DIABLO CANYON DECOMMISSIONING ENGAGEMENT PANEL

TRANSCRIPT OF PROCEEDINGS

San Luis Obispo County Government Center, 1050 Monterey St., San Luis Obispo, CA and via Zoom Online.

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Video timeline references included – see https://slo-span.org/meeting/dcdep_20250924/ for video recording of meeting.

CHUCK ANDERS 00: 00:05 Welcome everyone. Uh, my name is Chuck Andrews. I'm the facilitator for the Diablo Canyon Decommissioning Engagement Panel. And, uh, just a couple of quick things before we turn it over to one of our panel members, Linda, um, <inaudible> for our welcome. Uh, I wanna remind everyone that, uh, there's resource, materials, agenda presentations, will be on the engagements, panel's website and the applicant and panel.org. So, uh, go there. Uh, video of the this meeting, uh, will also be available on that website. There's a lot of, uh, good, uh, background reports and, uh, documents, uh, that are there also. Um, with that, I'm gonna turn it over to Linda, uh, to start the meeting.

LINDA VANASUPA 00: 00:55 Hi everyone. I'm gonna go by LV since we have a multiplicity of Linda's, um, and I happen to be a retired engineering professor in the area. Uh, thanks for coming. I'm just another citizen on this panel, on this, uh, decommissioning panel. And, uh, we've convened this meeting together today. I'm not sure if we, do, we have the first slide, uh, to talk about our two questions. Do I have control of the slides by the way? Or who does that?

CHUCK ANDERS 00: 01:21 Um, yeah, the way the, uh, the slides work. This, the whole new tech set up for everyone. Okay. So we're all learning experience here. Yes. So I hope everyone will bear with us a little bit. So what the tech works tonight is just ask for the next slide. Okay.

LINDA VANASUPA 00: 01:34 Could I have the next slide?

CHUCK ANDERS 00: 01:34 And, um, that'll happen.

LINDA VANASUPA 00: 01:36 Oh, I guess that's not the slide I want. I guess I have a different slide. <laugh>. Um, this is, this is good. We'll start with the safety orientation, uh, I guess before we, uh, start talking about the topic of the, the talk today, please, Dylan, why don't you do that for us? Thanks.

Dylan George 00: 01:54 Good evening everybody. Thank you for being here. Uh, a couple of safety related items. Should we need to exit the building. The primary exit is where we came in, around the corner, around the front there. If that is unsafe, there's an alternative exit down the hall, right back there. Uh, that is also where you'll find the restroom down that same hall right back there. Um, if there is a medical need, we have an a

ED, uh, and first aid standby. We also have Officer Viegas from the San Luis Obispo County Sheriff. We thank him for being here for any security needs. So thank you all.

LINDA VANASUPA 00: 02:27 Great. Um, I guess the next slide. Oh, perfect. Okay. So we, uh, the panel wanted to kind of come together and dialogue about these two kind of key questions, um, about the decommissioning. And we've invited some experts to help us, uh, to consider these questions today. And before we got started, I wanted to say just a couple things about power in general. And, um, the first is that our panel, we're an advisory group group to Diablo Cannon, and we're made of, uh, citizens in the area in the, from SLO County. And our mandate is to voice interests of the, the members of this county, uh, about the decommissioning process. And we're convening the, the meeting. Partly we want to have a dialogue about these topics and also clear some of the confusion about our, our, the power that we have. We don't have power beyond our voices, but, you know, knowledge is power.

LINDA VANASUPA 00: 03:32 So as we come together today, we are really, uh, sharing knowledge. And, um, the other thing is that, you know, we live in an engineered world, as you all know, and while the, the power utilities are generally publicly owned, Diablo Canyon is a, a privately owned, um, entity by pg e. And pg e has thousands of employees who've worked to supply power safely for this region, um, since it's decom, since it's commissioning. So for some, this is talking about the decommissioning itself is a, is a high stakes conversation, and I just wanted to acknowledge that at the, at the outset that it, it involves, this conversation is not a neutral conversation, really for anyone. Um, and, you know, for others, just Diablo Canyon operating in general is a high stakes activity, uh, for the generations to come, and it has other ethical concerns. So there's lots of emotional content really in this topic. And, um, at the same time, we are really, we're recognizing that reasonable people feel, or they think differently about, uh, the topic of nuclear energy and what we're wanting to do. We're not gonna resolve these things today, but what we're wanting to do is really, um, talk about respectfully, uh, these, the different facts around Diablo Canyon and, uh, its relationship to grid stability.

LINDA VANASUPA 00: 05:09 How my, I'm gonna ask my colleagues to correct me if I'm doing anything wrong here. <laugh>, so far, so far so good. Okay. So we are, we're happy to be here to consider these facts together. And, um, I guess the first thing we need to do is just give you a sense in the next slide of kind of how the meeting will unfold so that there's a, just sort of a quick look at the agenda. Um, we have two wonderful, uh, guest speakers that will be introduced. Um, and then afterwards the public comment, we've set aside 40 minutes for that. And, um, um, after that, we're gonna have a discussion with the panel members and the speakers after the public comment. So I guess, let's see, I think there's one

of the sets of, one of a couple more slides, and then we are gonna start with our speakers. So the next slide, please.

LINDA VANASUPA 00: 06:07 Okay, great. So, just for some, uh, context, um, since 2018, Diablo Canyon was expected to be decommissioned, uh, by this year. And, um, however, at at that time there was a Senate bill that was adopted in, in California, actually introduced and then later adopted. And the idea was to extend Diablo Canyon's operation for another five years, um, to aid in California's zero carbon energy, uh, tran. Uh, so energy transition. Um, so this, the Senate bill included a number of conditions that needed to be met in order for this five year extension to take place, including a kind of, uh, sort of an annual look at, um, I guess, what was it, Kara? Help me. Reliability. Great. Well, looking at the questions of shall we continue another year of operation? Yes. And, um, one of the things about that were, there, there were really, uh, two, two really key, uh, questions to consider annually. I guess if we look at the next slide, um, the, under the conditions of extension, there were a number of question of, uh, conditions that needed to be met. And you could see they, they're listed up there on the slide. They range from, you know, safety considerations, storage considerations, you know, cooling, the, all these sorts of things. Um, there are some political questions as well, but in the decision process, the key elements that are driving the decision really are the questions around grid stability and the economics of energy.

LINDA VANASUPA 00: 07:52 So, um, Alcan has gotten through a number of these gates and, um, the ex extension is up through the granted through this, this five years, uh, extension. Um, but to be fair, there are reasonable people who continue to, to wanna look at this and ask these valid ethical questions. And, um, I just don't wanna paper over that fact. So, uh, at the end of the day, the biggest factors are these questions of grid stability and economics. And these are the things that we wanna, we wanna look at the grid stability question tonight. Tonight. Okay. So the big question is, what will it take for California to have access to stable energy? Um, and then sort of

LINDA VANASUPA 00: 08:43 What is Diablo Canyon's role in that? And I guess that's the contextual introduction. I might be missing things. I may have mangled some things. Anything anyone wants to add or take away? Summary. Okay. <laugh>. Okay. Um, so I guess at this point, I'll turn it over to Kara. Oh, I guess there's one other thing. I, I, I am sorry, I forgot, which is that, uh, we will have an update on, uh, I guess later in the conversation, Tom will update us on, uh, a key element in the decommissioning process, which is something about the Cherry Canyon, uh, lands. So, uh, that will come later after the, um, after the speakers. So can you mention our website too, for people to go to? Yes, go ahead to,

DAVE HOUGHTON 00: 09:27 There's a website, well, as well, that includes lots of information about this panel, the process, past meeting minutes, and so on. It's diablo canyon panel.org, I believe. Is that right? So, um, just wanted to make sure that everybody knows that that's out there as well.

LINDA VANASUPA 00: 09:43 Okay.

DAVE HOUGHTON 00: 09:44 And we have participants coming in digitally too, don't we? Okay.

KARA WOODRUFF 00: 09:50 Okay. So let's move on to our first speaker. And I wanna confirm that he is ready to go, is that correct? Um, I wanted to provide a brief introduction for our first speaker first, so I'll proceed. Um, David Ern joins us from the California Energy Commission, and many people call that the CEC. He is the Deputy Director of Resource Planning, reliability and Emergency within the Energy Assessment Division. Um, as such, he is a lead author of many CEC reports on energy reliability and California's electric grid. He's also a former commissioned officer in the US Navy, Navy, and a member of the Global Advisory Board for the uc, Santa Barbara Institute for Energy Efficiency. So he has some Central coast connections. So with that, uh, David, take it away if you are able.

DAVID ERNE 00: 10:43 Hello? Good evening. Can you hear me all right?

KARA WOODRUFF 00: 10:46 Yes.

DAVID ERNE 00: 10:47 Okay, great. So thank you, first of all, for a wonderful introduction. Appreciate that and thank you to the panel for inviting me to speak today. Very excited to talk to you about, uh, about, um, all that we've gone through to come to the conclusion that we did a few years ago and, and kind of where we stand with grid reliability. Um, I've been asked to talk about, um, kinda the, the essence of grid planning and, um, kind of what it takes to think through these challenges. So I'm gonna have some, some slides, we'll go through that as kinda a introductory session, and then I'll get into the details of the analysis that we had performed, um, for the Diablo Canyon, um, uh, extension. So, um, just wanna say, uh, that's kind the, what I'm gonna start out with. Um, again, I am here to give an overview of all of that and happy to answer any questions folks have.

DAVID ERNE 00: 11:38 Sorry, I could not be there in person today to join you. Next slide. So let me give you just a little bit of overview of what the California Energy Commission is. The CEC. Um, we were created in 1975, so we just celebrated, uh, just the other day, our 50th anniversary. Uh, we were developed during the, um, uh, uh, uh, energy crisis of the seventies to help with, uh, resource planning and state energy policy. We had a few, uh, very specific requests during that time, which was to evaluate, um, alternative and renewable power. Uh, we have a role for power plant siding and permitting research and development and developing efficiency standards, both building codes and appliance standards. And our role has grown since then. As you can see on this slide, we have a, a fair amount of activity, uh, across the spectrum of energy, but really helping to inform energy policy is one of the critical things that we do within, um, my part of the energy assessments division. So that is assessments. We gather a lot of information on energy, uh, um, petroleum, electricity, natural gas within the state. We perform analysis, we look at, we run models, um, uh, to help forecast these, um, uh, resources and the demand and, uh, report out on that as part of the process of resource planning. Um, that's what the energy assessments division does, which is my division. I'm on the supply side, and I have a colleague on the demand side. Next slide.

DAVID ERNE 00: 13:12 Alright, so, uh, this is kind of the, takes a village, uh, slide, which is to talk about the many different parts of the, or roles that play in emergent or in, uh, uh, reliability planning in the state. Um, and I violated one of the rules, which is I've put a number of acronyms up here, so I will, I will speak those out. So we have the California Air Resources Board, um, which is one of the key players. What their, their role is, is really, uh, as part of AB 32, they develop a scoping plan. That scoping plan, uh, is, is developed every five years. That plan helps to set greenhouse gas emission goal reduction for the state over time, and gives allocations to the utilities and other, uh, other entities that sell electricity in the state. So they helped to set some of the criteria for, um, uh, the types of resources or help to, to form the resource procurement, um, opportunities for the utilities, uh, energy commission I just mentioned, uh, one of the key functions that we have in resource planning is developing the demand forecast.

DAVID ERNE 00: 14:19 We develop that every other year and then do interim updates. Um, and that demand forecast is critical because it's utilized by the other planning entities, um, within the state, but also by the utilities to help them think through the resources that they need to procure and be prepared for supporting that demand over time. We run many different models, uh, and forecast a variety of different options. We think about the existing policies. We think about what if those policies are really successful, what if they're not quite successful? So we do a range of, of, uh, evaluations for the demand, um, to help inform decisions around, uh, resource planning. Then you have the Public Utility Commission, the California Public Utility Commission. They, um, regulate the investor owned utilities. Um, they, uh, put forward requirements for the procurement of resources by the utilities and

allow the, uh, authorize the utilities procure resources, uh, to meet the greenhouse gas emission goals, uh, the re um, renewable portfolio standard goals, um, and also reliability.

