conservation Geologic Energy Management Division, or CalGEM for short, will be providing a presentation and then we'll moderate a panel discussion. Charlene?

MS. WARDLOW: Thank you, Commissioner Paz.

Good afternoon. Some of you may not be familiar with the name CalGEM. We used to be the Division of Oil, Gas and Geothermal Resources, DOGGR and I loved the DOGGR part. Legislature changed our name a couple of years ago, after 105 years.

So now you know who CalGEM is, and I'm delighted to be with you this afternoon and talk about the jurisdiction of CalGEM concerning geothermal energy development in California, as well just geothermal 101 to kind of bring everybody up to speed on what geothermal development is.

Next slide, Jordan, please.

So, this statute is really amazing to me. It was written about 1969 and the vision that someone had, if you look at line three on what our jurisdiction is and what the definition of geothermal resources is; it includes all

minerals in solution, which obviously includes the geothermal fluids, the brines in Imperial County and the critical minerals, the minerals contained.

So, we do have jurisdiction for the mineral resources that will be recovered from the geothermal brines at the Salton Sea.

Next.

So, our regulations are found in Title 14 and then under Public Resources Code, the statute is 3700. We are actually been working about five years to update these regulations, some date back to the 70s. And there wasn't a lot of geothermal development at that time. I'm actually hoping we are able to finally have a public workshop this fall.

So, we oversee the production and injection wells, and we have a memorandum of understanding with US EPA for the injection wells, which are considered Class 5 under the Clean Water Act Underground Injection Control Program. And so, we work in concert with them on that. We do not oversee the wells on federal land.

So, for example, the Bureau of Land Management or Department of Defense Lands, we do not oversee those. They have their own regulatory programs.

Next.

So, our oversight is for the wells all the way

from exploration into development, the production wells, then their maintenance during their life, and then the final plugging and abandonment of those wells.

So, not only the integrity of the wells in terms of how they are drilled and completed and produced, but also the protection of underground water, surface waters, the health and safety of not only the workers, but also the general public and the environment surrounding the resources.

Next.

So, we also have jurisdiction for the California Environmental Quality Act for exploration wells except in Imperial County.

So, Imperial County actually requested from the division back in the 70s to be lead agency for exploration projects. So, we act as a responsible agency, both for exploration projects and the development side that are permitted by the county. And so, we also, then we permit the wells.

So, an operator will submit a permit called a Notice of Intention to us. We have geologists and engineers on staff that review how the well will be drilled, what's the blowout prevention equipment that will be used, what's the casing, the steel that will be put in the ground, and what type of cement they will use.

Because we want to ensure protection, not only of the resources around the well, but also the integrity of the well for the life of the well, which can be decades as it utilizes the resource.

We also oversee the injection projects with a separate permit where we oversee where the water is going and the specific testing requirements for injection wells. And we inspect the wells.

We have field engineers that literally go out and inspect the wells to ensure everything is being maintained properly. And then should there be a spill or another environmental incident, we will also investigate that, often in concert with other regulatory agencies.

Next.

So, the map on the left-hand side is actually put together, it's on the California Energy Commission website. If you go to renewable energy and geothermal, and what it's identifying is areas known as non-geothermal resource areas.

And these areas were actually identified by the United States geological survey back in the 70s when they were directed by Congress to study resources in the Western US for development of geothermal energy.

And we continue to use these sites, they're primarily the areas that have been developed. So, up in

Siskiyou County at Glass Mountain, and then of course, all the way down south in Imperial County.

So, then the map on the right identifies the geothermal fields, the KGAs that were identified in the county and not all of these resources have been developed, but you can see where they are actually in relationship to the major faults in the valley and then actually all the way across the border, into our neighbor, Mexico, and their project at Cerro Prieto.

Next.

So, we regulate about 700 high temperature wells, which are wells defined that are above 212 degrees Fahrenheit at the altitude of occurrence.

And then low temperature would be below 212. So, for example, the wells that are in the Desert Hot Springs Area, we regulate those. And there's quite a few of those either at people's homes or spas or being used for agriculture.

And then observation wells, they're observing a reservoir where that's being utilized and then temperature gradient wells are used during the exploration phase, just to determine if there's actually heat.

And again, we do not regulate the wells on and the federal lands. So, the project at East Mesa on the east side of Imperial County, it's east of Holtville just

north of I-8 and just east of East Highline Canal is BLM land and their local officer in El Centro oversees those operations.

Next.

So, geothermal, what does it mean? It's just the heat from the earth and that's what we're doing. We're utilizing the natural heat that occurs.

Next.

So, it gets hotter, the deeper you go. And of course, we're in this just very thin layer at the very top, but pretty much you could drill anywhere on planet earth and at some point, it would get hot. But heat is not the only thing that we're looking for.

Next.

So, why do we have these areas that are high heat like Imperial County? Well, it's all driven by what's called plate tectonic. All of our continents are basically floating around and these boundaries come together.

So, San Andreas, which is moving against itself basically, and then areas like the Pacific Northwest where we have the volcanoes, that plate is actually subsiding underneath a plate, which is why we have the volcanoes like Mount Rainier, Mount Hood, Mount Saint Helens that erupted back in the 80s.

And then you can see Hawaii is actually just a

hot spot out in the middle of the plate with the Philippines, Japan, Indonesia, all have a lot of geothermal energy and it's all driven by the geology of the planet.

Next.

So, Imperial County is driven by what's going on with the San Andreas. So, the San Andreas comes down from the north, comes into the valley, and then at the south end of the sea, it actually splits apart into what's called the Brawley seismic zone.

And so, you have this big, pull apart basin that's full of tens of thousands, potentially a foot of sediment that have filled in this basin over the years from the Colorado River and Lake Cahuilla (if I'm saying that correctly).

And then of course it extends down into the Gulf of California. So, it's the geology and in Imperial County, the San Andreas, that is driving why we have geothermal resources in this part of the state.

Next.

So, how do we find geothermal resources? Well, historically, the geologists would go out and if you find a surface anomaly, a hot spring, a mud pot, a fumarole, then you go, oh, then there's a reservoir at depth.

So, if you've been to Mount Lassen National Park here in California or Yellowstone, it means there's a

geothermal system at depth. And so, historically, this is what they've looked for.

Next.

So, one of the things that we're looking for is heat and a reservoir. So, this picture is actually from a video that Energy Source has on their website. And if you have an opportunity to go watch the whole thing. But this is a video of what the reservoir looks like at their project at the John Featherstone plant, just on the Southeast corner of the Salton Sea.

So, you have a magna source at depth, which is why we have the little volcanoes out in the Salton Sea. And then you have … what happens is this heat source has caused these fluids to circulate and these … so you have these hot fluids now circulating through this rock. It's fractured rock primarily. You have shallow sedimentary rock, more like a porous media when you get shallower.

But the wells at the Salton Sea probably average 6 to 8,000 feet below surface, where they're producing from, and there's wells deeper than that.

And so, these hot fluids that are in circulating have been dissolving these minerals, and that's why we have such high lucrative … I mean, if you took a cup of water at the Salton Sea, a quarter to a third of it would be minerals. So, it's a very complicated chemical project,

which is why this lithium recovery is very complicated.

And so, this is a reservoir, it's a huge reservoir. But the injection of the fluids back into the reservoir are critical to the sustainability of the resource.

Next.

So, we've seen the surface manifestations and so the geologists, they might do geophysical surveys that are like taking like 3D glasses and looking under the ground to look at what the structure is underneath in three dimensions.

We can sample the fluids out of the geothermal hot springs and look at the chemistry. It tells us a lot about what the temperature of the resources at depth.

And then and once we've said, oh, those all indicate there's potentially a geothermal resource here, then we drill a temperature gradient hole. Which can be a couple hundred feet deep to a couple thousand feet deep. And all we're looking for is what is the temperature? How does the temperature increase with depth?

And they're usually very small, maybe even only four to eight inches in diameter. And they do not generally penetrate the geothermal system. We're not looking for fluids at that time. We're just looking for heat.

Next.

So, then we bring in a rig to drill a production well, and this is actually a picture of the North Brawley power plant during construction, about 2006, 7 timeframe.

So, now we're going to drill a well, we're going to drill a bigger well. It could be as big as 16 inches in diameter, or even larger at the Salton Sea to go and find the fluids and go produce them and see will they produce, then what is the true geology of the rocks down at four to 6,000 feet?

Next.

So, we drill the well. Drilling operations run 24 hours a day, seven days a week. It can easily take like a hundred people to support a drilling rig. It's a hard job and you can see the size of the bit, the drilling bit in the upper left-hand corner.

And so, they drill and they run pipe into the ground called casing. They cement that into the ground to ensure well integrity. So, that's the next step. And then next, the number of wells that we need depends on how big the well is in terms of production. So, next picture.

So, this is a well that belongs to CalEnergy. When this well was drilled, it was the largest geothermal well in the world. And when it was first drilled, it was actually capable of the one well of producing 50 megawatts.

If every well was that big, we wouldn't have to drill very many wells, but unfortunately, not every well is that big. So, this was very successful. It's obviously great display, but we can never exactly tell you how many wells there are, because each well will be different. We obviously want bigger is better.

Next.

So, historically, geothermal field development has taken at least five years. So, the contract that Jonathan Weisgall -- or not contract, but the PUC direction to develop a thousand megawatts by 2026 is a lot because there's only currently about 2800 megawatts of geothermal running in the state. And that's been developed over the last 50 years.

So, it takes a long time. For each one of these phases, you have to do the Environmental Quality Act. And then, so you have to do the expiration. You have to prove you have a resource, you have to develop, you have to drill the wells.

You have to engineer the pipelines and the power plant and the transmission system to deliver the electricity. You have to manufacture the equipment, whether it's the electric, the turbine or the generator, or get all the pipe for the wells.

Then you have to build the plant. It could

include roads, pipelines again, drilling the wells, and then building the power plant.

So, it's been, historically in California development has taken, and this is if it's an expedited process -- at least five years.

So, I mean, I'm hoping we have 10 rigs running down in Imperial County like we did in the eighties and to support this whole effort. But it is a very extensive process and you'll hear more about that later.

Next.

So, the technology used for the power plant technology is really based on the temperature of the resource. So, the lower temperature resources tend to use what's called binary technology.

Primarily the other resources in Imperial County are called Flash. And then the plants at the Geysers in Sonoma and Lake Counties, which is the largest producing geothermal field in the world, is steam only.

And it started production in September of 1960, and steam actually flows out of the wells, like an artesian water well, straight to the power plant.