DAVID ERNE 00: 15:29 I'll talk a little more about that in, in, uh, uh, my next slide. Then you have the, um, California, uh, independent system operator cal iso. They are critical to this process because not only do they run the energy market in the state and, um, and interact with, uh, more broadly in the west, uh, because we do get a number of our, uh, a certain amount of our electricity from, uh, outside the state. Um, but they also are responsible for transmission planning, which is critical for our resource growth. Um, and lastly, know the Department of Water Resources. They have a, a critical procurement function that came about primarily from, uh, SB 8 46, uh, which allows them to procure resources to help us in emergencies. And I'll also talk a little bit about that next slide.

DAVID ERNE 00: 16:24 We can give a high level overview, very simplified overview of energy system planning. So, um, you run models and you look at forecasts of what is necessary to meet the demand moving forward. And you work to create, um, uh, requirements for that, that help meet a traditional planning standard, which is used across the us, uh, which is a one in 10 loss of load expectation. Essentially what that means is you're trying to plan, so there's no more than one outage, uh, over a 10 year timeframe. Um, and so through that analysis, you identify how many resources need to be available to support the grid and provide reliability to meet that standard that's forward looking. Uh, we know that as we continue to build out our clean energy resources, those resources are coming online. They're coming along online actually quite rapidly, but we have had glitches with them getting installed, um, over the past few years.

DAVID ERNE 00: 17:29 And I'll talk a little bit about that. Things like supply chain issues during COVID, uh, tariff issues, um, permitting interconnection processes, or a number of different hurdles to getting new resources online. So there's always a chance that some of those resources that are called for or may not be developed in time for them to be available when they are, uh, needed. So usually what you do is you plan for a little bit more resources needed than, um, than actual meeting the one in 10 so that you can be prepared for those, um, uh, conditions. Uh, but you can't always be prepared. We saw a lot of problems during COVID with supply chain. We had a lot of delays in getting, uh, equipment into California for some of those new resources to be built. You also can think about the need for, uh, resources to cover extreme conditions.

DAVID ERNE 00: 18:26 And I'll talk a little about a few of those. Uh, for those of you who may remember in 2020, we had rolling outages, um, 'cause we had a heat event that hit the,

the west. Um, and particularly hit California. We had another one in 2022 that was particularly bad. And there, uh, is, are resources that are needed to cover those situations as well. If we want to keep the grid operational, the most kind of wild card issue, which is important for us to be thinking about is, uh, wildfire. All of our transmission lines cross high, uh, wildfire threat areas coming into California. And as I mentioned, we re rely on a, a fair amount of imports coming into the state to support our grid. Um, and we also export resources. So it goes both ways, but it's critical for us to have those import resources. Um, and we had a year, uh, in 2021, we had a bootleg fire in Southern Oregon. That fire resulted in losing almost immediately 4,000 megawatts of resources coming into the state. So there's these really extreme events. And the challenge that we're finding right now in our resource planning is climate change is making it difficult for us to, um, to plan with the same amount of certainty as we have had in the past. Just is adding some challenges to our planning process. Next slide.

DAVID ERNE 00: 19:52 As I mentioned, I'm not gonna go into a lot of detail on the, on the visuals on the right. Um, what I really wanna focus on is a couple of these situations. 2020, we have the rolling outages. Uh, we had, uh, quite a few customers in the investor owned utility areas in the callso territory that were without power for one to two hours on the first day of the event. Um, and up to about 20 minutes on the second day of the event, uh, which was really a, a wake up call. It was extreme heat event. We got to a very high amount of demand in the state. Not quite a record, but it was a pretty high amount, um, that caused us to have those issues. And we recognized that there were some issues associated with our planning that, uh, that were good lessons learned from that, uh, process.

DAVID ERNE 00: 20:37 And we've been working on that since, as a result, when we had a 10 day heat event in 2022, which caused us to reach our all new record of about 52 gigawatts of demand in the state. So largest to date in the state of California in the Cal ISO territory. Um, we had no outages. Uh, there had been activities that were put in place to help pre, um, prevent that. And there was a lot of work that happened on that day, including putting out flex alerts to have people turn down, uh, and turn down their energy use. Uh, there's also a text alert that went out to a number of people. Some of you may have received it, asking for additional, uh, reduction of energy use to keep us, um, from having outages. And we successfully went through that event, uh, without any outages. So lessons learned have been, uh, be improving our processes, but we still need to be vigilant because that was a pretty substantial, a 10 day heat event can be pretty, um, uh, uh, impactful to the grid.

DAVID ERNE 00: 21:38 Pretty impactful to people, and we need to make sure that we're planning on that as much as we can. Next slide. Um, so I've mentioned a nu a number of these activities that we put in place, but, you know, really I'd say the high level issues, uh,

that we found over time from 2020 and that extreme heat event that we had through the wildfire in 2021, the longer heat event in 2022. You know, we continue to have these extreme heat events. Fortunately, this summer was not one of them. We had a very mild summer this, this year. Um, but we have had bad years in the past. We've had droughts that have affected our hydro, uh, production. And those events are expected to continue with, with climate change. And so, uh, having additional planning, uh, a greater coordination among the agencies to think through these issues and be prepared is something we've been working on since 2020. Continue to build out that, um, uh, kind of, uh, uh, set of, of activities that will make us, uh, be better prepared for those kinds of issues, including the legislature establishing an emergency reserve, our strategic reliability reserve, which as I mentioned the DWR Department of Water Resources helps manage a large proportion of that. Um, and those are our resources that we can brought online when we're, you know, in those really extreme events and help keep the grid operating, um, so that we don't have outages. Next slide.

DAVID ERNE 00: 23:10 This just goes through some of those details. Uh, amid, uh, increase our grid planning. We've been incorporating climate change more into, for example, our demand forecast and incorporating that in there so that we are thinking more about how climate change is affecting, um, our demand moving forward, ordering more resources, uh, to be brought online. We're scaling, um, more supply side resources, but also demand side resources, uh, looking for more, um, uh, load flex, uh, load flexibility, demand response. But also, uh, one of the key functions we put in place, and this is part of our coordination, is the ener, the tracking energy development task force we call the TED Task Force. Um, and that task force is actually evaluating all resources that are coming online and working to overcome any kind of hurdles that may be impacting those resources from coming online as they're needed each summer. And as I mentioned before, we're preparing for extreme events by having contingency measures, um, emergency demand, flex programs, and those other, um, resources that Department of Water Resources has brought online. Next slide.

DAVID ERNE 00: 24:22 A key element of Senate Bill 8 46, uh, required activities from these three agencies, the CEC, the Public Utility Commission, and Department of Water Resources. Um, and I won't go through all these in detail 'cause you're familiar with many of them, but CEC had several very key activities as part of that, um, uh, piece of legislation. One was to look at the reliability need for the Diablo Canyon Power plant, and two was to look at are there alternatives that could be brought online that could replace Diablo Canyon before retirement? So those are two very important, um, assessments that we needed to do back in 2020. Well, starting in 2022, but, uh, producing those in 2023 and 2024. Next slide. So when we go back to 2022, our estimate at that time was that our demand was going up. We may have a lag in resources coming online in order to meet that demand, primarily from things like, um, the supply chain issues that were happening during, during, and, and just past

COVID. And those developmental delay development delays for resources were causing us concern. And there were also these extreme weather risks that we were seeing that we could have upwards of 7,000 megawatts of resources that would be needed to keep us from having, um, outages again by the year 2025 by this year. Um, that was very concerning in terms of what those threats might mean and what that might mean to grid stability.

DAVID ERNE 00: 26:00 Um, our analysis, uh, if you can go to the next slide. So, uh, our analysis looked at those conditions. We modeled, um, the future of California at that time across the, um, mostly the focused on the California ISO territory. We looked at the procurement that was coming online, the threats to that procurement, and the potential need of resources to keep the grid from going, um, uh, from having rolling outages. And we drew the conclusion that it was prudent to continue pursuing the extension of Diablo Canyon, um, until we could get enough resources online to make sure that we were, um, meeting all of our needs. That information was then used by the Public Utility Commission in their decision, uh, for, on the extension of Diablo Canyon. The other report that we were asked to look at was, you know, could we bring on other resources and not require, uh, and then allow Diablo Canyon to retire in 2025?

DAVID ERNE 00: 27:02 Uh, the challenge with that, um, assessment is that we had to bring on resources that were of equivalent zero carbon resources that could operate, um, equivalently to Diablo Canyon. And that would not impact or threaten the ability for the utilities to bring on the resources that they're already bringing on. So, for example, if the utilities are procuring solar and storage and wind, uh, to meet the requirements that have already been laid out for them to, uh, support demand, you wouldn't want the state to come in and buy more solar storage and, uh, wind, which would then just create greater competition for what is possibly a limited resource and drive up, um, uh, drive up the cost of those resources in that situation. But we did look at different supply resources. We looked at different demand resources, and we came to the conclusion of those resources.

DAVID ERNE 00: 28:01 There were no resources that could be brought on fast enough before Diablo Canyon retired to replace it. Um, the, the one resource that we thought could be brought on the fastest would be a load flex, uh, load flexibility, um, on the demand side, but we figured we could only bring on about 500 megawatts during that timeframe, which would not be enough to replace Diablo Canyon. So evaluating all of those resources, we determined there were no supply resources that could be brought on rapidly enough to replace Diablo Canyon. And those were the two critical resources that we looked at. Um, I'll go one more slide. We continue to look, um, forward into the future years to see how things look. We look at different kinds of events and how those events might impact. Um, and you

can see if you look, uh, between now and about 2030, you know, we have sufficient resources on just a, you know, on an average one in 10 kind of situation, we're doing great.

DAVID ERNE 00: 29:03 We have excess resources. That's the top green line. If we were to have something like a 2020, the event we have in 2020, we'd still have enough resources to ride through there about a, a, a gigawatt of resources. If we had a event like we did in 2022, we should still have enough right on the right on the cusp there. But we should have enough resources to get through that situation. After 20 29, 20 30, it starts to declining. Um, that dec declination or decline is primarily because, um, all of the resources have not been procured for those future years. And we anticipate that future requirements for the public Utility Commission will continue to build those resources out. So what you see beyond 2030 is not necessarily something that has to happen. We just don't have insight into what those resources might be that are required to be procured.

DAVID ERNE 00: 29:54 So I'd say, you know, consider this out through about 2030. We're looking good. Um, and as long as we have resources coming on, um, as required by the utility commission, I think, um, you know, we anticipate that we'll continue to have excess beyond that point. Um, and the question will just be, will climate change impact us worse than it already has? Um, will we have, uh, wildfires that will impact our transmission lines? Those are always remain, uh, kind of foremost in California's, uh, uh, mind, but also will we have any other further, uh, issues with supply chain, um, that may impact our ability to bring some of these key resources online. So I think that next slide, you concludes my slides and I'm open for, uh, any questions that you may have.

LINDA VANASUPA 00: 30:46 Oh, um, let's see. Are we doing questions? Yes, we are doing questions now. Questions? People have questions? Ru it is ru Yes, I'm sorry. We're gonna ask questions of panel for Hannah, then later we'll have, uh, open, open questions you all can ask.

DAVE HOUGHTON 00: 31:04 I'd like to start with the last slide that was shown by, uh, Mr. Earn, and I'm just trying to understand that slide. Uh, which way up, which way down which way is good, which way is bad? So you said excess and deficiency. So, um, and once we got past 2029, all the lines went underground. And is that the bad side of, of your projections?

DAVID ERNE 00: 31:26 So yeah, to be, be careful about it. So the, the good side is above the line. So that's where we think we have more than enough resources to ride through, not

just a regular, um, summer, but also if we were to have a 2020, uh, a heat event like we had in 2020 or 2022 should have enough resources to get through that. Now remember that for grid planning, we don't plan, we don't procure necessarily to meet an extreme event like we had in 2020 and 2022. That's why we have, uh, additional resources that we bring online, but we think that we'll be in good shape.

DAVE HOUGHTON 00: 32:02 Okay.

DAVID ERNE 00: 32:02 If you're below,

DAVE HOUGHTON 00: 32:05 You said something about resources coming online and that this is only perhaps showing resources that are currently contracted. And, and so we're looking further down the line. And so that's kind of a question mark or a cloudy future, but there's gonna be more resources coming online according to the CEC and the PC, right?

DAVID ERNE 00: 32:24 Yes. There, there will be more resources that will be coming online. So, you know, if those resources weren't coming online, then we would have obviously some problems. We anticipate those resources to be procured. We don't know what amount that will be, so we can't project it in our model. Um, but we anticipate that will be, um, uh, they'll be increasing after 2030.

DAVE HOUGHTON 00: 32:45 Okay. And that situation would lift all those bad low lines up above the, the, the dotted line, right?

DAVID ERNE 00: 32:53 That's what we anticipate, yes. Okay.

DAVE HOUGHTON 00: 32:55 'cause it looks a little scary the way you've presented it there. Um, and then I also wanna just ask you from a power planning perspective, uh, the real critical time on grid adds up to something around a hundred hours per year or less, and it's in the afternoons or there early the evenings usually when the heat wave comes along. So is that really the focus of when you're doing these planning, uh, exercises and trying to decide if we have enough power?

DAVID ERNE 00: 33:19 Yeah, usually in the past our, our kind of critical time to think about is that four to 9:00 PM period. Um, when the, the load is still high, even though it might be coming down, it's not coming down as fast as we would like it to. And we have particularly as we get later into the summer, you know, that we don't have as much sun, so the solar isn't operating quite as, as, um, uh, powerfully as it would be in June and July. And so that becomes really a critical time for us to be thinking about these resources and where the threat might be. But those are the times that we think of as the most, so what we're thinking about here is during that timeframe in a September heat event.

DAVE HOUGHTON 00: 34:05 Okay, thanks.

KARA WOODRUFF 00: 34:08 Thank you for your presentation. Um, I have a couple of questions also. Uh, first of all, in slide, if we could see slide number nine again please. Well, um, slide number nine was about, um, the estimated reliability impact. Um, this, I I don't understand this slide at all, number one. Okay. Okay. It doesn't make any sense to me, um, that that's one thing. The other thing is Okay, can you tell me what it is?

DAVID ERNE 00: 35:08 Sure. So this was, this was, uh, part of our analysis in 2022 looking forward. And what we tried to identify was what the potential issues might be that might require additional resources beyond what had already been, um, procured by the utilities. The first issue, the first issue is there is a delay kind of a built into the system. There's a delay between when we set up our demand forecast and the utilities are able to procure resources to meet demand. There can be a delay in, in that process. It could be up at that time. We thought it could be up to a much as 7,800 megawatt might not be. There might be the difference between our demand growth is and what the procurements are.

KARA WOODRUFF 00: 36:02 Okay. But wasn't this slide based on your estimate in 2022 of what it would be in 2025?

DAVID ERNE 00: 36:13 Yes.

KARA WOODRUFF 00: 36:15 How about your estimate in or your actual numbers in 2025 about what it really is? Because it doesn't, I, as far as I can see that you haven't counted in a lot of the, the battery storage that's been added, uh, since 2022. Can you tell me how many megawatts or of battery storage have been added to the grid since 2022?

DAVID ERNE 00: 36:49 So there, um, when I, when I, let me ex lemme describe, the reason I put this slide up is because it gave context of what our thinking was like in 2022, but what has happened is since 2022, we brought on a substantial number of resources. So this was, this is looking back at what we thought 2025 would be like. What we found is between 2022 and 2025, we brought in a substantial number of resources. Um, not only energy storage, but solar wind. Um, last year I think was nearly seven gigawatts just in that one year. Uh, to bring this up to what I showed you, uh, in subsequent slides, which is our 2025 conditions are much better than what we thought at thought was going to happen when we looked forward at 2022. The reason I put this slide up is because I wanted you to have an understanding of what our thinking was like when we did the analysis in 2022 to make the decision that we thought that it was prudent to extend Diablo Canyon. Since that time, we've had substantial growth in our resources. So we, we've more than, uh, grown what we thought we would. And so we're in a much better situation today than we thought we would be. So this

DAVE HOUGHTON 00: 38:04 Is actually a good news slide.

KARA WOODRUFF 00: 38:06 Yeah,

DAVID ERNE 00: 38:07 This is, this is a very good new slide. This is, this is showing what, what growth has happened since 2020 to, I don't have the exact numbers in here, but it gives you a perspective of the growth that's happened in the last three years to put us in much better situation from a resource perspective than what we thought was going to happen. Remember, at that time, we had a lot of delays from new resources coming online, um, from, uh, supply chain. It was really impacting our ability to grow and we thought that was going to continue for the next three years, did not, um, impact us as much as we thought it did. The threat's always there currently with, with tariffs it could be another issue. Um, but at the time we thought it was getting much worse than it actually panned out to be.

LINDA VANASUPA 00: 38:54 I, I think we might need to circle back to this if there's more interest in this, but I just for a quick question

KARA WOODRUFF 00: 38:58 From Karen, quick question then we'll move on. Question. So David, I understand from your presentation there was quite a bit of a justification to

extend Y Ablo from 2025 to 2030, but I think what's on the minds of many people is what happens after 2030? Do we need another extension or do we not? At an August 19th, 2025 meeting of the Senate Energy Committee, the members of that committee had some discussions with Commissioner Siva Guna. And at that meeting they talked about the delta. And the delta was the difference between what energy we have and what energy we need. And they talked about the delta between now and 2030, is there being a shortfall of energy to have a reliable grid? But when he was pressed upon what happens at 2030, it was hard to follow exactly what he was saying, but he suggested that the delta would close and that after 2030 we could be, okay, we could have grid stability without Diablo Canyon operating. So I guess my question to you is, is your presentation consistent with what Commissioner Gunda said or do you have a sort of different take on his comments?

DAVID ERNE 00: 40:20 Uh, thank you for the question. Um, my, my story is very similar to his, uh, his, his conclusions are drawn on the analysis that we had done, which is we feel that things are looking very good planning is, is going in the direction that it should with the corrections we've made, we're feeling confident about 2030. Um, my point is, you know, there, there are things that we don't know. Um, there are still risks, but we feel, um, feel very confident.

KARA WOODRUFF 00: 40:48 Thank you.

LINDA VANASUPA 00: 40:49 I'm sure we'll have more discussion about this later, but we need to move on to our next speaker. Um, so, uh, Linda, would you like to introduce Mark?

KARA WOODRUFF 00: 40:57 Yes. Um, Dr. Mark Ja Jacobson is a professor of civil and environmental engineering at Stanford University and is the founder and co director of the Atmosphere Energy Program at Stanford since 2004. He's published seven books of which the last three relate to his work in energy. He's won several prizes for his research and leadership in energy, including being named by Climate Insider as one of the 10 clean energy leaders to know and follow worldwide. His newest book, still No Miracles Needed, will be published later in 2025. It explains how to use existing and known technologies to harness, store and transmit energy from wind, water, and solar sources to ensure reliable electricity and heat supplies worldwide. It also discusses which technologies are not needed, but are currently being pursued, including fossil gas, carbon capture, synthetic direct air, carbon capture, blue hydrogen bioenergy, and nuclear energy. Thank you very much for being here this evening, Dr. Jacobson.

MARK JACOBSON 00: 42:13 Yeah, thanks for having me, uh, on here and I assume I'll share my own screen. I can do that really quickly. Um, probably the easiest. So can you see all, can you all see this? Um, so yeah, so I'm gonna talk about, well first of all, progress made in California as kind of an extension of what it was just talked about, but I'll show you some really recent data on this and just show how close we are to getting to a hundred percent clean renewable energy and storage for the electric power grid in California. And then I'll talk about nuclear and the issues associated with it and some, some things that most people are not aware about it. And also then look at the rate of transition of countries and states, us states as well as countries to a hundred percent claiming of energy and there's some more surprises there.

MARK JACOBSON 00: 43:04 So lemme just start with California story. Um, I've been tracking every day for the last three years, uh, California's main grid, electricity production and consumption. And it's really remarkable what's happened every single year. And this year is, is even better than last year, which was better than the year before. But like this is a graph showing on the left side, the red line is the a hundred percent of demand on the main grid and the colors are the supply from solar is yellow, green is wind, the red is geothermal. Um, orange, which is you can't see very well, is small hydro. And then the light blue is large hydro, and then the dark blue is batteries. And you can see on this particular day, which was May 25th, there were 10 and a half hours during that day that the grid demand was met by more than 100% wind, water, and solar.

MARK JACOBSON 00: 43:57 And notice nuclear is not on this graph. The white spaces are everything else like gas, nuclear, small amount of biogas, biomass, uh, electricity, and also imports of electricity. Uh, so you, you notice a nuclear is base load, so which is flat. So when you have, when you add nuclear to this, that's just even puts it even higher than a hundred percent, um, renewable. So you have even more electricity than you need. But the renewables alone, and I call 'em wind, water, solar renewables, we're not including biomass as clean renewable energy. These are only clean renewable energies that involve no air pollution, uh, no climate emissions and energy security. So we do not include biomass, which contributes to air pollution in California. And, uh, and we don't include nuclear, which is, it's, it's, uh, not renewable and it's not even clean as I'll show you later.

MARK JACOBSON 00: 44:51 Um, but this area, your Honor, over a hundred percent renewables on the right is the same thing except the actual absolute amount of the demand as the red line and the absolute amounts of solar, wind, everything else, and you'll notice there's a drop in the solar, sorry, there's a drop in the demand during the day on the right line. And that's because of all the growth of rooftop PV in the state, which I'll discuss in a

late later. So, rooftop PV people use their own rooftop PV before they use grid electricity. So the more rooftop PV you have, the lower electricity demand is. And so we'll see that the electricity demand this year, for example, is less on the California main grid, is actually almost, it's like 1.5% less than it was last year and the year before as well, largely due to the growth of rooftop pv despite the growth of ai, electric vehicles and everything else.

MARK JACOBSON 00: 45:40 Here's another day. Um, this is June 17th. There was a record, peak discharge rate of batteries of 10.9 gigawatts. Actually, that record has been broken since then. So on the main grid there's up to, there's 11.2 gigawatts of batteries. And to put that in perspective, the average power demand in California on the main grid over the entire year last year was 24 gigawatts. So 11.2 gigawatts of batteries and their, their four hour battery, so they can discharge 11.2 gigawatts for four hours is 46% of the average power demand. So there's so much, and this, this battery growth is like 200% growth in two years. So it was just, it was like, you know, a third of that two years ago. Um, so here's another, it's another day with a hundred percent wind, water, solar, but here's the statistics through September 7th. From January 1st through September 7th, you see demand is down 1.8% versus 2024 and 1.6% versus 2023.

MARK JACOBSON 00: 46:39 And that's because of I mentioned a large, large part is despite growth of ai, California has the third most data centers in the us but by far the most electric vehicles and huge amount of heat pumps, electric heat pumps that people are moving to. Despite all this electricity demand growth, there's actually low lower electricity demand on the grid. So if you want to reduce risk on the grid of blackouts, well the first thing to do is install a lot of rooftop solar because people will use that rooftop solar to the first. And so that will reduce the strain on the grid, reduce transmission line sparks because you don't have much as much transmission. You don't have any transmission associated with rooftop solar, but many of the wildfires in California have been caused by transmission line sparks. So rooftop solar is a key. The other thing that you notice here is well, wind water, solar supply is up 6% this year versus last year.