Next.

So, this cartoon shows a geothermal flash power plant, which is what the power plants at the Salton Sea are. So, the hot brine comes out of the well, and a

percentage of that brine is flashed to steam. The brine that's left over is injected back into the reservoir. The steam goes through a steam turbine, which generates electricity that goes out to the grid.

After the steam turns the turbine, it's condensed back into water, and it goes to the cooling tower that can be the main supply for water. And then if there's any water left from the evaporation of the cooling tower, it is also injected back into the geothermal system.

Next.

The John Featherstone plant that energy source developed is a flash power plant. And so, you can see in the background of this picture off to the Southwest, you can actually see the CalEnergy plants there to the Southeast of the Salton Sea.

Next.

So, a binary power plant doesn't use steam. It takes the heat from the geothermal fluid and transfers that heat to another fluid, such as butane or pentane. It's a hydrocarbon that boils at a lower temperature, like 90 degrees Fahrenheit. And that fluid is then what vaporizes and turns the turbine that's connected to the generator.

It's completely isolated from the geothermal fluid. And so, the geothermal fluid, all of it goes back to the geothermal reservoir for sustainability. And then

the vaporized mortar fluid is condensed by water and goes back in a closed loop system back to the power plant.

Because we're not generating steam at a binary power plant, our cooling tower, which for those of you that know swamp coolers is basically a giant swamp cooler. These projects in Imperial County buy water from the Imperial Irrigation District.

If you were at Mammoth Lakes, California, for example, where the ambient temperature is lower, they can use what's called air cooling, which is more like the radiator on your car.

Next.

This is the Heber 1 project, it's operated by Ormat. It's just Southwest of the town of Heber, and it is a binary power plant.

Next.

So, the history of Imperial County, the first project, 1979 was at East Mesa, which is the project on BLM land east of Holtville. And it's no longer there, but there are other projects that replaced it. And then I'll just let you read. So the most recent plant built in Imperial County was 2012, which is the John Featherstone plant.

It had also contained the Simbol minerals pilot project, and then North Brawley that came online in 2008.

Next.

So, the Salton Sea geothermal resource area is very large, but as you can see, at least half of it under the Salton Sea and has been inaccessible.

But now, with the receding of the sea, it's providing opportunity to investigate the resources that that were not available. And it includes IID lands, BLM state lands. There's a whole variety of different land ownership under the sea.

Next.

So, this includes Salton Sea statistics only, not all of Imperial County potential geothermal projects because this is where we're looking for lithium.

So, the current generation is just under 400 megawatts, but depending on which geologist you talk to, there's probably at least another 2000. And as power plant technology improves, that helps as well.

Next.

So, there are a lot of agencies involved in permitting a power plant; Imperial County planting and developments services, public works, if you need a grading plan, for example, to move the dirt, environmental health, Department of Toxic Substances Control regulates hazardous waste, hazardous materials. Of course, CalGEM, the California Energy Commission would do the siding for a

power plant over 50 megawatts.

And then the Imperial County Air Pollution Control District issues a permit. Every geothermal well and every power plant has a permit from Imperial County APCD.

And then the Regional Water Quality Control Board based out of Palm desert issues permits, waste discharge orders for drilling sums for example.

Next.

So, these are the links. We actually have all the public data at geo steam, if you're interested in that and we'll be available for questions later to both the commissioners and the public. And with that, we're going to roll into our speakers.

So, our first speaker will be Jim Minnick. Jim Minnick is Planning Director at Imperial County Planning and Development Services.

After Jim will be Henry Martinez. Henry is the General Manager for Imperial Irrigation District. He will talk about IIDs, electrical and water systems.

And then Susanne Heim, is a principal with Panorama Environmental. And she works with project developers on permitting projects in California.

And I know I worked with the woman that originally developed that company and they have a lot of

expertise in geothermal, and she'll provide some additional insight on permitting projects in Imperial County. Thank you.

MR. MINNICK: Hello, this is Jim Minnick. Thank you for inviting me. I really appreciate it.

Charlene, thank you for giving my presentation. I'll be pretty quick now. Actually, if you go ahead and go forward. Thank you.

Alright. So, Charlene kind of talked upon this. The actual first wells drilled in the county were for carbon dioxide for dry ice.

And then in the 50s, 40s and 50s, they did some exploratory for oil. Finally, mineral was done again, in the 60s. And in the 60s, one of the first plants or wells was the St. Clair Well, and what they ran into was problems with brine. The actual thing we're talking about harvesting nowadays, they actually had a big problem with it.

And so, it didn't work out for them until the early 70s when the very first well was done. It was actually done on BLM land and that was the 10 megawatts that were shown in Charlene's chronology.

And then we really started hitting our stride in the 70s, 80s, 90s to the point where we’re rather robust in terms of our facilities.

CalEnergy at the time in the early 2000s, was the

first to really look back at the mineral potential. When they developed a zinc plant from '99 to 2004, the plant projection was 30,000 tons a year. It was probably a little bit more ahead of the time than anything else.

And then in the 2010s, we saw another resurgence of mineral recovery through the Simbol projects. I'll talk about that a little bit in a minute.

Next slide, please.

Presently, the county has a geothermal transmission or renewable energy transmission element. It's actually the sixth version of it. Our first one dated back in the 1977. This current one is dated 2015, so it's relatively new.

As Charlene mentioned, there are nine KGRAs, and the Salton Sea KGRA is our biggest one. Let's see what my notes say here real quick.

Of the Salton Sea area, there are 11 power plants. The county itself has 20 power plants sites. Some sites like Ormat in the Heber area have multiple plants within one property.

All totaled, it's actually 567 megawatts of base load power that comes out of the county. And as Charlene mentioned, we are the CEQA lead for geothermal projects and we have been processing projects since the 70s.

Next slide.

With regards to what's going on in the future. Currently, we are finishing up a mineral recovery for lithium at the Hudson Ranch site. We just finished the circulation of the environmental document.

So, we are projecting to go before our planning commission, which is the final phase of that process late September, early October. So, we should be able to see that project moving forward.

As Jonathan mentioned, CalEnergy or Berkshire Hathaway are working on two demonstrations. We're working with them on their projects. We also have an up-and-coming project through CTR, Control Thermodynamics who we had a meeting this morning, it's called a pre-application for a new 49.9-megawatt plant.

That's going to be kind of a little bit of a different type of plant. It's using a different methodology for its water. It is projecting to have a lot less water demand. It's projecting to put all of the resource back in.

So, the best way I can describe that plant is it's a flash plant, but it uses more of a binary resource process, meaning that like the Ormat binary plants where all of the brine goes straight back into the ground, the same thing is applicable to there. So, they're projecting a very low amount of water or recovery water necessary.

The other thing that they're looking at, which is different from the valley, currently, all of our plants are built either on disturbed farmland or open desert.

The CTR plant when processed will actually be on an area that was adjacent to the playa or part of the playa. So, they're the first step in going to the former Salton Sea water areas. And so, we're looking forward to processing that project.

We do know that there's some things that we're going to have to address that we haven't addressed in the past, but we are definitely looking forward to that.

Another avenue of direction that we're hoping for is more cogent plants. Right now, we have 11 plants, as we mentioned earlier in the Salton Sea area. All 11 plants are flash plants, flash plants tend to lend themselves better to mineral recovery, just in the nature of how they're structured. But we're also looking to develop additional plants.

The Berkshire Hathaway people have some plants that were permitted by the CEC several years ago, but never moved forward. If those could get reactivated, I know Jonathan's working on that. That could be a real good opportunity for us do a cogent plant, meaning a plant that would be developed through the county in some form with both renewable, with both power plant, as well as a

recovery plant at the same time.

The other thing that we're looking at is unused wells. A couple years ago, we processed a project called GeoGenCo on three wells that were underperforming. They were drilled, they were created for a potential project, but they didn't produce enough resource to make it work.

So, this company is looking at an alternative way of developing more like micro plants at either each one of the wellheads or adjacent to it and generate power in a little bit smaller capacity.

We're thinking there might be a potential for mineral recovery there as well. Regards to new entitlement processes, we are working with the state to see about once again, expanding our ability to entitle going from 49 to ultimately to a hundred megawatts. We're really going to be aggressive in the next couple of months to try to see if we can get that moving forward.

We think that that's better for the development of new plants in terms of economy of scale. We are also looking at ways to streamline or rapid permit our projects. We still have CEQA, we can't get around CEQA, but we do work really hard to make that as efficient as possible. And that concludes my part of the deal. Thank you.

CHAIR PAZ: Thank you. Charlene, will you be calling on the next presenter?

MS. WARDLOW: Yes, Henry, you're next. Are you available to jump on?

MR. MARTINEZ: Yes, I am. Thank you. Thank very much. Thank you, Chair Paz, and lithium commissioners.

I have a presentation here to give you some background on IID and some of the facts that deal with the issue of developing lithium and geothermal here in the Imperial County area.

Can you look on the next page please?

A little bit of background on IID in case you're not aware of our facility and jurisdiction here in Imperial County and Coachella Valley, we're an irrigation district that also provides public power and energy services to Coachella Valley, Eastern Coachella Valley in Imperial County.

We are the third largest public power provider in California, right behind the Los Angeles Department of Water And Power and Sacramento Municipal Utility District.

We're one of eight energy balancing authorities in California, which basically balancing authority means that we're responsible for the reliability of our power system to inject and transmit energy inside and outside of our service territory and maintain stability and reliability for the Western grid.

We also have interconnections for over a thousand

megawatts of renewable energy, geothermal as was presented before from a little less than 600 megawatts. In addition to that, the balance is mostly solar.

Some of this is consumed, some of the outputs consumed internally here within the IID service territory. Majority is exported back into the California ISO and also to the east into Arizona.

As an organization, we have over 3,900 miles of distribution and transmission lines that transverses our whole system and also, we're the largest irrigation district in the nation.

Part of the allocations that we have from the Colorado River as a trustee of 3.1 million acre feet of water is annually diverted from the Colorado River and then also our water services, we maintain and operate over 3000 miles gravity flow of canals and drains.

Next slide, please.

To give you an idea of our service territory, is pretty broad. We're over 6,400 square miles that includes most of, like I said, Imperial County sections of Riverside and also a small section of San Diego County.

The red lines you can see here are major transmission lines mostly 92KV up to two 30KV. And as you can see to the north and to the south, we're connected to the California system operator at Coachella.

In the south, we're connected to CAISO at IV substation, which is Imperial Valley substation near the border with Mexico.