MARK JACOBSON 00: 47:32 That's the second set of columns. Um, and solar is up 16% versus last year wind is up 3% versus last year hydro is down 11% from last year. Uh, just because the hydro output is lower, batteries are up six per 60% since last year and 211% since 2023. Interesting thing. Fossil gas is down 19.4% this year and 38.4% less versus 2023 and imports have increased as well. Um, so and how do you get to, you know, how do you get a hundred percent wind, water, solar every hour of every day without, you know, without nuclear, without biomass, without imports, without gas, more utility PV and batteries, more rooftop PV and batteries, uh, electrifying buildings more with heat pumps and energy efficiency. Um, offshore wind, of course that's, I mean, the biggest source of

untapped resource in California's offshore wind. And it peak has peaked, coincident it actually offshore wind in California peaks when in the summer and it peaks in the late afternoon and early evening in the summer.

MARK JACOBSON 00: 48:33 And so once you have offshore wind, then that meets that peak demand when you have, when you're close to those blackouts and has geothermal is something else. So it's now commercial. Uh, southern California's gonna get 300 megawatts of enhanced geothermal from Utah by 2028. And so you can install enhanced geothermal pretty much anywhere. Now that is a base load electricity source. The difference between enhanced geothermal and conventional geothermals conventional, which California actually has a lot of, because there are a lot of faults and some volcanic locations. Uh, you conventional geothermal you get from shallow hot sources, whereas enhanced it's deeper. And so it used to be more expensive, but now they're techniques that you can do drill deeper at lower cost. And so now you can get base load electricity from enhanced geothermal pretty much anywhere in the us. And so if that's the way to go, if you're really concerned about base load power.

MARK JACOBSON 00: 49:31 But the thing thing is, we don't need base load power. What we need is to match demand with supply. And that just involves combining a portfolio of wind, solar, geothermal, and hydro to fill in the gaps and batteries to fill in the gaps. Also, to get to a hundred percent renewables, you shift more hydro tonight instead of using it during the day. When you have all this excess excess electricity, you shift it tonight and use demand response more effectively. Um, um, okay, so what about nuclear? Well, this, this slide, this slide applies mostly to newer nuclear electricity, but also some of these apply to existing nuclear. But I want to just point out just because there's no chance that we're gonna have any useful new nuclear in this country or pretty much anywhere else in the world for a long time to come worldwide. There's less new nuclear output to, uh, last year for example, than there was in 2005.

MARK JACOBSON 00: 50:23 I mean, even in China, they installed over a hundred times more wind and solar combined than they did nuclear last year when China's putting in more than anywhere. So the problem is that the long planning to operation types, well, there's seven problems with nuclear. There's a high cost carbon dioxide, there's also emissions. It's not zero carbon or zero emissions or zero pollution. It's not, it is just, it is a, it's, it's a, it, it emits like nine to 37 times the carbon equivalent emissions as wind. And we'll see why in a minute. But it's all, it's not like carbon dioxide and other chemicals, but it's water vapor and heat as well. There's of course nuclear weapons, proliferation risk, core meltdown risk waste storage issues and risk underground uranium mining, lung cancer risks, small

modular reactors which do not even exist commercially have the same or similar risks or even worse in the case of weapons proliferation.

MARK JACOBSON 00: 51:13 And we don't know a lot about the other, um, damage that they can do or there, there are a lot of similarities between those and large reactors. In fact, before large reactors came around, we had built small reactors and due to economies of the scales, that's why we wanted to go to large reactors. Well, okay, so worldwide new nuclear takes 12 to 23 years from planning to operation versus, you know, six months for, for you, uh, for rooftop PV and one to three years for utility pv and wind capital cost of new nuclear is 10 to 20 times that of new solar and wind. And the cost per unit energy is three to eight times that. And as I mentioned, it produces nine to 37 times the CO2 equivalent emissions per unit energy is wind. The intergovernmental panel on climate change talks about the security risks of nuclear.

MARK JACOBSON 00: 52:02 There's robust evidence and high agreement that increased use of nuclear leads to weapons proliferation, risk, meltdown risk, uh, waste risk for 200,000 plus years and underground uranium mu lung cancer risk from ol. And just to give you an idea of why you can never build new nuclear plants and how they won't, you won't see any new ones for decades in North America and Europe. This is what you have, uh, this finished plant, it took 23 years from planning to operation. It just opened like a year ago. It took 23 years. Hinkley point C is not expected to, is expected to take 21 to 23 years. Vogul three and four, the only new reactors built in the US in the last 30 years, they took 17 and 18 years respectively from planning to operation a French reactor 20 years. So all of these are 17 to 23 years.

MARK JACOBSON 00: 52:52 And even in China, 13 to 14 years, 12 to 13 years, 17 years in the UAE, they're 12 to 15 years. So worldwide it is 12 to 23 years. Why would you wait? We don't have time to wait. We need to solve 80% of a climate and pollution problems by 2030 and a hundred percent by 2035 or so. And you can't even build one new nuclear reactor in that period. And then look at the capital cost on the right for comparison. New solar is less than a dollar a watt. In fact, the solar panel, the panel itself is only 6 cents a wat. And you're comparing that with 1916 $8 a watt for new nuclear. It's just why would you wait so long and to pay so much more? It just makes no sense. Um, the carbon dioxide equivalent emissions of nuclear, it's really a, a function of there's five, well, here there's six different sources of carbon equivalent emissions in air pollution.

MARK JACOBSON 00: 53:48 One is the, just the regular lifecycle emissions from constructing the plant, operating the plant and decommissioning. That's what everybody

looks at. But they all, everybody else look ignores these other things. The opportunity cost emissions, while you're waiting around for that nuclear plant to be built, you're emitting huge amounts of pollution from the background grid. And whereas you don't, you don't emit that when you're building wind or solar because you can put that up in one to three years. So those are called opportunity cost emissions. In the case of Vogel in Georgia, they're basically 15 years of extra power plant emissions from fossil fuels that went into the air because of the decision to build gel instead of solar and wind. Then there's heat emissions from the reactor itself. There's an anthrop project, water vapor emissions. There's emissions from, well forget those fifth one that designed nuclear.

MARK JACOBSON 00: 54:37 There's also just covering the ground with nuclear facilities also stops, um, the sequestration of CO2 and vegetation in the soil. So when you look at all these, uh, the total here, just so the number, just to give you an idea of the numbers, the total nuclear emissions of carbon dioxide equivalent emissions per kilowatt hour, about 78 to 178 versus 4.8 to 8.6 for onshore wind. So it's a ratio of nine to 37 to one. Uh, so it's not carbon free. Please don't call nuclear carbon free. It's not at all, it's not close to it. It's, it is better than gas, but it's not even close to wind or solar. Okay. And finally, um, can the world transition to a hundred percent clean renewable energy for all purposes? We developed roadmaps for 150 countries, uh, in 2050 or 2022. The end use demand in those countries was 13.3 terawatts in 2050.

MARK JACOBSON 00: 55:30 That's expected to go up to 20 terawatts. And, but if we electrify all energy and provide the electricity with just wind, water, solar, that future demand or requirements go down 54% to nine terawatts. And that's because when you go to battery electric vehicles and hydrogen fuel cell electric vehicles, you use a lot less energy. In fact, each vehicle's about, for battery electric is 75% less energy than a gasoline vehicle in terms of fuel use. But averaged overall sectors is about a 20% reduction of demand. Electrifying industry, 4% electrifying heating cooling. Well, if cooling's already electrified electrifying heating with heat pumps, you go down 13% electrifying, eliminating fuel mining. That's 11%. 11% of all energy worldwide is used in mine transport and refined fossil fuels in uranium. When you go to wind, water, solar, you don't need to mine for any fuels. Wind comes right to the turbine, solar comes right to the panel, and then there's a 7% energy efficiency improvement beyond business as usual.

MARK JACOBSON 00: 56:28 So 54% reduction. What's the cost of transitioning the world? Well, $60 trillion to keep, and this is to keep the grid stable everywhere. We did grid stability analysis in all 150 countries. US has 6.5 trillion. China's 15.5, Europe is 5.4. California is about half a trillion dollars to electrify all energy in California and provide the electricity with just wind, water, and solar. But what's really important is the annual cost.

Right now, worldwide world spends about $11 trillion per year on energy on all from all sectors. But in 2050, that's expected to go up to 17 trillion per year. The health cost of energy is about $37 trillion per year today. And in 2050, because of the seven and a half million people who die from air pollution, 90% of which is from energy. And then there's a climate cost from energy of $33 trillion per year. So the total social cost of energy worldwide is about $87 trillion per year in 2050.

MARK JACOBSON 00: 57:23 But if we electrify provide the electricity with wind, water, solar, we eliminate the health costs, we eliminate the climate costs from energy. There are no emissions associated with wind, solar, and all, all the sources that we're talking about here. And our energy requirements go down 54% and the cost per unit energy goes down another 15% or so. So our, our energy costs go down to $6.8 trillion per year. And that's also our social cost. So we save, in terms of energy cost, $10 trillion per year. And if we divide 60 trillion upfront by $10 trillion per year savings, that's a 6 trillion, sorry, six year payback time from just looking at the energy cost alone. From the social cost point of view, we save $80 trillion per year. So it's less than a one year payback time in California. It's actually around a three or four year energy cost payback time. But the levelly cost of clean renewable energy right now is already cheaper than that of fossil fuels. This is from I Arena. It's a world survey weighted average worldwide utility pv, onshore wind, offshore wind, geothermal and hydro are all less expensive than fossil fuels it. So PV and wind, onshore wind are the cheapest forms of electricity in the world right now. And that's because there are no fuel costs. Everything else has a fuel cost. I mean, all the non-renewable have fuel costs and that's why their prices are, their costs are higher. Dr.

LINDA VANASUPA 00: 58:41 Dr. Jacobson, um, I hate to interrupt you, but uh, we're, we need to kind of close this out so we can I guess, get into the questions and then have the panel discussion. Is there anything you

MARK JACOBSON 00: 58:53 Wanna comment? Okay. Um, yeah, I'll just, I just wanna make one more point and that because people equate high, uh, lots of renewables with high costs of electricity. And the last point I'm making is that there are actually 11 states in the US that are above California that actually provide a higher percent of their electricity demand from just wind, water, and solar than California does. South Dakota last, in the last four quarters, supplied 120% of their demand with wind, water, solar. And you can see the states here, Oklahoma is 51%. California was, uh, 49% during that period. But those states, of the 11 states, 10 of them have electricity prices 2 cents a kilowatt hour below the US average. In other words, the more renewables in the state, the lower the prices. California, which is ranked 12, has high prices, but it has nothing to do with the renewables, obviously, because none of the other states have that problem.

MARK JACOBSON 00: 59:47 It's because of the cost of wildfires being, uh, passed on to consumers. The cost of the San Bruno Elise or Canyon Gas disasters passed on to consumers. The po the cost of, uh, undergrounding transmission line passed on to consumers cost of strengthening underground gas lines passed on. Consumers, the cost of keeping Diablo Canyon open, that is being passed on to consumers. So we're seeing the high cost of California electricity due to everything except for renewables. And you can see the other states don't have that problem or make one really important point. We looked at which countries are actually fastest to get to a hundred percent, and China is on track to get to a hundred percent wind, water, solar across all energy sectors by 2045. And just in the last year, produced 280 last six months, produced 280 gigawatts, built two 80 gigawatts of wind and solar and hydro, and now has enough electric power supply from renewables to supply 56% of all US energy if we transition the US to a hundred percent renewables.

MARK JACOBSON 01: 00:47 So the argument that we don't have enough capacity or ability to provide California with a hundred percent renewables within five years is just nonsense. It's just a question of willpower. And yeah, so keeping Diago Canyon open is, that's an excuse for not wanting to do more. I mean, China's just kicking our butts, building 10 times more everything than we're building. California's doing really well at California's pace will be a hundred percent wind, water, solar by 2037, which is faster than China, but that's just in the electric power sector. This number is for China for all energy sectors. So you can see China's pace to get to a hundred percent wind water, solar is way faster than us as a whole. Won't get there until 2155. That's 110 years later. We

CHUCK ANDERS 01: 01:30 Need to move on to questions.

MARK JACOBSON 01: 01:32 Yeah, I'm done. I'm done. So

LINDA VANASUPA 01: 01:35 Yeah, I apologize, Dr. Dr. Jacobson, we've kind of eaten up our time, uh, for the, for the questions from the panel. Um, I think we should probably, I

CHUCK ANDERS 01: 01:45 Wanna just re uh, mention that we do have for Panel members, uh, online that are participating and, um, uh, a couple of 'em have raised their hands with questions, uh, Scott and Francis, so I wanted to make sure you are aware of that.

LINDA VANASUPA 01: 02:02 I, I'm not, I can't see any of it. So, uh, you wanna maybe, um, Scott, and, um, why don't you go ahead and ask your question first, and then I think we'll have to move on to the public comment.

SCOTT LATHROP 01: 02:14 Well, um, thank you very much for giving me the opportunity to ask a question. Um, uh, first of all, I'd like to thank David and Mark for their presentation. So a lot of, a lot of information there. Uh, but I guess I'm kind of have a little bit of a more simple mind. I think the purpose of this meeting is to talk about, uh, the grid as far as grid reliability. And it seems like to me, of course, the big driver there is the source of power for the grid, and we can debate all we want as far as what type of power should be, uh, supporting the grid. But I was hoping that you could put that one slide up. David have the very last one with that, all those lines. And, um, I, I just have a, a question. Uh, we're, we're into 2025 when Diablo Canyon was scheduled to be shut down at one time. Uh, if it was shut down today, what would those lines look like?

DAVID ERNE 01: 03:09 It's a good question. So the lines actually incorporate Diablo Canyon in the, in the resource mix. So you could basically take each one of those lines between now and 2030 and drop it by about two gigawatts. No,

SCOTT LATHROP 01: 03:22 No, i, I meant for like today, uh, 2025, what would that, what would the, where would the line go if the power was turned off today?

DAVID ERNE 01: 03:31 So the, looking at that, that basically the, um, uh, the graph shows, um, 20, well, it starts at 2026, which is effectively similar to 2025. Basically drop each of those lines down by two gigawatts. So under, um, we still have excess in a, you know, for general operations, you know, for, for a basic, um, average year, we would have, um, uh, just a little bit shy of what we need if we had a 2020 event, and we would be below what we would need for a 2022 event. Mm-hmm

SCOTT LATHROP 01: 04:09 <affirmative>. Uh, in the event, uh, in 2030, uh, all the resources that we are talking about coming online, if they didn't come online, where would our power come from to support the grid?

DAVID ERNE 01: 04:23 The, well, if, if those resources didn't come online, we'd be relying on the existing resources that we have in the state. Uh, so it'd be a mix very similar

to what we currently have. I think that is not likely to happen. It won't happen because we are building new resources at a very rapid pace. Like I said, uh, nearly seven gigawatts of clean energy resources came online last year. We anticipate that's gonna continue, not, maybe not at that pace, but it can continue in very high pace, um, moving forward. So we feel the growth of clean energy resources right now is looking very good.

SCOTT LATHROP 01: 04:56 Thank you.

LINDA VANASUPA 01: 04:56 So, uh, thank you. Uh, and I guess, Francis, you had a question. We're running about 10 minutes behind, so Francis, we, should we take your question then we'll move to public comment.

FRANCIS ROMERO 01: 05:06 Well, thank you so much. Uh, I just wanted to say, let's see. I just wanted to say that, uh, Santa Barbara County is also represented on the Diablo Canyon Decommissioning engagement panel. We definitely, I am, I represent Santa Barbara County. Uh, and what happens at Diablo Canyon has a, uh, significant impact on our county as well. Um, and as Scott indicated, I, we simply don't have time to debate all of the different, uh, sources for energy and how, what's better, what's not better. But a couple of things I think that were said, uh, regards to rooftop pv, uh, and this question is for David, do your projections include the glut of P rooftop PV that is going to become obsolete because we had a lot of incentives and a lot of subsidies for people to jump in and do rooftop. But we also know that, I know with my lease contract, there's only a 20 year lifespan predicted.

FRANCIS ROMERO 01: 06:11 So we've got an issue of number one, recycling these panels at the end of their useful life, which I don't see a lot of conversations about. But when there aren't subsidies for people to then reinvest and put those back up, do the projections bake in any decline in the rooftop PV because of just the absence of people wanting to pay again to reinstall them, and assuming, you know, they could get less expensive over time, but they could get more expensive. And I, I did have one comment from Mark, um, China might be kicking our butts, but it's because China doesn't have the regulatory environment that we have either. I I do land use permitting in California and have for the last 25 years here in the tri counties. And, uh, when you're talking about one to three years for utility, PB and wind, uh, that is how long it's taken our county just to craft an ordinance. We are nowhere near being able to permit anything in that type of a time window. So, um, and I guess my last comment about people dying and, uh, health impacts, I don't think you can really attribute 100% of these deaths just to pollution, because people also make daily choices that contribute to their underlying health, such as their weight and what they

consume. So I think that some of this is just a little bit too much for the grid reliability conversation that we're trying to have today.

LINDA VANASUPA 01: 07:42 I'm gonna ask Mark to, to respond, and I think, um, maybe, um, if there's other comments by, uh, David, we can, we can come back to that. So, mark, did you wanna respond to Francis' comment?

MARK JACOBSON 01: 07:56 Sure. Well, they're all good points. Um, with regards to the rooftop PV, though, I mean, panels are warrantied in California for at least 25 years, and they last 30 to 35 years. So the 20 years way too short of a timeframe. And that, you know, they'll just keep going. People might just add additional. Um, and with regard to, you know, mortality, well, sure, um, people contribute. Yeah, it's, you know, people who are already ill are going to die faster if they have it. If you have a heart, here's a point. If you have a heart attack and you're in polluted air, you're more likely to die of that heart attack than if you're in clean air. So, sure. But it was like nine. California has about 12,000 deaths per year from air pollution, and they, 90% are from combustion fossil fuels and bioenergy fuels. And with regard to the permitting, well, California is putting in huge amounts of wind, solar, and sure, some places have more permitting than others.

MARK JACOBSON 01: 08:51 And I don't want to speak to say I know which ones are best, uh, but I'm just pointing out that it can be done. There's not, there's not a technical or economic barrier. All the barriers are social and political. If we decide we want to do it, we can. That's the point I'm trying to make. Yeah. But that's the social barrier when, or political barrier, when you have permitting a stop or blockades, um, just like, you know, substance, not, not increasing subsidies or stopping subsidies is a political barrier. So I'm not saying that we will do it, I'm just saying it is possible technically and economically, it'll be cheaper to do if we decide to do it. If we're actually evaluating the health and climate and energy security costs of the different alternatives, we would see that most people would, would actually choose to go this clean, renewable, renewable route. In China, they have 1.2 million deaths a year. In the US we have about a hundred thousand deaths a year from air pollution. So they have more motivation to actually go faster.

FRANCIS ROMERO 01: 09:45 Well, thanks. And hopefully we, that's just one <inaudible> solar electric, uh, generating debacle, because that's definitely been a mistake.

LINDA VANASUPA 01: 09:56 So, um, I think what we wanna do now is,

Cory Jones 01: 09:59 Oh, may I ask just one question? Uh, and for, forgive me, uh, this is, a lot of this may just be going over my head, but, uh, at the core of it, you know, I'm, I'm looking at this at the lens of just your standard citizen that may not understand all the nuances of this, and I heard both perspectives. And, uh, I think the key thing that I'm still trying to understand after all that is from a grid reliability standpoint, what, from both of their perspectives is Diablo's role in that over the next five years? Right? Like, it, it, is it necessary based on all the forecasted energy demands and forecasted, uh, new, new forms of generation that'll be coming online, how much longer is Diablo necessary for us to have a stable energy supply in California?

MARK JACOBSON 01: 10:55 Well, can I say one thing about that? So I've been tracking, as I mentioned, California's supply and demand every day for the last three years. And there's some, there, there was a period of like a couple months when Diablo County, both reactors were totally down and nothing bad happened whatsoever. I mean, all he did is allowed the solar and wind, which are already already overproducing during several of those months to still overproduce. Um, but just not as overproducing so much. It's, you know, there's no, uh, there's no intrinsic reason to keep the, the cost of keeping jbo canid open. I mean, it's, the cost is, is billions and billions of dollars. You can take that extra subsidy. There's subsidies going into this, and the subsidies being used can just pay for the new batteries and solar and wind to replace Gabriel Canyon. So that is a fact.

MARK JACOBSON 01: 11:40 You can just look at all the subsidy costs and replace it with clean, renewable energy. And you want, it says, if, I mean, the other can is only supplying 2.2 gigawatts, right? The, the average dig grid demand is 24 gigawatts, and a peak is like 50 gigawatts. So it's never gonna go above 2.2. So 2.2 out of 50 is nothing. I mean, how is that helping grid stability when it's providing one 25th the peak demand? It's not, it's not, you can't raise it is peak demand beyond 2.2 gigawatts. So it is not helping bridge stability, it is just providing extra electricity, and we're paying a lot of extra money for it. California's rates are way higher because of it.

CHUCK ANDERS 01: 12:19 Thank you. We need to move on to the public comment,

LINDA VANASUPA 01: 12:21 Right? I think that we should probably, uh, continue to answer, uh, Corey's question, and there'll probably be more, uh, comments from the public that may be addressed as well. So we're gonna do something, uh, brand new in the public comment, just if you wanna comment, stand up, get in line. And, um,

CHUCK ANDERS 01: 12:38 What we wanna do first is figure out how many people do wanna provide comments. So if you raise your hand, if you do wanna provide comments and the folks online, if you could raise your hand also, if you would like to offer public comments,

LINDA VANASUPA 01: 12:53 We'll, we'll, we'll call 10 in the room, or 12 in the room. Six. So please, please. Um,

CHUCK ANDERS 01: 13:05 Okay. So, um, it looks like, uh, we can offer, uh, three minutes for each commenter. Um, we have eight here that I counted, and right now online, I don't see anybody. So, uh, if there's folks online that would like to provide public comment, please raise your hand, uh, online.

LINDA VANASUPA 01: 13:29 Wh which microphone are they coming up to? This one here. The one here,

CHUCK ANDERS 01: 13:32 Okay. So yeah, what we want to do is, is real simple, just get in line to provide comments. So, uh, uh, if everybody could, uh, kind of line up along that wall or get ready to line up, that would really be helpful. Um, when you provide public comment, please state your name clearly. Uh, if it's a complex name, please spell it and, uh, provide also your residence. And everyone will have three minutes. Public comment, first person, please.