To the east, we connect also to WAPA, which is the Western Area of Power Administration, and then also in the east, the Arizona Public Service or APS.

Next.

So, on demand we serve under 160,000 customers. These are all electric accounts that we have. This last August, on August 4th we reached our historic peak load demand for our system of over 1,100 megawatts. This, by the way, was a temperature of 118 degrees and of course, all the air conditions were running full bore.

The total consumption for 2020 was over three million megawatt hours of consumption. And then the average peak load, like I said before, in the summer, the summer months is over a thousand megawatts. And then we have a reduction of a peak of 500 slide door, 500 megawatts during the winter months. So, basically, we're a summer peaking utility.

Next, please.

As you can see, this is a filing that we do annually to the California Energy Commission, outlining our resource portfolio of energy produced and is broken down by the renewals with 41%, and then the large hydro 5.8, and

natural gas, 28%.

We have a little bit of nuclear from … it comes out of Palo Verde, and then the specified source of power basically is energy we purchase in the market.

So, all in all, we have a very strong position on renewals currently at this point. And we're making also adjustments through the years to meet the renewal for the standard and the goals set by the commission in the State of California.

Next.

So, the Salton Sea known resource area for geothermal, we're the largest land owner in addition to federal government, for the particular area that we're discussing here today, and IID owns approximately 44,000 acres in the Salton geothermal resource area. And this is basically the area in green that you see there.

So, as a landowner and also mineral rights, we're in constant discussions with all of our geothermal partners to define and develop methods of bringing the production to a reality and then also provide the of course, the permits, or at least, the lease agreements that we need to execute to maintain and again develop this rich resource that we have here in the Imperial County.

Next, please.

So, on the geothermal growth, one of the things

that we see with the announcement of the California Public Utilities Commission of a thousand megawatts is definitely an increase in new transmission. We're currently in the process of upgrading one of … it's called Path 42, which is in the Coachella valley area.

This is the connection I mentioned earlier in the Northern part of our system that connects with the CAISO. We're looking at an intermit increase right now of up to 750 megawatts of transfer capability at that note point and we anticipate that that will be completed here by the end of this year.

We're currently in the process of installing the protection systems and commissioning basically, what we call a RAS or Renew Action Scheme that will be installed to maintain the ratings in a safe manner at that point.

And of course, we have opportunities to increase additional capacity on that path, as we have more interconnections approved in our system and can be delivered to the CAISO.

We're also looking at the existing transmission upgrades. As I mentioned additional Renew Action Schemes, which is the RAS. Also, elimination of our underlying 92KV system, which is basically a lower voltage. And we're saying bottlenecking is that we have systems basically that can be upgraded by repowering or re-conductoring and

installing new transmission poles to increase the capacity of those current transmission lines.

And then with that, also a couple with that is the upgrade of existing infrastructure that will provide at the substations and also switch charts, higher capacity transformers, and switches to be able to accommodate additional energy flow through and through the system.

We’re also working with the CAISO as a maximum import capability that we're looking at, at this point, that the CAISO tie line is in matrix four, and then also additional upgrades to the CAISO endpoints, where we provide interconnection points to the CAISO and beyond.

Next, please.

Now let me shift and focus a little bit on the water delivery system. Just to give you an overview, we have, as I mentioned before, we have senior rights on the Colorado River to the brink water of 3.1 million acre feet of water.

This little cartoon depicts the main system that we have for water delivery to the district. On the right-hand side, about middle of the page there, you see a diversion dam and that's called Imperial Dam. This is located right on the Colorado River, where in essence, the water is diverted directly into the All-American Canal.

The All-American Canal flows from the east to the

west and it's the main stand that you see straddling the Mexican-US border.

And then we have three main branches that basically branch from the All-American Canal, that's the east side main, which is the first one towards the middle of the diagram.

There's a high line and then followed by the central main canal. And then to the west, the Western of … can't read it over there. Sorry, it's very small.

But you can see to the west, we have those, the other canal that is also basically used to deliver water to the farming community and the cities that we have to serve.

The blocks that you see on the All-American, those are hydro plants. We have approximately 80 megawatts of capacity and so the river floor, or as the water flows through delivery of water in the All-American, those power plants operate to provide renewable energy into our system and produce clean hydropower.

Next page.

So, to summarize the water entitlement that we have, IID consumption use is cap at 3.1 million acre through the year. The water, we deliver … PID delivers Colorado River water to a little less than half a million acres for productive farmland and also nine communities in Imperial County.

We don't serve water in the Coachella Valley. That is provided by the Coachella Valley Water District. So, all of our water delivery for consumption is in Imperial County.

The consumptive in valley water acre feet of water that we consume is 2.5-million-acre feet a year and this is 99, 2019 numbers, where 2.2-million-acre feet were delivered to farms, 106,000-acre feet for non-ag, which includes municipal, industrial and commercial.

Also, there over about 24,000-acre feet of water conserved. It's available for contracting to new non-ag development on an interim water supply policy.

So, this is water basically that is available for industrial use. And then from that perspective can be applied for any kind of utilization like geothermal or lithium extraction.

And let's see if you have heard, the cutbacks had been announced by the Bill of Reclamation last week to the Colorado River, does not impact at this point our senior rights due to the fact that IID has senior rights equal to some of the most senior rights on the river. And therefore, the drought shortages at this point have not impacted IID or California.

One other thing as you may have heard, the contingency plan that was executed two years ago. The IID

is not a part of this contingency plan? Again, another situation where we're not bound to conserve water.

However, the fact that we see the stress in the Colorado River and the hydrology being not as productive as it has been in the past and declined over the last 20 years.

The district is working very closely with the other states and other water users here in California to establish a very progressive and hopefully a plan that will continue to maintain water allocation and the elevation at Hoover Dam.

Which is vital for us since that is our only source of water for the district. And of course, on environmental issues and the hydro production is required in native California and the rest of states.

Next.

So, with that, that is my presentation. And thank you for giving me the opportunity to talk about the IID. Thank you.

MS. WARDLOW: Thank you Henry. Our next speaker is Susanne Heim.

MS. HEIM: Charlene and commissioners, my name is Susanne and I'm the principal at Panorama Environmental. I'll be speaking today on the environmental planning process for the development of geothermal and lithium

resources in Imperial Valley.

Next slide.

Panorama Environmental is an environmental consulting firm and we're focused on the California Environmental Quality Act, National Environmental Policy Act Compliance. We also conduct all of the environmental studies as been stated with complying with those asks and other environmental permits.

And we're a small women-owned and minority owned company. Our background for over 35 years has been on consulting with geothermal companies. So, we have a large step with backgrounds in the geothermal industry. And we are currently working with Controlled Thermal Resources on planning their projects at the Salton Sea.

Next slide.

Today, I'm going to cover the stages of the environmental review process, and there are multiple stages. Charlene touched on these earlier, so I'll give a little bit more detail on some of them.

At the due diligence stage, which is the first stage of the process, that really starts with like really the very beginning point in which a developer is looking at land.

There is environmental review, even at that stage where they're looking at the major environmental conflicts

or land use constraints that would preclude the development in the area.

So, from the very beginning of our project, up through the environmental studies permitting process, and until the end of the project once decommissioned, there is environmental review.

Next slide.

So, some of the studies that are required for the development of geothermal and lithium resources include biological surveys and assessments. There are also noise, air quality and traffic modeling studies that are conducted, cultural resource assessments and native-American cultural resources are also looked at and surveyed on site.

Water supply is looked at, hazardous material and there's even more resources that are considered. These are kind of some of the typical ones that we're looking at after a site is selected and these are looked at and evaluated prior to, from an application being submitted.

So, the very first phase before and application is even submitted, consultants like myself are out walking the ground, and we're looking at the site and evaluating what resources are on the ground, and then working with engineers to, if possible, avoid resources and minimize impact.

So, that all happen even before an application is filed.

Next slide.

And then when an application is filed, there's actually multiple applications. So, there are multiple stages of review and multiple agencies that have jurisdiction as Charlene talked about.

So, for CEQA, the lead agencies will either be the California Energy Commission. If it's a geothermal project that has net generation greater than 50 megawatts or Imperial County is the generation is less than 50 megawatt.

At the federal level, there are several agencies, resource agencies that have potential jurisdiction. These include the US Army Corps of Engineers who have jurisdiction over waters of the west. US Fish and Wildlife Service have jurisdiction over federally freshened for endangered species, and Bureau of Land Management who has jurisdiction over any lands that are federally administered by the BLM.

And so any of those agencies would require permits if you're impacting their resources or working within their land and they would even be the lead agencies.

And then at a state and local level, there are also other permits that are required. So, as Charlene

talked about, the CalGEM has the permitting process. The Department of Fish and Wildlife may have permits required if there are states for endangered species on the site, or state waters of the state that would be impacted.

The Water Board has several permits that are typically required for geothermal projects and if there are water state onsite, they would also have a permit for that. And the Air Pollution Control District has permits that are required for air quality management.

In addition, the Imperial County has other local permits that they would administer beyond CEQA.

Next slide.

So, I know this is too small to read, and I didn't intend for it to be legible. I just wanted to give you a big picture overview of the process and what it looks like.

So, when you're working in this process, this gives you an idea of the CEC process where multiple permits are being ran in parallel. And it gives you an idea of the number of agencies and permits that are required when you're working from the developer side and working from the planning side.

So, there's a lot of steps. There are a lot of steps of environmental review, and there's also multiple opportunities for public input throughout the process.

So, the developers may do their own outreach even before they get to the permit process. And then once they engage in CEQA, the CEQA process includes scoping and includes public review on draft document and there's public hearings that are involved as well.

Where lithium is added onto a geothermal facility and there's no new geothermal power generation, the CEC would not be involved and there may be fewer permits required.

Next slide.

As Charlene talked about, there's an opportunity for intersection between the Salton Sea receding and within a geothermal power generation, because the areas where the Salton Sea is receding overlaps with the KGRA.

This creates an opportunity for the lithium and geothermal power generation to potentially support best control efforts and really work in tandem with the state on management of habitat because the irrigation drain runoff that is happening throughout some of these areas has created wetlands that in these wetlands, you see a lot of invasive needs as well and the areas need new general management.

Next slide.

And then the last stage, and this is really the longest stage of environmental compliance, is mitigation

monitoring and monitoring and reporting throughout the project life. So, even though the permits have been obtained, the environmental compliance continues throughout the life of the project.

There's monitoring during construction and reporting during that process, and then throughout the project life and into decommissioning, there might be site inspections and various environmental reports that need to be filed.