LINDA VANASUPA 01: 14:11 Okay. I think we typically have an order to this. We, uh, I'm so sorry. There's an elected official and their staff in the, in the queue, and that we typically let them speak first. I guess this is a tradition. Oh, okay. I'm sorry. Okay. I'm sorry. And I don't, I don't know who you are, but Tom is, it informed me that you're there, so please, sorry,

KELLY ABBAS 01: 14:31 I know who I am. <laugh>. Good evening. I'm Kelly Abbas. I'm the Chief of Staff for Supervisor Don Ortiz Leg, and I live here in San Luis Obispo. The supervisor regrets that she is not able to attend tonight and provide these comments as she is in Sacramento, serving as a representative on the Carb California Air Resources Board, an agency dedicated to addressing climate change in her absence. I am honored to share the

following comments about one of California's most vital tools in the fight against climate change. Diablo Canyon Power Plant for decades, Diablo Canyon has been a cornerstone of our energy infrastructure and a vital part of our community. It provides a staggering 10% of our state's total electricity, and is pg e's largest clean power source. This is just, this is not just a technical detail, it's the power that keeps the lights on for millions reliably and without carbon emissions.

KELLY ABBAS 01: 15:34 In fact, every year Diablo Canyon operates, it prevents the release of up to 7 million tons of greenhouse gases, a monumental contribution to our climate goals. Yet we stand at a critical crossroad. Global demand for electricity is set to triple by 2050, driven by electri electrification of our economy and emerging technologies. Meeting this demand while maintaining our climate commitments is arguably the challenge of our generation. As a recent Bank of America report noted, nuclear energy is a critical part of the net zero transition. To dismiss it would be a mistake. The old arguments against nuclear power simply do not hold up, take the issue of nuclear waste spent. Fuel is safely stored here at Diablo Canyon and in many regions of the world. Furthermore, it's not simply waste. It's a resource that can be recycled and reused Just as France has been doing for years, the Cop 28 Climate Conference recognizes by having 25 countries, including the US, commit to tripling nuclear capacity by 2050.

KELLY ABBAS 01: 16:44 This is the modern consensus, and California should be lagging correction, California should be leading, not lagging beyond the environmental imperative. Diablo Canyon is irreplaceable for our local economy. It provides more than 1200 permanent jobs for our neighbors, friends and families. During refilling, it injects more jobs and millions of dollars into our local economy. This brings me to the issue of taxation. The County Board of Supervisors supports a full 20 year relicensing renewal because we understand the plant's value. We also believe that with extended operations, the plant should have its tax assessments restored to fair historical levels. This would ensure that Diablo Canyon continues to support our community and our schools, just as it has for 40 years. We are advocating for a responsible, forward-thinking energy policy that recognizes the full value economic, environmental, and practical of Diablo Canyon, San Luis Sp County says, let's work together to ensure this vital resource continues to power our state and our community for years to come. Thank you.

DAVE HOUGHTON 01: 17:52 Could you say again who you are a staffer for?

KELLY ABBAS 01: 17:55 I am the Chief of Staffer, supervisor Dawn Ortiz-Legg.

DAVE HOUGHTON 01: 17:58 You.

CARL WATZ 01: 18:04 Next speaker. Hi, my name's Carl Watz. I represent Fish and Transition. I live in Burbank. Um, I, I don't even know where to start with Mark Jacobson's, uh, speech, or, I've se heard him speak many times, and I never heard him more frantic. I think part of the reason is there's a nuclear renaissance that is ripping the world right now. He is absolutely wrong about nuclear development. There are 70 new reactors under, under construction right now, and a hundred more planned. And if the United States can't keep up with it, we are gonna be buried by other, other countries, other man manufacturers in other countries. Now, mark, besides, besides rolling out the litany of, of lies and mis misrepresentations about nuclear energy that we've been hearing for 50 years about nuclear waste and about, uh, uh, uh, potential nuclear, uh, meltdowns, whatever, which haven't, hasn't happened since this 2011 and, uh, never in a reactor built in the last 50 years.

CARL WATZ 01: 19:09 Um, mark is totally misrepresents on his charts, the generation that he shows. There's, right now at this very moment, there is today, all day long, there were 10 gigawatts of natural gas burning that were nowhere, nowhere represented on Mark's charts. He just simply erased them because the fact is that wind and solar are increasing consumption of natural gas. It's gone up dramatically since 2011 with California's adoption of renewables. And, uh, that part of that reason is that wind and solar require natural gas for backup. They require natural gas to balance the fluctuations in their, in their intermittent, in unpredictable output. So, uh, uh, the, uh, American Petroleum Institute has an advertising campaign saying why natural gas will, will be a feature of the new renewable era. And it's, they, they're exactly right. They're, they love the fact that, um, that, uh, uh, Preco Institute where Mark works is, is promoting, is promoting, uh, wind and solar because they, they stand to make billions in billions in year, in, uh, every, every year that, uh, wind and solar are generating electricity. So, um, just in conclusion, I don't, I don't have, uh, 25 minutes to speak like Mark does to ramble on, but I, I'm, it makes me really kind of, uh, ill to take care of him, talk about clean, safe nuclear electricity the way he does. Thank you.

CHUCK ANDERS 01: 20:51 Thank you. Uh, next speaker and you folks, um, go ahead and sit down over there. As long as you know where you are in the line.

Tom Jones 01: 20:58 We can use the front row and have our guests sit down in order so they don't have to stand for 20 minutes. That'd be terrific.

GUS HACKLEBURG 01: 21:05 Hi, uh, my name is Gus Hackleburg. I'm a local resident here in San Obispo. I actually just have a question, um, about the path forward. Uh, it seems that both speakers were very clear that the, the needs, the power needs, uh, can be covered, uh, with a com decommissioning of, of Diablo Canyon. What's the path forward? Who decides if Diablo Canyon possibly will be extended further? Um, who decides, uh, how does that work, that the decision is made as far as decommissioning goes? I would be curious to hear about that. Thank you.

CHUCK ANDERS 01: 21:48 Thank you. Uh, next speaker, please. What?

JOHN KING 01: 21:53 Hi, I'm John King. I'm, um, local citizen. I live in Aurora Grande, and I'm a member of the, uh, San Luis Obispo, uh, N-A-A-C-P. And, uh, I'm curious, it has come to my attention that the, uh, pg and e has not made public, despite several requests from other members of the community, their community benefit plan, that was a requirement of a $1.1 billion civil nuclear credit award and the midterms payment agreement they received from the US Department of Energy that facilitated the extended life of Diablo Canyon. According to the contract, the first such plan was due to be reported on in February of 2024, and has yet not been provided as noted in the outreach literature from the Department of Energy, the Community Benefit Plan attributes. Attributes and goals are stated to be that the community benefit plan must describe how diversity, equity, inclusion, and accessibility objectives will be incorporated into the project. The plan should detail how the applicant will reduce barriers to employment and advancement opportunities for underrepresented individuals by providing supportive services and through partnerships with underrepresented business minority serving institutions, training organizations that serve workers who face barriers to accessing quality jobs.

JOHN KING 01: 23:35 We have seen a copy of the pg e annual report to the Department of Energy dated June 10th, 2024, but it only contains a matrix of the aspirational and unquantified goals and results. Since this annual report was never distributed to the community and apparently shared only between pg and e and the Department of Energy, it cannot have been intended to, nor did it serve as a community benefits plan. Yet we know pg e can create a genuine community benefit plan if it wants to. It did so for more recent Department of Energy, title 17 loan and highly detailed plan printed on pg e letterhead, posted publicly on the company website to date San Luis Obispo and double a CP and underserved minority citizens have not been contacted for involvement in any way of any

kind by pg and e as a minority serving institution of longstanding in this community, it seems at least an egregious oversight or perhaps even an intentional act of disregard on the part of pg and e.

JOHN KING 01: 24:54 In addition, Questa College, the only community college of San Louis Deiss County, with a 38% Latinx enrollment, has in no way been benefited, uh, from this enormous award designed to aid in workforce development. Even though Questa colleges nuclear tech training operated from 2017 to 2022, as a matter of due diligence regarding the use of federal funds or the lack thereof, we have alerted Congressman Salud Caral of the 24th district up to our concerns. We at the N-A-A-C-P of Sloane County will be actively engaging with him in this manner. We look forward to your timely responses to this important request, and I will gladly provide you with contact information to reach me and the N-A-A-C-P of San Luis Obispo County. Thank you.

CHUCK ANDERS 01: 25:48 Thank you. Uh, next speaker, please.

JANE SWANSON 01: 25:56 Good evening. I'm Jane Swanson. I'm president of San Luis Obispo, mothers for Peace. The reliability issue that California has had in recent years is a shortage of energy, a few hot afternoons a year. Continuing to run the Diablo plant 24 7 for either five or 20 additional years is not a logical response. Dr. Jacobson has clearly shown that the high cost of energy from Diablo is not justified or necessary given the much lower costs of truly renewable energy sources. I advocate that we support the needs of the people of California rather than the bottom line of the budget of Pacific Gas and Electric Company.

CHUCK ANDERS 01: 26:45 Thank you. Thank you. Next speaker,

DAVID WEISSMAN 01: 26:53 A good evening. David Weissman, executive Director of the Alliance for Nuclear Responsibility. Um, this evening, we once again had a chance to gaze into the crystal ball of energy demands and projections, both short and long term. This is not California's first time at that rodeo. Back in 1972, the state assembly requested the Rand Corporation to look into the same information. At that time, we had an installed capacity of 35,000 megawatts in the state. The utilities in response to the RAND Corporation predicted that by the year 2000, we would be requiring between 90 and 150,000 megawatts of electricity power of the state. As we saw in the chart today in 2022, we peaked at 52,000 of those. One cannot imagine that overbuilding a system always falls on the backs of beleaguered rate payers. And as we've for heard how much energy really is needed for the 60 or so hours a year that reach that peak demand.

DAVID WEISSMAN 01: 27:51 Uh, it is also important to maybe think that past this prologue again, having been down this road once before, and I am reminded by Mr. Ern of the very agency that he works for. In that same 1972 ran report, it reached the desk of a Mr. Charles Warren in the assembly. And Mr. Warren proposed legislation AB 1575 that created the California Energy Commission. And I will just read a few of the words from Mr. Warren's oral history interview at uc, Berkeley. It became clear to me that it would be impudent to rely on nuclear to the extent that the utilities had planned. So without mentioning nuclear power, but relying on significant land use and water requirements of siting and operating the 100 large power plants, the utilities projected might be necessary in California. By the year 2000, we wrote legislation which proposed significant changes in our state's energy policy.

DAVID WEISSMAN 01: 28:48 All in all, AB 1575 has withstood the test of time very well. It was the first to challenge the policies of energy inefficiency of the utilities, and to point out that energy planning by the utilities was devoted more to maximizing profits than to the public's interest in a rational and reasonable energy program. Its anti-nuclear implications stem from its objectives of more realistic estimates of energy, electricity, demand, reduced demand due to nce, conserv conservation and energy efficiencies, and then electricity generation by alternate systems. He concluded. And all that was hoped has come to pass. Not too long ago, California utilities were planning to build as many as 80 nuclear power plants by the year 2000. Today, there are no plans for building nuclear plants in California. So said Mr. Warren, in 1984, perhaps it is time to consider, once again Mr. Warren's words and for the agency that he envisioned and brought to life to fulfill the vision that he beheld at the time of its birth. Thank you. Thank you. Next speaker.

GENE NELSON 01: 30:04 Good evening panel. My name is Dr. Gene Nelson. I'm with Californians for Green Nuclear Power. And I want to just focus on one thing. I actually sent you, uh, this information, uh, online already. Uh, and so I'm just gonna be summarizing it more for the benefit of the audience, uh, which is that Diabo Canyon has a very unique role in California, and that is to supply the necessary synchronous grid inertia. That's what basically keeps the lights on. And Diablo Canyon is this huge rotating machine, uh, about each of the two generators. There's roughly a, a million pounds of rotating mass, and it's all rotating at 1800 RPMs. Um, there's nothing else like it in the state. And what that, uh, machine does is to instantaneously interconvert the rotational kinetic energy, by the way, of a recovering college professor. Um, and, uh, the, uh, electrical energy that the generators can produce.

GENE NELSON 01: 31:10 And, uh, if you wanna look at what happens if you don't have enough synchronous grid inertia, you need look no further than what happened in Spain, the Iberian Peninsula on April the 28th, 2025, where the socialist government dare decreed, oh, we're gonna run on solar and wind. And what happened? The grid became brittle. It failed the cost of that failure. 11 people died. That's the current estimate. It'll probably be more. Um, and the economic damage, uh, was denominated in the equivalent of billions of US dollars from lost productivity and damaged production equipment. That's what's in store. If Diablo Canyon shuts down, because it provides what's called an essential reliability service, there is no substitute for it. Um, organizations like NREL say, oh yeah, we can do this. But it's all based on wishes and dreams, not based on reality. So that's why we need this plant.

GENE NELSON 01: 32:25 And I strongly urge, if you haven't already done so, um, arrange to visit the plant. It's truly an awesome place. Emmett Penny calls it a, uh, modern industrial cathedral. It really is totally amazing. Um, and, uh, I again appreciate, uh, and I've gotten to know a few of the people that work there that, uh, they really take, uh, safety and reliability, uh, very, very highly. Um, and that's why this plant needs to run well beyond 2045, not just 2030. And we'll be working with a coalition of groups to, uh, uh, introduce that legislation, uh, in 2026. Thank you very much.

CHUCK ANDERS 01: 33:08 Thank you. Next speaker.

Lindsay Fowler 01: 33:15 Hello, I am Lindsay Fowler, and I'm glad to be in front of you, ladies and gentlemen, of a panel that has been tasked to do a certain thing at a certain place at this time. And, uh, to bring us back to the here and now, I'd like to cover three points. The, the site, the infrastructure, and the personnel. The site itself is rather well secured and, um, or already exist as a functioning power plant, um, doing a rather good job of it. And hopefully it'll be extended into the future, continuing to do a good job. Um, based on the security of this site, I would like you also to consider small modular reactors, which is a relatively new technology, but shouldn't just be scattered over the countryside at various locations. It being in a secure place would be just fine as it, uh, could possibly be supplemented into the, um, infrastructure, which is the second point.

Unknown Speaker 01: 34:31 Uh, you have an irreplaceable infrastructure with the, um, long lines, uh, at half a million volts out to the Central Valley. You have, uh, the connections to, um, the grid that is hopefully being addressed at this, uh, function. And I'd like to mention that Helm's project is irreplaceable, um, in terms of, uh, alternate power, and that you, you guys should consider that having that infrastructure with small modular reactors,

um, on the land that's already existed and secured would be, uh, worth considering. And then thirdly, you have the personnel that's highly trained. One of 'em wasn't spoke before me, um, and spoke well, but you have enormous numbers of highly trained, intelligent personnel making a good living already that could transition into helping with the manpower of installing small modular reactors. And the private company that's still, um, is the utility, um, uh, pg and e may be able to afford to build, put, install the small modular reactors to get it going. So I, I definitely don't want you guys to just be, um, focused way far away on things that really don't apply. And I thank you for the chance to express that. Thank you. And that concludes all the, uh, in-person participants that would like to make comments. We have one person online, uh, that would like to make a public comment, and that is, uh, Nina Barez. Nina, can you, uh,

Nina Babri 01: 36:40 I've unmuted. Can you hear me?

Chuck Anders 01: 36:42 Yes, we can. Please go ahead. Great.

Nina Babri 01: 36:44 Uh, my first name is Nina, actually, it's pronounced, uh, Nina as well. Last name Babir I'm a founding member of Public Watchdog down here in, uh, San Diego. And, uh, I also was, uh, living in Pittsburgh in 1979, uh, during the three Mile Island meltdown. I was a, uh, engineering and construction news reporter for McGraw Hill. That's what brought me to California to open an office for them. I just wanna say from personal experience here in San Diego, when we experienced a very abrupt, uh, closure of, uh, Santa Ano free nuclear power plant, uh, due to a radiation leak, uh, we really didn't have any problem. So, you know, the big threat of, uh, not having Santa Ry operable, uh, just never panned out. Uh, we did just, uh, fine. And, uh, with regard to the concern of, uh, jobs and job creation, well, there's still, uh, there's still an enormous amount of work that's going on because there're decommissioning and demolishing the plant and, uh, the parking lot is full of Edison employees.

FRANCIS ROMERO 01: 37:51 So, I quick, uh, comment and also a question for the gentleman, uh, at the California Energy Commission. So I'll make my comment first in case he's still on the line. Would like to get, uh, his mic wise for my question, my comment is, uh, my new F word is fair. And, uh, I'd just like to make a, a statement to go on the record that, uh, the, this unforgivable loan that Governor Newsom, uh, was so presumptuous to extend to all California rate payers to pay off, it's simply unfair because we are paying $2.52 billion in a decommissioning trust fund to clean up, uh, Southern California Edison's radioactive mess. Uh, and I, I just wanna put that comment, uh, on the record in case anybody's listening that's fair minded and maybe figure out how they could change that, uh, to, uh, uh, have a PG

and eeb responsible for the rate payers, uh, paying off the bill. And, uh, my question is for the gentleman from, uh, California Energy Commission, I thought there was recent, uh, legislation that was passed, uh, to, uh, obtain resources from other states that were cobbled together in some kind of a coalition, uh, so that, uh, this issue of reliable energy and Diablo Canyon can be, uh, finally answered. Thank you.

CHUCK ANDERS 01: 39:26 Thank you. And, uh, Linda, that kind of concludes all of our public comment for tonight.

LINDA VANASUPA 01: 39:33 Yeah. It sounded like we had some, one

CHUCK ANDERS 01: 39:37 More person.

FRANCIS ROMERO 01: 39:39 Oh, one more. Oh,

LINDA VANASUPA 01: 39:40 There's one more person. Oh,

CHUCK ANDERS 01: 39:42 We have one more late comer, so, okay.

LINDA VANASUPA 01: 39:44 Oh, online,

CHUCK ANDERS 01: 39:45 Um, um, Gino Al Tano, I apologize for mispronouncing your name. Please go ahead.

G. ALANO 01: 39:56 Uh, no worries. Thank you. Yes. My name is G Alano. Can you hear me fine?

LINDA VANASUPA 01: 40:01 Yes,

G. ALANO 01: 40:02 Can you, can you hear me fine? Thank you. Uh, yes. So, uh, I am, uh, a, uh, member of the Tini people. Uh, the, we are the ancestral people of, uh, the territory in which the, uh, the, the, the, uh, plant sits along with, uh, the surrounding area. And we were highly involved in a half a decade or so ago with the first relicensing of, uh, Diablo Canyon. And we pushed hard, uh, to make the point that, you know, the aging infrastructure, which is not being discussed here, uh, the fact that we have faults right outside this, uh, power plant and the high risk of tsunami flooding along with, you know, the collection of radioactivity, uh, reactive materials there that have not been, uh, you, you know, disposed of and, and a slew of other issues. And it was understood that it just did not make sense to keep this plant open, especially with the high risks, uh, especially with the aging plant.

G. ALANO 01: 41:08 And so, you know, we, we hope that you consider that again, that the, you know, that we also said that, you know, electricity, the demand for electricity is going to increase because of technology, and that a vast majority of this is a money grab. That it's, you know, it, the, the plant is being, you know, uh, kept open for the simple purposes to allow for, uh, to provide electricity for non-essential, uh, use. And there are other means of, uh, of forms of, uh, of energy that can be utilized, that will cut down the risk of something catastrophic happening at Diablo Canyon. You know, we've mentioned that everybody here listening to this is something we pray never, ever in our lifetime or ever we pray that the, the, the plant is, you know, removed that something as catastrophic as Fukushima. Matter of fact, the lacing, uh, hearings were right after, uh, the Fukushima event.

G. ALANO 01: 42:14 And all of the traits, all of the terroristic of Diabo Canyon are extremely similar to Fukushima in terms of where it sits on the coastline, how close it sits to fault lines, and all of the above. So, you know, somebody had mentioned earlier that there was once a plan to have 20, or 30 or 80 some huge amount of power plants, uh, built. And now that plan is gone. No, we, they're not doing it. So, you know, there's, there's a reason behind that. And I understand that this is a plant that's there that's been providing electricity, however it is aging, uh, and it is at high risk for some catastrophic event. And please reconsider, uh, uh, keeping the plant open. Thank you. Right on, Gino.

LINDA VANASUPA 01: 43:08 Thank you. Thank you. And that concludes the comments. Yes. It looks like we have about, uh, 20, we've gone over a little bit. It looks like we have about 20 minutes, uh, left for kind of a, a dialogue. Uh, do I have that right? Um, yes. And I wonder if there seems to be two types of questions. I wonder if we might, um, allow kind of half of that time for our panelists to respond. 'cause they've, they're kind of guests of ours. And then to shift over to the last half to the questions that are more specific to, uh, pg e and process that are local here, is that, is that fine process folks? Um, okay. So, um, I, I guess a, a Mark or David, would you do, were there any questions that you felt, uh, that were directed

at you compelled? I know there's some questions that I, I saw that were specifically for you. And I don't know if you're still with us.

CHUCK ANDERS 01: 44:03 Are you, David Erne is on the line too, so he's available to answer any questions. David RN is,

LINDA VANASUPA 01: 44:11 Yes. Did I say David and, and Mark? Yes.

MARK JACOBSON 01: 44:17 Um, well, for me, there are a lot of good points made. Um, you know, I disagree with speakers saying that we need more nuclear, nuclear spray. There won't be any new nuclear reactors built in the United States in the next, at least 10 years. Uh, there's no small modular reactor that's even permitted for by the Nuclear Regulatory Commission, uh, let alone commercial. And as I said, they, they take on the order of 17 years from planning to operation. The construction time is separate from the planning time. So, but here we're talking about the applicant's an existing plant and whether to keep it open or not. And as I mentioned, there is no reason to keep it open. It's only providing two gigawatts and the peak, if the argument to keep it open is we need it for when there's the summer peak of demand, and that's at 50 gigawatts.

MARK JACOBSON 01: 45:10 So I don't know how two gigawatts is ever gonna help. 50 gigawatts is not. And we've built, just in the last two years, we've built about eight gigawatts of batteries for four hour batteries. So that, you know, you just keep building batteries and solar to store electricity in those batteries, and you're going to hedge against any of these big growths and, and peaks in demand. So that's the solution. It's much cheaper. Uh, nuclear is ridiculously expensive and keeping it open is ridiculously expensive. So if you wanna sell consumers with high prices, this is why California has the second highest prices of electricity in the us partly because of keeping Diabo Canyon open.

LINDA VANASUPA 01: 45:50 Um, you know, I, I think there were two specific questions for David, but um, before we shift to that, uh, do you have anything to say, uh, about Mark, anything to say about the synchronous grid inertia concern? Um, NRA has a solution that the, they can be, that can be handled through, um, microprocessors and instantaneous, I guess, correction for, um, you know, for, uh, deviations in the frequency. What are your thoughts about that? Do you have anything to say? Well,

MARK JACOBSON 01: 46:20 First of all, so somebody mentioned that we need gas to match renewables. And in fact, gas has gone down 38% in two years in California due to the growth of renewables because batteries are replacing the need for gas. And they can respond in 20 milliseconds of a gas peaker plant takes 300 seconds from zero to a hundred percent power. A hydropower plant takes 15 seconds and a battery takes 20 milliseconds. So you can ramp up and down batteries. You can also, uh, control it inertia through ramping up and down some solar and wind, keeping some of 'em not at full capacity and increasing decreasing. There are multiple solutions to, to this issue. It's, I mean, there are many, there are 12 countries that are a hundred percent wind, water, solar in the world. And as I mentioned, South Dakota is 120% wind, water, solar, and there's no problem. So all these are fictitious problems brought up because people are trying to prevent renewables from, uh, where they're eventually gonna go, which is to power everything.