So, even though you've already constructed a project, it doesn't mean that environmental is conceived. It’s something that goes from the very early stages of a project, where you're first considering where to locate and how to locate a project up through the end of the project life.

Thank you so much.

MS. WARDLOW: Thank you, Susanne. I think that was great. Everybody pulled together a different piece of the puzzle.

So, we're going to go into our panel and we have questions that were posed by the commissioners that we will try to address. And so, kind of based on this subject, there could be a specific person that answers it. And then again, there'll be a Q&A later if there's other questions from the commissioners.

So, the first one actually I'm going to target Jim Minnick first on is what's the difference in the land use between a geothermal power plant and adding a lithium recovery facility? For example, are there additional wells or pipelines or buildings?

MR. MINNICK: What is the difference between adding one on?

Well, mining into some degree is permitted with a use permit within the same area the geothermal plant is. And so, we would treat it fairly similar in terms of a CUP and some type of connected piping from one building to the other.

Sometimes it will be on the same site if there's enough room or it might be on an adjacent site. So, we're not going to really treat it any differently. It should be smoother and quicker, but it will be connected to that plant.

MS. WARDLOW: Okay. So, because often they'll just add it to an area that's already disturbed?

MR. MINNICK: We're going to assume it's going to be one or other. Either it's going to meet within the fence line of the disturbed physical plant. Some of these plants sit on 40 to 50 acres. Some are constructed in such a way that they didn't anticipate, and they need use additional land on the other side of the fence. So, we

would treat it fairly similar.

MS. WARDLOW: Okay. Susanne, do you want to add anything to that?

MS. HEIM: Yeah, I think I'll just add that, you know, the difference when you're just adding on the lithium facilities is that you already have the power plants. So, it's it's really looking more like just adding on the facility at the building with some types going in and out. If someone was to look at it from this area.

MR. MINNICK: I think I'll add to this as well. Part of the unknown about lithium extraction and we've played with it on different projects over the years, is everybody has a different approach.

And so, from a CEQA review, it's really that approach that is going to be a variable between how you permit one versus the other.

For example, if I permit a flash plant or a binary plant, I pretty much know what I'm doing. I've done those enough. There's not a lot of change.

In a binary plant, you might have a different resource. It might be like, you said, butane, it might be isopentane, some of those types of things. But for the most part, it's structurally the same.

Flash plants are also the same, but so far, every lithium one we've done has had changes and differences.

So, we haven't found that commonality yet. So, yes, pipes into a building, pipes out of the building. What's going on in the building is the variable, and what types of resources you have to add to do that extraction.

MS. WARDLOW: And I might just add from the well field side, it doesn't require more wells. You're basically taking the geothermal brine and you're detouring it to remove the lithium particles, which are, I don't know, parts per trillion or parts per billion. It's like a drop in the bucket, so to speak, based on the amount of water that's processed through these systems.

And you're detouring the water over to remove the lithium, and then it's going back into the wells. So, from a well field perspective, it adds piping to go to where the lithium recovery is, but it doesn't affect the number of wells or the fluid recovery process otherwise.

So, this next question is kind of just an extension and Jim, you've already touched on it a little bit. How is the permitting different for the geothermal power plant versus the lithium recovery? Anything you want to add on that?

MR. MINNICK: Again, it's not so much that it's different. It's just that we haven't done enough of it to understand the whole complexity.

For example, there is going to be a waste stream

and how you handle that waste stream, whether you filter cake it and put it into an existing landfill, or whether you try to figure out how to put it back into the pipe and run it back into an injection well -- once we figure out what they're doing with it … I mean, all pieces of what I just said happened at a geothermal plant.

It's just a matter of concentrations and what the proposal is. We used to think it was okay, you dip a spoon into the stream, you pull what you want, you throw it back into the stream. It's not what every one of them are doing.

So, once we figured those things out, then we have a better understanding.

MS. WARDLOW: And do you want to just quickly speak to the zoning in these KGRAs? I don't think we touched on that.

MR. MINNICK: The zoning in the KGRAs, what happens is we have a general plan element that has developed and a renewable energy overlay.

And if you're within the renewable energy overlay, then the zoning applies to it with a CUP. So, whether it's an Ag zone or an open space zone, as long as you're within that overlay, we automatically assume the resource is there and we permit it as an allowed use with a conditional use permit.

MS. WARDLOW: Thank you. So, the next question I'm going to address first had to do with mineral rights and royalties. So, whoever owns the land, whether it's IID, a private farmer, the federal government, they will have a lease with the geothermal operator.

Sometimes the geothermal operator may own the surface and or the mineral, but that's not the majority of the land. And so, I did speak to both the State Lands Commission and a private developer about the leasing provisions for mineral specifically.

So, they currently pay royalties regardless of who owns a land for … it's called the percent of gross proceeds of the power plant generation. And then they have separate provisions in their leases for mineral recovery.

So yes, there will be royalties paid to whoever the land owner is, the mineral owner for the property.

The next question and Susanne, do you know anything different specifically about the federal lands?

MS. HEIM: All lands work the same. And so they all don’t have their kind of rules on royalties associated with mineral extraction.

MS. WARDLOW: Okay. And then Henry is going to address water. He touched on it in his presentation a little bit, but he's going to talk a little bit more about how the interim water supply agreement works for industrial

users.

MR. MARTINEZ: Yeah, certainly. Thank you, Charlene. And yes, a couple of points I just want to clarify, and I think there's been a misunderstanding of where the water source for the geothermals come from or process water, and it's not the Salton Sea. It is coming from the Imperial Irrigation District.

As I mentioned before, the aspect of the water allocation has been set aside by the board to provide for industrial water. It has been established at this point and in essence, the process is for the developer to apply for a water requirements, depending on what they need, or they are going to require it to use for their processes.

It's a normal application that will come through our water department. It would be assessed and then of course, based on the water that's already set aside for that purpose, it would be provided accordingly.

I do want to mention a couple of things that I … I mentioned a drought issue in my common surveyor. The water rights themselves become kind of a stable point that because of our seniority in the water rights, it is a safe harbor per se, that we have at this point, all contingent upon of course the molecules being available for delivery of water.

And the second element that I also want to

highlight is that there's an equitable distribution plan that is in play that was determined, or at least generated some time ago to determine the allocation of water in such cases, if there are shortages of delivery of water to our system.

The EDP, equitable distribution plan is under review currently. We're planning to have something back to the board for adoption later this year that will basically address some of these subtle issues in regards to water allocation and water availability.

But in essence, again, the water aspect is coming from the Colorado River, running through the Imperial Dam to our sources of water and distribution of water systems. So, that's in essence where we see the situation with the water availability going forward.

One other thing that I mentioned in my earlier comments are the water transfers. We are transferring water to San Diego County Water Authority annually. We have a contract with them to divert water or deliver water to them through 2048.

We also divert water from our location to the Coachella Valley Water District. The volumes are roughly between those two, about 300,000 acre feet a year. And then we have miscellaneous, other water that's also made available to Metropolitan Water District. And some other

minor transfers as well.

This is all work in the water allocation that we have currently. And again, the majority of this water is for the farmers. So, they use for irrigation. However, the other water still can be distributed and will be distributed with the industrial needs going forward.

MS. WARDLOW: Thank you Henry. So, then next question has to do with best practices for permitting. And I showed you a timeline of how long it's historically taken, and we've kind of all touched on different phases of permitting and all the different reviews that are required and all the different agencies that are involved.

Jim, can you talk about permit streamlining or how paralleling permit processes -- and I know Susanne will also speak to that after you give your insight on that from the county's perspective.

MR. MINNICK: Sure. The county recommends and suggests, or however you want to say it; anytime possible for developers to parallel their projects.

What I mean by that is a lot of times developers will do things more in tandem. They'll get the entitlement first and then they'll go and do their engineering, and then they'll get their building permit or they'll get their regional water quality control permit or whatever it is.

We recommend that they actually start the process

on all fronts at the same time.

So, for example, in my office, if you want to build a geothermal plant, it could take quite a bit of time to engineer and go through the building permit process. But if you start at the same time we're working with or relatively shortly after we start the CEQA process, that can be all done and ready to go. And once the entitlement has been completed, they can turn around and get a building permit right away.

Same with an air permit, same with Army Corps permits. There's a lot of permits that you can start the process, get to a certain point, get clearance with your CEQA or your local permitting, and then finish off. And we recommend that because that's shortens, a quite a bit of time.

MS. WARDLOW: Okay. Thank you, Susanne would you like to add to that?

MS. HEIM: Yeah, I'll put that and another good practice is to have the environmental and engineering working together very closely.

So, when you're at the very early planning stages and you're conducting studies and evaluating resources, if there's a way to minimize impact by maybe relocating pool or moving facilities a little bit, that helps to reduce the amount of commitments that are going to be on the backend.

Also, I do agree with Jim about moving things in parallel and having a very well-defined project. I think sometimes there's delay because either the project changes and that results in the need to do new analysis or changed analysis. So, having a good understanding of what the project is at the front-end will lead to more streamlined permit process.

MS. WARDLOW: And I think for example, Jim mentioned that they just had a pre-application meeting with Controlled Thermal Resources on their 49.9-megawatt project. And I know CalGEM participated in it. It's an opportunity for the developer to get early input from the agencies on things that they maybe need to be looking at.

I will say just a difference between, at least my experience with the county, a county siting process versus the Energy Commission -- the county will submit an application to them, a conditional use permit application to them, and then they will hire a contractor and environmental firm to prepare the environmental document.

And so, then that goes through the … if it's a draft, EIR and it goes through that process. The Energy Commission process is the functional equivalent of CEQA under the Warren-Ahlquist Act. But instead, the applicant basically prepares the equivalent of an EIR upfront. So, you do all your surveys upfront and you submit that to the

Energy Commission for review.

They do have data adequacy requirements, and it helps even with any agency to meet with them early on to find about is there a species of concern or is there some specific issue to look at.

But then the Energy Commission publishes their own document also after looking at it, but they don't hire a consultant to go do other surveys, for example.

And they also have a statutory deadline of one year, once your application has been complete. So, it can take though, like a year to even prepare your application because if you need to do nesting surveys or botanical surveys, for example, and you miss the spring nesting or the spring bloom season, you potentially have lost a year.

So, it's very important in your timing to think about all the different things you need to do for potential mitigation down the road. Go ahead.

MR. MARTINEZ: Charlene, yeah, can I add just a quick comment following Jim's suggestion and advice on parallel planning and application permits and all that.

It’s not to overlook the need to also request interconnection agreements for their facilities. This is a process that is well-understood.

However, as I mentioned before, the transmission capacity service to get the transmission out of any power

outside of the district is going to be something we have to really evaluate with time. System studies have to be conducted.

As I mentioned before, if electric systems have to be upgraded or modified, that equipment has to be also ordered. And unfortunately, that's not something you can buy off the shelf. Typically, those take us a long time or a lifetime to get them not only ordered but delivered.

And of course, the applications are also required if transmission operators are required in certain areas. So, not to … looking at the inside of the fence is great, but also look outside the fence as to what's it going to take for that energy to be transmitted outside or brought into the facility for lithium or geothermal?

MR. MINNICK: Can I add to that? Henry is absolutely right. Additionally, what we've been finding lately is that a lot of times, either a new gen tie line or an upgrade to an existing IID structure needs to be done. And the sooner you can get in with the IID, the easier it is for us to incorporate those modifications with the CEQA document. So, I agree with Henry's assessment.

MS. WARDLOW: And I'll just from the other side of the power plant, actually would be looking at interconnection to actually deliver the electricity out.

But my understanding, at least with one operator

that's looking at a lithium recovery project, they actually are going to do a Power Purchase Agreement with IID specifically to buy electricity from IID's system to deliver electricity for lithium projects.

So, you've got power out and power in. Basically, that's two different contracts in that regard.

So, just to close out this panel, do either Susanne or Jim or Henry, do you have anything you want to add that can make the development successful for these companies that are looking at developing lithium on geothermal resources?

MR. MARTINEZ: Well, if I can add just from IID's perspective, as landowners and also as service providers for both water and energy, the sooner we can have discussions about the plants that are being developed or proposed, can help our planning purposes and resources to meet the timeline of the schedules are being considered at this point for delivery of those products whether it be energy or lithium.

We have in essence, a lot of internal planning we have to do ourselves, both on water and energy and the sooner the better in essence to get those supplies out and communicated and coordinated with our staff here will be beneficial.

MR. MINNICK: I can add or reiterate a couple

things real quick.

Charlene, you mentioned the pre-application meetings. We do have these. We recommend them quite a bit. They're free. Essentially, an applicant could come in with a concept and we would go out and request different departments to come and sit and listen to the applicant in one shock. And then from there, the applicant could modify their project or move forward with submitting their actual application.

So, it's a free service the county provides and we utilize it very well. I strongly recommend.

The other thing I would like to reiterate is what Susanne said, which is that a complete project that doesn't have a lot of modifications will get you through the CEQA process the fastest.

Projects that are kind of vague, written on a notebook, thinking that they kind of want to have fluidity to it, always costs more time and money. So, we recommend that you really think through your project before you submit it.

MS. WARDLOW: Thank you. Susanne, do you have anything you want to add to that?

MS. HEIM: Also, that from my perspective, working with the agencies, things like the application meeting and regular communication throughout the process

during early planning always leads to faster approval, just because you have a mutual understanding of what's happening and having that combined understanding of the project and the process, it’s helpful for both parties.

MS. WARDLOW: Yeah, sometimes too the engineers on your own team, you have to tell them that once the application is submitted and deemed complete, they don't get to tweak it. They're always trying to make it perfect. It was like, no, no, no, not a must.

So, I think that closes out the panel. And so, Elisabeth, I believe we'll turn it over for Q&A from the commissioners.

COMMISSIONER SCOTT: Excuse me. This is a Manfred Scott and I had a question. And my question is for Susanne Heim.

For the environmental studies for the cultural and tribal cultural resource surveys and assessment, is there going to be a consultation letter given out to tribes so they can have their input into it being that there's a AB52 and then a section 106 consultation of the NHPA, or the Natural Historic Preservation Act.

So, since this is federal state and county, so is there going to be consultation letters given out to tribes for their input or consultation?

MS. HEIM: So, I think I can start, or Elisabeth

are you answering? Sorry.

MS. DE JONG: Oh, no, no. Go ahead.

MS. HEIM: So, there is consultation involvement on AB52 or section 106, depending on which agency is leading the permitting.

The developer can do their own informal outreach to tribes as well in advance, but the formal consultation will be led by the people lead agency, whether that be the CEC or the county under AB52.

And then for section 106, the federal lead agency is responsible for people being the tribes. So, those processes will be conducted for each project.

COMMISSIONER SCOTT: Okay. Yeah, because early like you see in environmental studies, they do like to be informed a lot earlier than when everything is starting to … the project starts to move on and then they get informed really late and they want to try to be informed ahead of time, so that they can have their input. So that was just the only comment that I had.

And that said, I have another meeting to go to, so I'm going to have to sign out.

CHAIR PAZ: Thank you Scott, for your question and for joining us today. We'll see you at the next meeting.

And before we continue with Q&A, maybe we take a

five-minute break and then we'll come back and take questions from the Lithium Valley commissioners.

So, we'll be back at, what would that be? 3:27, something like that. Let's say 3:30. Okay. We'll be back at 3:30.

[Break 01:53:12 to 02:00:37]

CHAIR PAZ: Welcome back everyone. We will resume our meeting by opening the floor for any questions from the Lithium Valley commissioners. So, if at this point anybody has ask questions for our panelist, you can use the raise hand signal, and then I will call on you.

Steve Castaneda?

COMMISSIONER CASTANEDA: Yeah. Thank you, Madam Chair. I appreciate that and I am the new person on the block here. And so, I'm at three, I think it's my third meeting. And so, if this is something that's been talked about previously, I apologize for kind of rehashing that.

But it seems to me right now that there is, at least from this discussion -- and thank you very much to the panelists. Obviously, there are environmental and regulatory processes that are activated once somebody comes in the front door and wants to build a geothermal plant. Obviously, the extraction element of these plants adds a new dimension.

And so, I guess for me to kind of understand our

role, what is expected to us at the end of this process, as well as what is actually going to happen out along the shores of the Salton Sea – has there been a has there been any kind of calculations done on what could be supported in terms of new plants that would in fact be equipped with extraction capabilities?

Where kind of they would be located, what the footprint of those facilities would be. And just, you know, again, I have a planning background in physical residential commercial and industrial type development. And so, typically these things are done with a general plan. You kind of have an understanding what is capable and it's very visual.

So, I know that we're at the very front-end of all of this, but I'm just trying to understand; is that sort of work been done yet, or at least have we been exposed to those concepts and what that possibly could be going forward?

MS. WARDLOW: So, I'll start it off and then let someone.

So, Jim Minnick spoke to the geothermal overlay zone for the Salton Sea KGRA.

COMMISSIONER CASTANEDA: Right.

MS. WARDLOW: So, the land is zoned for geothermal, which includes mineral.

So, traditionally what's happened is the companies will have, we call a land, man land person, whatever -- will go out and acquire the leases for the mineral and the surface. And so, that's the first part, I guess it wouldn't be that much different from a housing developer going out and acquiring land, but this includes the mineral.

And so, it's really incumbent upon the company. You know, the geologists usually will come to the land department and say we're interested in this acreage to develop this type of project. And then they'll go to whoever the landowner happens to be, whether it's IID or a farmer.

If it's BLM, the BLM has actual, a leasing process that they have to go through. So, it's really incumbent upon the developer to figure out from their geology staff, where they want to do a project.

COMMISSIONER CASTANEDA: Okay. Okay, well, thank you, Charlene. And you're right. That is very similar. So, I guess the question is, this is probably where I'm not completely sure because I haven't really worked in this kind of field before, but I mean, do we know what the capacity is?

I mean, we know where the overlay is. We know how many acres. I mean, do we have a feel as to what in

terms of what terms of generation can be supported on the land? To what extent can the extraction be supported?

So, I guess that would be my question. We know that there's leases and there's lands and there's processes, but at what point do we say the 50th person, okay, come on in, the 51st person … we're starting to run to saturation here, or what's under the ground may not support what's being extracted.

So, it's an oversimplification, but I'm just still trying to understand the lay of the land.

MS. WARDLOW: Well, I'll give you a brief of what I've seen. So, when I showed you that picture of that one well that could produce 50 megawatts.

COMMISSIONER CASTANEDA: Right.

MS. WARDLOW: Okay. But Jim Minnick happened to mention a company called GeoGenCo that is looking at a different technology to extract the heat only from wells that were uneconomical.

So, a developer rule, if they just say, well, we're going to do a 49.9 net plant, we know we need this much resource. We need this many gallons of water or steam to run the power plant; the fewer wells, the better.

But to be honest, it's not uncommon to believe you've got the fractures and I mean, that's why the geophysics and everything is so critical. But really until

you drill the well, you don't honestly know exactly what you have.

And I mean, Jonathan's been in this industry longer than me. He may have some other input into that, but you always hope you can drill fewer wells. A well in Salton Sea costs 15 to 20 million per well.

You hope that … fewer is better because it impacts the economics of the project as does the Power Purchase Agreement. And so, the lithium is of course a different piece in terms of what that adds to the economics of a project, but the fewer the wells, the better in terms of the economics of the project overall.

COMMISSIONER CASTANEDA: Okay. So, you're answering it. So, I was just kind of interested and I did see all the graphics and I kind of understand a lot of that. But exploration is we really going to dictate what exactly is capable there and what's feasible of course.

And I think our role to a certain extent, at least from what I've been told, and what I've read is that ours is to understand the environmental consequences that may come from a lot of that exploration and development as well.

MS. WARDLOW: Right. So, you go in and you develop, you permit an exploration project and you go in and drill the specific acreage that you have.

But I'll just say from my experience, we would try and permit what we envision to be the well field for the life of the project so that it could be analyzed basically from cradle to grave for the entire project, because CEQA does take a long time.

So, if like, let's just say we had permitted six wells, and then we find out we need one more, well, then we've got to go to CEQA for of that well, whereas if you covered it from the beginning for the project, and we know the complete layout for just say, you know, 50 acres, a hundred acres, whatever it is; then you can analyze the project at total from the beginning.

COMMISSIONER CASTANEDA: Okay. Thank you, Charlene.

MS. WARDLOW: Thank you.

MR. MARTINEZ: Charlene, the big picture in the cities have been conducted in the area there's a potential of over 2000 megawatts developable geothermal.

Some of those fields are still underwater at this point, they're below the surface because they're below the Salton Sea.

And this is one of those issues of the potential versus development, real development is going to take time to kind of get to those fields where conceivably the most, the richest source of geothermal may be available to mine

or to explore.

At this point, you know, drilling under water is going to be not only expensive, but also maybe more difficult to do because of the environmental issues. But that's kind of the big picture is about 2000 megawatts of new renewable energy that can be tapped in this resource.

COMMISSIONER CASTANEDA: Okay.

MS. WARDLOW: And I think the technology affects that. So, back in the 80s, when the development first started down there, the binary technology didn't exist. And so, I mean, there's geothermal resources as shallow as several hundred feet, but they're very low temperature.

And so, as the technology continues to improve on the viability of generating with lower temperatures or the drilling technology improves to drill deeper or geophysical techniques continue to improve.

So, I think just even in terms of the geophysical techniques that have become available in the last 20 years, that are giving us much better capability in seeing what's under the ground, especially looking for fracture networks.

All of that helps to improve viability of all the projects, but potentially increase the opportunities to use. So, the Salton Sea, if they're using a 600-degree resource, I don't know that that 2000 megawatts includes for example 300 degree F resources, because that wasn't

traditionally what was considered viable.

COMMISSIONER CASTANEDA: Right. Okay. Yeah, I guess that that's kind of the issue and what I've been exposed to is there's so many technologies. I come from the water world and so Mr. Martinez, I mean, look at desalination.

You know, 20 years ago it was a goal that was way too expensive and completely infeasible. But today, the RO technology and everything else has gotten so much more advanced, it's more feasible. It's smaller footprints and less basically discharge.

So, I guess we've heard a little bit about these technologies, but this is a book that keeps playing out, I guess. So, I appreciate your response.

CHAIR PAZ: Thank you. Rod, I see your hand up and after you, Jonathan. So, I don't know if maybe you have something to add to the previous question, or you may have a question of your own. Rod?

COMMISSIONER COLWELL: Yeah. Hi Steve, I could probably weigh in and Jonathan would probably do the same. But as an inferred resource, the geothermal brine body field is about approximately 15 million tons in solution, not in the rock, if that makes sense.

So, I mean, in a resource capacity on an annual basis, up to 600,000 metric tons per year. So, it's an

enormous if you think about global demand being 2.4 to 2.5 million tons by 2028, Salton Sea certainly has the capability of producing pretty serious percentage of global markets.

And that matches perfectly the way the geothermal … Charlene mentioned earlier there, but now, arguably or further two gigawatts of development potential, arguably up to another … could be another up to two and a half to three.

So, it's a big, big body. It's about 220,000 acres of total brine body, but it's concentrated with the Salton Sea field, is 4.3 kilometers thick. So, it sort of concentrates into that approximate 30,000 acre of the Salton Sea field is where it's permeable, where the brine is accessible and where it's very, very … the shallow crust. And you need heat permeability to get both.

So, I hope that helps with your question and I'm sure Jonathan can weigh in on that.

CHAIR PAZ: Thank you Rod. Jonathan?

COMMISSIONER COLWELL: Thank you.

COMMISSIONER WEISGALL: Oh, just a couple of more points to add. I mean, I think I mean, Henry, you nailed the key point, which is the size of that reservoir of about another 2,000 megawatts.

Steve, let me just give you the perspective from

one developer, from CalEnergy, Berkshire Hathaway Energy.

Our first goal is to develop lithium recovery from our existing 10 geothermal plants. Not to do anything new. That's about 345 megawatts, and these are plants that are as much as 35 years old.

So, we've been running the geothermal plants for a long time, and we've been processing that 50,000 gallons a minute a brine for 35 years.

We just have not seen the market for the lithium recovery from that brine until recently. If we're successful just with our existing plants, we could see recovery of about 90,000 metric tons and that's a world market today of 300,000. So, again, very big number.

Now, Rod is also correct though, because every analyst will tell you that that demand for lithium will increase at least five or tenfold by the end of the decade. From our company's perspective, we could look at doubling our capacity at least. So, that would mean going from 345 megawatts of geothermal power up to close to 700 and doubling that 90,000 tons.

What are the limitations? Well, one of the limitations is you need a Power Purchase Agreement for your geothermal power. And Charlene also made a very important point. It's a tough industry, as she said. You can spend 15 million on an exploratory well and lose your shirt.

We, as a company, have spent over 34 billion developing wind and solar. And I will tell you, it is a heck of a lot easier and a lot less risky to build a solar farm or a wind farm.

You know, for a wind farm, you measure the wind already. You've got that information and the solar information you've got, we can build those facilities with a much higher degree of certainty on cost and much less risk.

Geothermal is definitely tricky. But those are the basic parameters, but I will tell you, it will be a major challenge just to get that lithium developed from our existing plants. But if the market conditions are there, both for lithium and for the purchase of geothermal power, I've given you a rough idea of where we think we could go and that's well within the capacity of that reservoir as Henry pointed out.

COMMISSIONER CASTANEDA: Great. Thank you. Thank you, Jonathan.

CHAIR PAZ: I don't see any other hands up but I do have a question.

So, in one of the things that we are tasked with doing is to explore the actions that will support the further development of geothermal power. And I think this can be seen in maybe two different ways. One, new power

plants, and I think the actions from the CPUC is one great ways in which we can further geothermal development.

But the other way, perhaps is seeing whether, and maybe to Jonathan's comments, whether the existing geothermal plants are at capacity. Are there ways in which they can increase the capacity or the power that they're generating? I'm not sure.

So, my question is what actions are needed besides the announcement by the CPUC -- what else is going to help us maybe get closer to the potential 2000 megawatts that Henry mentioned? What's going to help us secure those Power Purchase Agreements? What's going to help us increase the transmission lines that are needed?

Those are just a few, I mean, questions all in one, but anyone who has answers.

MR. MARTINEZ: Well, if I can maybe take a stab at it, Commissioner Paz.

So, I think you brought up two -- and Jonathan had as well, the PPAs definitely help become the economic investment, justified economic investment to invest in either a new power plant or a repowered power plant, because in essence, that secures that capital, the cash flow that you need to pay for the loans or whatever investments the developer needs undertake financially.

That also coupled with the aspect of really

taking a look at the mechanisms in the ways physically that energy will make it to the recipient of the PPA, is going to be a key aspect from my perspective.

And this is where I think the nexus comes together between us as an energy provider and transmission source of provider to the developer that will connect to the CAISO. And then therefore, the CAISO then takes that energy and delivers it to the ultimate power purchase counterparty.

And that's one of the links that we were trying to figure out how to streamline that effort, because there are two protocols that have basically taken place in conjunction, but it all comes together basically, so how to get that energy to the PPA buyer.

We can, again, build our system connected directly to the CAISO investment transmission. But then ultimately, the CAISO has a responsibility to deliver that power to the buyer.

And this is where we're going to have to really integrate the queue process of developers that may have already committed or been granted capacity on existing transmission lines.

And I'll give you a good example. We had a discussion the other day about Path 42, very popular nodal point for injection into the CAISO system. But that power

needs to flow basically from Path 42 in the Coachella Valley due west into the LA basin.

And even though there have been upgrades provided on that particular path heading to LA, in many cases, that capacity may have already been spoken for because there were other early movers of solar and other systems of biomass that may have taken off capacity already.

So, the question arises, if you now want to inject additional capacity to that path, how do you accommodate when the capacity's already been allocated, excess capacity been allocated for previous developers.

Similar ratio occurs in the Southern part of our system where we can inject the power into the CAISO system of Imperial Valley substation. But then again, you got the same issue of moving that power into the load area, which is the LA area, Southern Orange County Los Angeles area.

And again, you got an issue with constraints in being able to move that power into the area because of transmission congestion. And then the CAISO needs to come up with solutions to basically accommodate that flow of energy into the system.

So, you got two issues. One is the injection point. The other one is the aspect of actually creating capacity for these new thousand megawatts of geothermal that can be injected in there.

And so, we as IID, we're working closely with the CAISO to figure out how do we fix that puzzle because it is a transmission issue and it is also a work mandated queue that basically establishes transmission mine priorities.

We got little too long-winded on this issue, but it is a little complicated in regards to figuring out the pieces that are going to facilitate the thousand megawatts of new capacity.

And in turn, as Jonathan early clearly stated, the PPAs for them is going to be crucial. They have to sign up customers and be able to secure a Power Purchase Agreement to be able to move forward with the investments that they need to make this a reality.

So, I'll stop there.

CHAIR PAZ: Thank you Henry. I think it's really important that we understand all of those issues as we're moving forward to trying to be able to deliver on more geothermal and lithium if possible.

MR. MARTINEZ: Yes.

CHAIR PAZ: Luis Olmedo.

COMMISSIONER OLMEDO: Yeah. Hi. Thank you, madam Chair.

Just out of curiosity, I know Jonathan, Commissioner Weisgall, you mentioned that Berkshire and the expenses that goes into building new geothermals. And I'm

just curious how many geothermals has Berkshire built in Imperial County?

COMMISSIONER WEISGALL: 10. 10 geothermal plants.

COMMISSIONER OLMEDO: It built them from the ground up?

COMMISSIONER WEISGALL: No. Oh boy, this goes back to the 1980s. The Magma Power was the original company that had some plants there already. Others were built under PURPA, the Public Utility Regulatory Policy Act of 1978.

CalEnergy came into being around 1988, 89, give or take, and did purchase those Magma Power facilities. So, not all of the 10 have been built by CalEnergy.

COMMISSIONER OLMEDO: So, how many were built by CalEnergy?

COMMISSIONER WEISGALL: Oh, I'd have to go down the list. I could get that for you at the next meeting.

COMMISSIONER OLMEDO: Okay. Thank you commissioner.

COMMISSIONER WEISGALL: Sure, sure.

CHAIR PAZ: Any other questions?

Okay. Well, I, again, want to thank Charlene and Jim, Henry, Susanne for the information today as well as our commissioners who worked with the CEC on preparing for

the workshop. I think it was Ryan Kelley and Luis Olmedo. So, thank you. And we will close this section.

COMMISSIONER WEISGALL: Sorry, one quick point. One quick point.

Following up Henry gave a good description of the IID transmission process. Just a suggestion for us as a commission; it might be useful at a meeting to hear from CAISO on their challenges and where they can see geothermal fitting into their expansion plan, their reliability plans and the like.

Because the CPUC order, it's a mandate now. It is ordering that procurement. So, the question, it's one thing and Henry articulated this quite well, it's one thing for a geothermal developer to get the power out of across the Salton Sea, either east, west, north, or south within the IID territory. But then what are the challenges of interconnecting to CAISO?

So that may be one more piece of the puzzle we might want to think about for a future presentation. It can get pretty technical as you saw, but it still might be useful.

CHAIR PAZ: Thank you Jonathan. And Commissioner Aceves has already also reached out to myself and Elisabeth, so that maybe we can plan a workshop, an understanding more of the infrastructure issues that come

along with the CPUC order and the opportunity.

So, I think this is something that we can continue working on and seeing how we can bring it to the commission. Thank you.

Are there any other … I think Ryan Kelley has something.

COMMISSIONER KELLEY: So, thank you. So, you touched on it. I'm very interested in … I know we've asked about the utility commission would give presentation, and I know that we defer to see if Commissioner Aceves was going to be able to brief us on it.

But I'd still like to see that added in addition to what Jonathan's request is, so that we can hear the interpretation of staff and how the IRP is moving forward.

CHAIR PAZ: Thank you Ryan. Okay, we will now open to public comments.

MS. DE JONG: Alright. Thank you, Chair Paz. If you're joining us by Zoom on your computer, please use the raise hand feature. And if you've called in, please dial *9 to raise your hand and then *6 to unmute your phone line.

We'll start by calling on folks with the raised hands and move to the phone, and then the written comment.

So, the first commenter George Kenline, you should be able to unmute yourself.

Aright. I'm going to try to come back to you, George. I did see that that comment was submitted in writing as well. So, we might read that if we can't get you.

John Hernandez, you should be able to unmute yourself. Okay, hoping for a hit on this one; Vijay Dhar you should be able to unmute yourself.

MR. DHAR: Yeah, can you hear me?

MS. DE JONG: Yes.

MR.DHAR: Yeah, I have two questions, actually. One is for Susanne and this is about the previous meetings, there have been a lot of comments about permitting process being complex and different and so on.

And I was actually wondering whether … we didn't talk too much about streamlining and how that process is changing or has changed, or is going to change to address some of the concerns that were kind of raised by Rod and others in the earlier meetings. I wanted to kind of know whether some traction has been gained on that front.

So, that was my first question. But again, I can wait for that answer first and then articulate my second one.

MS. DE JONG: Okay. So, Susanne, if you wanted to go ahead and jump in if you have a response at this time?

MS. HEIM: Well, I'll just say that the presentation I gave reflects the current policies in place and the current permitting process that's required, which Charlene has shown takes about five years to get through.

So, there are opportunities out there for reducing the amount of time that it takes and there is history of doing things like categorical exemptions for certain types of projects or doing other types of … such as like the CEC process that is actually a streamlined process for all of the permits obtained in one.

So, there may be opportunities to do something similar. But that's not the current process that is in place.

MR. DHAR: Okay, thank you. So, can I go ahead and ask the second question?

Actually, it's not question, it's actually a comment I want to make. And this is regarding … I've got to also submit this in written form.

There is a potential for geothermal energy or heating and cooling for housing in the communities for the area where geothermal potential is high, like Lithium Valley.

So, I understand that in Austin, Texas, they have utilized this for some housing master plans, where they have achieved fantastic energy efficiency according to the

latest standard for energy efficiency.

The existing homes have energy efficiency of 140 and new home has efficiency of hundred. And the EcoSmart minimum target is 25, whereas these geothermal communities or master plan communities in Austin area have actually demonstrated an index of seven, which is fantastic.

So, there may be an opportunity to kind of integrate that housing development as a spill over economy opportunity for the area and also give a great communities because housing is a problem.

In fact, there is a Justice40 Initiative that probably all of you probably know about that the administration has recently announced where 40% of the funds allocated for climate action must go to uplifting disadvantage communities.

So, this may be a great opportunity to not only demonstrate high efficiency housing, but also create opportunity for economy, still our economy.

So, I'm going to submit this and I have a video link, which actually explains this in more detail which is actually only a couple of months old. And so, that could be something that could be considered, I think.

MS. DE JONG: Charlene raised her hand, maybe you got a response.

MS. WARDLOW: Yeah, I'm guessing that the city of

Austin is doing a ground source heat pump. And so, ground source heat pump, you actually don't need a liquid. You don't need a resource, you're basically exchanging heat, but you need an equal heating and cooling load to accommodate that.

So, you take heat out of the ground in the winter and you put heat back in the ground in the summer. But based on what Henry Martinez's show Imperial County, where it's 115 degrees commonly in August, I don't think that their cooling load would accommodate the heating load.

I'll say Mammoth Lakes, California has a similar opposite problem in that they have very little cooling needed, but they have a high heat load. And so, you have to be able to balance what you take out with what you put in.

So, I'm guessing Austin's looking at ground source heat pump technology, not actual use of a geothermal resource, liquid resource.

MR. DHAR: Yeah. I think there are details in that link that I'm actually submitting just now. So, you could probably see more technical details in that. Austin probably is also having the heat load problem, I guess. Okay. Thank you.

MS. DE JONG: Thanks. Thank you. Alright. I have a hand raise from Nikola Lakic.

MR. LAKIC: Hello. Hello everyone again. Can you hear me? Hello?

MS. DE JONG: Yeah.

MR. LAKIC: Great.

MS. DE JONG: Yes.

MR. LAKIC: Very interesting. Very interesting. Thank you for the opportunity to say a few words again.

Charlene said, she explained pretty much conventional geothermal systems, and we have enhanced geothermal system also, where you have to put water at least one kilometer cube. That's the problem. That's existing technology.

My approach is completely different. It's time after a hundred years to change something. Comparison, what I'm proposing and conventional system is like pretty much what we had 15 years ago. I call it TV system. Now we have digital before was … system that with antenna, I just call it … I forgot. I just cannot get it right now.

So, the system is like 15 years ago, we had to go to the digital TV. It's a big, big change, but needs few years to adjust to that.

And with my proposal, we are in same situation. I'm trying to help you, the system experts on the system, especially here, local. I am from this area. But ignoring it, it's really mindboggling.

So, I just want to reinstate everything that was said. It's really neat, my input, and I'm very pleased that this was taped and one day, you might see this again, that my struggle to get your attention to let me speak about 40 minutes. So, I guarantee you would learn a lot. Thank you.

MS. DE JONG: Thank you. I'm going to go ahead and loop back, see if I can get a response from George. Do you want to unmute yourself?

Okay, so at this point, I will go ahead and turn to you some written comments that we received in the Q&A.

So, the first one from George Ken, will the lithium recovery plant be subject to the Surface and Reclamation Act of 1975, SMARA? If there's any responses.

MS. WARDLOW: Well, department of mine reclamation happens to be within Department of Conservation. And so, they brought this up. Of the 50,000 gallons a minute that are circulated at CalEnergy alone, the lithium concentration is, like I said, it's very small, and they already remove silica.

So, I don't know that that's been answered yet. I mean, they're not disturbing -- CalEnergy at least, is not disturbing additional land to develop and it's not a mining project. They're just removing particles from the brine. So, I guess that's what I've seen so far. I don't

personally see how it would be applicable to SMARA, but I think it continues to be reviewed.

MS. DE JONG: Thank you. And I think Jonathan Weisgall-

COMMISSIONER WEISGALL: Just to augment that I totally agree with Charlene and just for reference sake, the concentration of lithium, it varies a little bit as you go from north to south in the resource. But on average, it's about you're looking at 250 parts per million.

So, you're processing that 50,000 gallons a minute. And I mean, I could do the math, but I mean, you're taking out a couple of teaspoonfuls, something like that. So, it's absolutely minimal. And of course, the rest is making its way back into the reservoir.

MS. DE JONG: Thank you. The next written comments are from Victor Beas.

So, the increase of geothermal wells means more extraction of materials. How is the gap between the extracted and re-injected materials? Could this gap contribute seismic activity due to empty spaces left? What is the function of lithium on our planet, that being thermal regulator polarity in gravitational, and do this function could be affected?

Sorry, if I misunderstood some of that. A second part of this question is on the economic side, how Nevada

plans to expand their lithium production can impact in California. Afghanistan has one of the biggest lithium reserves and China is interested in it. Could that impact local production due to the cheaper production than the US?

MS. WARDLOW: So, I'll respond to the first part. I won't be able to respond to the last part, the economic and about Afghanistan. So, can you go up on that chat so I can see the first part again?

So, there won't be additional Wells required to add the lithium to the geothermal power plant. So, there's no additional there.

And all of the projects in Imperial County require subsidence and seismic monitoring programs. They also require that a percentage of the brine, I think it's 80% be re-injected and that's for a couple of reasons; for subsidence and to maintain the sustainability of the resource. So, I hope that answers this question.

MS. DE JONG: And I see Commissioner Weisgall also raised a hand.

COMMISSIONER WEISGALL: Yeah, let me take a crack at the second question. This kind of really an important point for the commission. There is a lot of lithium in the world. There's a huge amount.

Bolivia, I think has the most, over 20 million tons. It's not very accessible. It's not commercially

viable to recover it.

And Argentina, a huge amount and Chile, obviously. China does have a lot, not quite as much -- upwards of I think, four and a half million. Afghanistan does have a lot of that valuable minerals. So, I guess lesson number one here is there's a lot of lithium in the world.

So, the challenge is how do you recover it in a commercially viable and environmentally responsible way?

We certainly know that in Argentina and Chile, it's being recovered in a very economically viable way. I think the environmental degradation wouldn't get to first base in California, same with the open-pit mining in Australia. So, this has got to be done the right way.

Another part of that question does relate to what's going on in the US. Again, the Salton Sea, this is not the only place. There is a rush to develop lithium.

There are efforts underway in Arkansas to recover lithium from bromine brine supplies. There's an effort in North Carolina, and as the questioner says, there's also an effort underway in Nevada at Thacker Pass.

All I can say about that is it is subject. It is certainly, it's an environmentally controversial project right now. I believe there's the impact. It's not just on the Sagebrush, it, I believe impinges on some native

American sacred lands. I'm not an expert, but you can easily come up with the articles on Thacker Pass and the attempts to develop lithium in Nevada.

I guess I would like to say on behalf of the California lithium industry, that it puts us in a pretty good light, because as you've heard, whether it was from Jim Minnick on the reporting side or Charlene, the environmental impact of taking out that lithium from the geothermal brine that's already being processed in the plants, is really going to be having a minimal environmental impact -- not zero, but minimal and compared to other places around the world significantly less.

So, I don't think … I mean, on the economy on the economic side, you've got to make the case at each country and in each production methodology.

And the challenge being faced now with the Salton Sea at the beginning of this process is can the lithium producers here get that work done in an economically viable, commercially viable way and an environmentally responsible one? That's the two-part challenge.

MS. DE JONG: Thank you. And the final written question or comment here is from Charlie Chesney, saying that they are a graduate student researcher from UC Santa Cruz, working on the water importation feasibility analysis for the Salton Sea management program.

And their questions are, is there a map of proposed geothermal lithium facility sites on playa or areas currently under the sea?

Are there any cost-sharing opportunities that could be developed as a result of public/private partnerships with lithium extraction companies, and how much water is needed in the lithium refinement process?

They're happy to have this conversation offline as well. So, if any commissioners would like to respond offline, I can put you in touch via email.

MS. WARDLOW: And I'll just ask if anybody on the panel wants to respond, or even one of the other commissioners to that.

MR. MARTINEZ: This is Henry Martinez here. I think the only comment I can make at this point, is there is a map of the geothermal areas that are on a playa under water in the Salton Sea. I'm not aware unless the developers have placed locations where the lithium or geothermal facilities will be located.

I think this is still very speculative at this point. And I think somebody mentioned before is really where the wells can be … where the correct temperature brine can be found and ultimately where can it be located in relationship to where the resources are located.

Charlene, you indicated before, the wells can be

drilled, but not necessarily going to hit the 700-degree brine at all times. You're going to find, in some cases, you would drill wells that will produce very, very low temperature. They're not feasible for development.

So, I think this is going to be the challenge for a lot of the developers, is finding the sweet spot that makes sense and then co-locating or locating those facilities where it makes sense for the economic development of geothermal as well.

So, a long answer to your answer, but I'm not aware of any specific maps that may exist, where these locations, these facilities will be located, and it's going to be a process of developing and exploring, and the geo-tech individuals are going to be looking at these areas will probably be the ones will be selecting for sites, and then ultimately, where these facilities will be built.

MS. DE JONG: And sorry, Commissioner Weisgall?

COMMISSIONER WEISGALL: Let me take a stab at Charley Chesney's second and third questions.

Are there any cost-sharing opportunities? Yes, there have been. And I'm really pleased to say that from the Berkshire Hathaway Energy, CalEnergy perspective, the public private partnership has been absolutely terrific.

We, four years ago, put out an RFP, a request for proposals for a brine supply agreement, who wants to make

lithium out of their brine.

And we had major mining companies and major electric vehicle manufacturers come in and say, wow, a domestic reliable source of lithium would be terrific. If you can show this is commercially viable, we're in. Well, that's when we realized that we needed government R&D funding.

So, we went to both the California Energy Commission and the US Department of Energy. We've had two grants. I've summarized them before. But I mean, basically a $6 million grant from the Energy Commission to show that we can recover the lithium from the brine, and a $14.9 million grant from the US Department of Energy to demonstrate that we can convert the lithium in the form of lithium chloride into lithium hydroxide.

Those two grants, 6 plus 14.9, $21.9 million matched by $21.9 million and on the private sector side by our company. So, that's a good example of the public/private partnership and of how public funds can be leveraged to de-risk new areas, because the fact of the matter is, no one has yet proven the commercial viability of recovering lithium from geothermal brine.

On your third question, Charlie, well, just a couple of metrics. In South America, upwards of 500,000 gallons is needed to produce one ton of lithium.

Speaking for our company, our target is 90%, at least less than that. And we're hoping we're actually doing some more R&D in that very field, because that's a critical point -- how can we use even less water?

But we're targeting a minimum of 90% less water. What does that amount to exactly? Henry, we've had this discussion, and I want to say, I will throw out a number here, but give me the privilege of refining that at the next meeting, if I'm wrong. But a ballpark, maybe of 15,000 acre feet a year for our existing facilities. But let me check into that, but I hope that answers two of your questions.

MS. DE JONG: Thank you. And as the comment says, any other lithium value commissioners would like to respond, please contact me and I will help put you in touch with Charlie.

The final comment here to circle back to, is from Nikola Lakic just to round out the comment with that. The word you were struggling to find in the earlier comment was the word analog, explaining the similarity in the situation of 10 to 15 years ago, about switching from analog system to digital system in the TV industry.

That concludes the public comment period regarding the geothermal workshop. So, thank you.

Now, yep. Go ahead. Sorry, the next agenda

item. Thanks.

CHAIR PAZ: Thank you. So, as you can see, we've been planning ahead of time the topics and I think it's been working quite well that the CEC staff and the commissioners have ample time to meet and plan for this workshop. So, the earlier that we know what's coming next, it allows us more time to plan.

Today, we want to go ahead and schedule the topic for January. I don't know if there are any volunteers from the commission. The ones that still remain to be scheduled are benefits for two geothermal plants, overcoming challenges to lithium extraction, workforce development and legislative regulatory recommendation. Do we have any volunteers?

COMMISSIONER CASTANEDA: Well, so I believe that I was put on the Workforce Development Subcommittee, so I will take January and try to work with staff and then obviously the other commissioners and some folks that I know they're in that space to kind of arrive at a workshop. And you're looking for something similar as the format that we had today, right? Okay. Yeah. So, put me down. I think I can pull it off.

CHAIR PAZ: Okay. Thank you. So, we will be for January then unless anybody has any other comments, we'll move forward to schedule the workforce development

workshop.

MS. DE JONG: We do have a raised hand from commissioner Weisgall.

CHAIR PAZ: Yes, Jonathan?

COMMISSIONER WEISGALL: Hey, Steve, I'd be delighted to work with you on that. In fact, I joined a little bit late to our meeting today. I was even talking to my own team about workforce development.

You heard me talk earlier about possibly doubling our geothermal output. Well, that's doubling that workforce and that doesn't even count lithium development, which is different.

I mean, you've got a lot of chemistry involved, not just technicians, electricians, and the like, and we are working and Commissioner Kelley has been very involved in this as well, putting together local resources at Imperial, both at the county level in government, in terms of workforce development, as well as the educational institutions ranging from Imperial valley College to UCSD, to San Diego State University, et cetera, working on STEM curricula and the like.

So, it's really, it's workforce development plus education. But I'd be delighted to work with you on that as well. And I think maybe we might invite some Imperial County officials. Well, we can talk about it, but I think

it's a good topic and I'd be pleased to work with you on it.

COMMISSIONER CASTANEDA: Thank you Jonathan. And I really appreciate that. And what I'll do is I'll pull your email off of one of the group emails and I'll send you an invitation, maybe we can have a phone call. Thanks.

COMMISSIONER WEISGALL: Great. Sounds good.

CHAIR PAZ: Thank you. So, next topic I think is public comments.

MS. DE JONG: Yeah. Sorry, so we'll go ahead and move on to the public comment. And this is regarding future meeting discussions.

So, if you're joining us via Zoom on your computer, please use the raise hand feature. If you called in, please dial *9 to raise your hand and then *6 to unmute your phone line. And I see a raised hand.

Cristina Marquez, you should be able to unmute yourself.

MS. MARQUEZ: Can you hear me okay?

MS. DE JONG: Yes.

CRISTINA MARQUEZ: Okay. Hi, my name is Cristina Marquez. I'm with IBW Local 569, the Electrical Workers Union, and I'm the environmental organizer. So, this is a very important topic for us.

We know that bringing renewable energy to

Southern California and California is something that is very big right now, especially with this administration. And it aligns with, you know, following those guidelines of trying to lower the GHGs.

But Steve Castaneda, thank you so much for bringing up, you know, workforce development in January. I highly appreciate that.

On behalf of our apprentices and journeymen that are already working out here, we've been working out here since 2012, and I think the last time I spoke, I told you that we're in the process of building a new net zero apprenticeship building out there.

We already have one there, but we're just building a new big one that's net zero emissions. And we're really proud of that. And we hope that we can be involved in some of your planning just so you can hear us out on that. I'd highly appreciate it.

Thank you so much for your time.

COMMISSIONER CASTANEDA: Cristina, I'll reach out to you.

CRISTINA MARQUEZ: Thank you. I appreciate that. Take care and have a good day.

MS. DE JONG: Thanks. Thank you. We have a raised hand from Nikola Lakic.

MR. LAKIC: Thanks again. Can you hear me now?

MS. DE JONG: Yes.

MR. LAKIC: I'm sorry. I just wasn't sure when Silvia Paz mentioned presentation next time, maybe I misunderstood. In case if it's author or something like that, I'm in, but maybe I misunderstood. Sorry to interrupt.

MS. DE JONG: Okay. Alright. Thank you. And Shrayas, you should be able to unmute yourself.

MR. JATKAR: Yeah. Hi, everybody. I'm Shrayas Jatkar with the California Workforce Development Board. Also just want to appreciate the interest in having the January workshop on workforce development and also at the risk of having a lot of cooks in the kitchen, will offer myself as somebody who can help in any way that you all are looking for.

Just to let you know, sort of similar to other folks that just sort of introduced themselves earlier in the meeting that just introduce ourselves as we're one of the seven departments in the State Labor and Workforce Development Agency and have been working a lot on building partnerships with California state agencies involved in energy and environmental issues to make sure that as we stand up new industries and support existing industries, that we're making sure they're on the high road. Making sure that we're addressing issues of job quality and job

access to address equity in terms of the economy, as well as of course, the environment.

So, I'm happy to participate and help in developing the workshop or any other ways that you see fit. And CEC staff has my contact info, so they can put us in touch with one another if that makes sense.

MS. DE JONG: Thank you. Alright. So just to circle the plan here, Commissioner Castaneda and Chair Paz are the two sub-body members on workforce development.

So, the CEC will reach out to you with an email instead of a meeting to begin that planning process and then branch out from there to do this, the other connections that you've talked about today. So, look out for an email from us. Thanks.

Alright. That is all of the public comments at this time. We're ready to move on to the next item, which is general public comments.

So, if there are any general public comments at this time, please go ahead and use the raise hand feature in your zoom app or if you called in, dial *9 to raise your hand and then *6 to mute and unmute your phone line.

That was a quick transition, so let’s see … I’m not seeing any hands raised at this time.

Alright, I think that we are all finished with the public comments. Back to you, Chair Paz.

CHAIR PAZ: Thank you. So, this concludes our meeting for today. Our next meeting will be September 30th of 2021. The meeting is now adjourned.

Thank you everyone.

ALL: Thank you.

(The workshop concluded at 4:29 P.M.)

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I do hereby certify that the testimony in the foregoing hearing was taken at the time and place therein stated; that the testimony of said witnesses were reported by me, a certified electronic court reporter and a disinterested person, and was under my supervision thereafter transcribed into typewriting.

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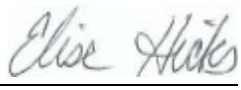

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