LINDA VANASUPA 01: 47:20 Okay, thank you. And, um, David, I guess, uh, if you, you don't mind, uh, you are keeping track of the questions that Dave, for him.

DAVE HOUGHTON 01: 47:28 Yeah, I had the question about the synchronous grid inertia as well, and I wanted to pose that to our CEC participant David Ern and see if he has a response to that.

DAVID ERNE 01: 47:39 So, uh, my response would be it certainly does provide that capability to the grid. Currently, it is not the only resource that can do that. I, I agree with Mark, there are multiple resources that can do it, but it does provide that, uh, resource at this point.

DAVE HOUGHTON 01: 47:54 Okay, thanks. And the other thing I took note of from the public comment was Mr. King's, uh, comment about the community benefit plan. That's a pg e question. Um, it's, it was part of the, um, SB 8 46, I believe. And so, no, do we have any comment on that?

LINDA VANASUPA 01: 48:13 Can,

TOM JONES 01: 48:16 How

DAVE HOUGHTON 01: 48:16 About, well, that was part the whole

LINDA VANASUPA 01: 48:17 Deal. Can we that later? That's

TOM JONES 01: 48:19 A question for PG&E. Yeah. So it was a requirement from the Department of Energy under the Biden administration. So we did do that in 2024. We filed that document with the Department of Energy. It's a public document. Mr. George who worked on that, stepped out to work with Mr. King to be sure he gets a copy of it and the executive order should the upcoming administration expended those, uh, extinguished those policies in 2025.

DAVE HOUGHTON 01: 48:43 Okay. Thanks for addressing that.

KARA WOODRUFF 01: 48:47 Um, David, I have a question for you, um, when, as I understand it, when the CPUC makes their, um, estimate of how much power will be needed in the future, that they do not count Diablo Canyon in that estimate. Is that true?

DAVID ERNE 01: 49:09 Uh, yeah. SB 8 46, uh, precluded the inclusion of Diablo Canyon as part of the planning process moving forward. So it has not counted into the, into the forward planning.

KARA WOODRUFF 01: 49:22 So all of the slides that you showed us, they don't include Diablo Canyon,

DAVID ERNE 01: 49:29 The, the, for the planning process. They don't. When we are looking at what the grid resources currently are to understand whether we have sufficient resources, we do include it. 'cause it is a resource, but it is not concluded for, uh, planning and procurement,

LINDA VANASUPA 01: 49:45 Not, not in past 2030, is that correct? 2030,

DAVID ERNE 01: 49:49 Correct. Correct. Yeah. E even our, uh, even our estimates do not include it past 2030, but it's a 6 46 required to not be included from 2025 forward in planning.

KARA WOODRUFF 01: 50:13 I wanted to speak to the question about who makes a decision about Diablo's, uh, extension or not. 'cause that came up by one of the public commenters, um, in 2022. Um, the plan at that time, the beginning of the year, was to, um, close Diablo when the current licenses with the Nuclear Regulatory Commission expired this year, um, into the year, governor Newsom expressed an interest in considering the extension and eventually the California state legislature passed SB 8 46, which as you know, extended Diablo's, um, uh, ability to continue into 2030 if everything else was in place. Um, but the question about whether Diablo will be continued beyond 2030, um, really does get back to the state legislature and the governor. And I don't think we have enough information now to know what direction they're taking. Um, as you all know, pg e has applied for a 20 year extension with a nuclear regulatory commission, and all signs suggest that they're going to indeed get that permission. Um, but they still would have to get permission from the state legislature, um, and the governor to move forward beyond 2030 under the current law. So I, I don't think we know exactly where that's going. But ultimately, the state legislature and the governor are gonna decide, um, how long Diablo stays operating.

TOM JONES 01: 51:35 Correct. I I would add to that, that it'd be three subsequent actions once legislation occurred. It would be with the California State Lands Commission. They have discretionary action on the lease. If we don't have the lease, we cannot operate. It would also be the Public Utilities Commission. Since we're a regulated utility for the funding, they have the power of the purse strings. If there's not funding, it doesn't occur. And then the third is with the Nuclear Regulatory Commission, and that the license is issued for 20 years, which we do anticipate, but they have those subsequent steps once the legislation should it occur would happen. The discussion needs to happen timely. It takes us about two years to get the things we need to continue to operate. So 2026 and seven are that window in which it would need to occur, or Unit one wouldn't have time to procure fuel for 2029. This is the same scenario we saw in 2022.

LINDA VANASUPA 01: 52:31 Um, this, this might be a good time, um, maybe for the update, Tom, um, did you have a pg e update regarding the Cherry Canyon?

TOM JONES 01: 52:40 Sure. So it, there's been an update with Wild Cherry Canyon. Uh, it's unrelated to decommissioning, but it is related to the Diablo lands. It's approximately

2200 acres of the 12,000 acres known as the Diablo lands. And it has a lease on it that's held by Home Fed Corporation and some partners that lease had a 99 year term with an additional 99 year renewal period. California also has California civil code section 7 1 7 that states no lease on agricultural land may be longer than 51 years. Uh, the HomeFit Corporation had requested an extension of the lease. We denied it after doing our due diligence reading section 7 1 7, which was passed by the legislature a few years before the lease. And keep in mind the timing, this was in the sixties, right? So with that, they sued us. They thought they were eligible for the renewal. We filed a cross complaint, we prevailed in San Luis Obispo Superior Court, and the lease was invalidated.

TOM JONES 01: 53:43 Home fed appealed to the second district appellate court in Ventura. They reversed the Superior Court decision and said, because the lease essentially contemplated actions more than just agricultural, there are contemplations of development in the lease that it wasn't exclusively an agricultural lease. So that was the basis essentially for their reversal. So where do you go from there? We have the right to appeal, but to appeal to the California Supreme Court, that's a very large hurdle that take up approximately 4% of the cases that are requested of them. And you also have to file for a rehearing with the appellate court. And that seldom occurs, they render a decision and you say you're wrong. And then they say, well, we're pretty consistent, right? So we filed yesterday our petition for rehearing at the second district appellate court to keep our legal options open. Uh, but the superior or the appellate courts are seldom first challenged at the Supreme Court, and then even less seldom reversed.

TOM JONES 01: 54:49 So that's its current status. We don't talk about our legal strategies, but we tell you about our public actions. And our public action yesterday was to file with the appellate court for reconsideration. It might have been two days ago. Now they're getting a little fuzzy, but this week we'll say that. And then the other item, uh, related to decommissioning is that we are narrowing the information with the county, uh, building and planning department of Sans Bipo County for the environmental impact report. I think we've completed our request for additional information with the county. Uh, they might still have a second one when you answer a question, sometimes it generates a new question. So we'll see if we've closed that process out or not, and then we would anticipate something at the end of this year or the first quarter of next year. So some ask, why do we do that if we're still operating?

TOM JONES 01: 55:37 And the question is, uh, it's the question I get frequently, but here's the, here's the rub. If there's no further action taken, you know, next year will be three years from unit one coming offline. And so then we still have a coastal process and ramping up. And then if we go back in the way back machine for this panel, we think about

the contracting and the other actions that are associated with decommissioning. So there's a lot of work to do in parallel because there's uncertainty in the future of the facility, which is our conversation tonight, right? So we remain on parallel track. It's not considered a project at this point from the company because it's not where we're spending a threshold of money and we're not doing it immediately. So we'll watch that 20 26, 20 27 window for legislation as well. This panel as well, this county as well our customers to see if there's legislative action or push by the Governor's office to, uh, move ahead with an extension or not. But Kara's answer was correct, it would require legislative action to continue the plant plus the current deadlines that have been established.

KARA WOODRUFF 01: 56:44 Tom, can I have a follow up question on Wild Cherry Canyon? As I recall in trial court where Eureka Energy prevailed, there were multiple arguments made and a violation of the California 7 1 7 civil code was just one of 'em. And I think you also had arguments like the rule against perpetuities anyways, without going to a lot of legal stuff. Is there, are there arguments that weren't addressed by the appellate court that could still go back to the trial court for litigation? Or is that over? And were now just talking about appeals to the appellate court or the Supreme Court?

TOM JONES 01: 57:20 We're on the narrow path, the latter.

KARA WOODRUFF 01: 57:22 Okay. Okay. No unresolved issues for trial court that could return, I guess is what you're saying. That's okay. Thank

TOM JONES 01: 57:30 You. Um, I, yeah. Our path is the Supreme right now is to keep options open for consideration to appeal to the Supreme Court, but right now we're in that period of time where we've requested the rehearing from the appellate court.

KARA WOODRUFF 01: 57:44 Okay, thank you.

DAVE HOUGHTON 01: 57:48 May I?

KARA WOODRUFF 01: 57:49 Okay, I guess, go

TOM JONES 01: 57:49 Ahead. Yes,

DAVE HOUGHTON 01: 57:50 I'd like to circle back to Mr. ER's comments. Uh, a lot of numbers, a lot of graphs, a lot of lines. I'm kind of searching for conclusions, uh, there. And one of the comments you made was that the, um, approach is to keep operating Diablo Canyon until, um, it's prudent to continue operation until sufficient resources are brought online, that it's no longer necessary. Um, how are we doing on that front? And, uh, we're continuing to look at it year by year as I understand, but how are we doing?

DAVID ERNE 01: 58:24 We, we are doing well in terms of bringing resources online, um, to support grid reliability.

CORY JONES 01: 58:33 So outta curiosity with that, based on your forecast, roughly how many more years would it be to reliably replace the output of Diablo, right, from an issue of grid stability?

DAVID ERNE 01: 58:52 Um, well, we feel that we are on track to meet our demand, um, moving forward. The, I think the processes in place for BLO to continue operating until 2030, I think, um, uh, the comment was made earlier about it would take, uh, uh, other, other deciders to determine whether to, um, stop that process

CORY JONES 01: 59:18 As a hypothetical, say if pg and e is given that 20 year license renewal through the NRC and has the opportunity to potentially function all the way through from the CEC's perspective, again, based on your forecast as a ballpark estimate in terms of years, is there like an amount of years or a timeline in which it would no longer be necessary, or is that just too hard to call?

DAVID ERNE 01: 59:46 We, we have not done the analysis to be able to evaluate that. I think we need to get closer to that, uh, point and see how things are progressing.

SPEAKER 16 01: 59:55 I have a related question. Um, the issue of imports I saw came up and I haven't heard much information about imports into the state of California. Um, obviously as a state, you'd want to provide your own power, but I did see somewhere in one of the slides that imports were up 18%. Um, do we have any way of knowing what the

sources of those imports are as far as, um, how many of those are renewable? Um, what are the limits on those? Because the, the basis of most of these conversations are, are based on grid reliability, and that seems to be something that's important for grid reliability as a backup option. And it's just something that I don't know that much about. And I, and I'm curious where that comes into play. That question was for either David or Mark.

DAVID ERNE 02: 01:04 I'm not sure if Mark is still with us. I, I'll say, you know, we do continue to rely on imports for the state. Um, and we also export, um, there is value in having, uh, the resources be available to come into California for times when we need them. And other those states around us that don't need them, uh, as well as it's op great opportunity for us to be able to export to other states when we have excess. So there's value in going both ways. Um, and uh, I think it was mentioned earlier, there's been recent, um, efforts to try to expand the markets to, uh, make that available across the west more broadly. I think there's, uh, strength in having resource, um, mix across the state so that when there are, uh, heat events or other extreme events, uh, we can all rely on each other to be able to do that. So I, I'm not sure that all resources in California is the best thing for California. Um, but uh, but I do believe that having those markets is important.

SPEAKER 16 02: 02:07 Are there any numbers on,

LINDA VANASUPA 02: 02:08 I'm sorry, the

SPEAKER 16 02: 02:09 Capacities? Okay.

LINDA VANASUPA 02: 02:09 Okay. I'm sorry. We're kind of at the end of our time. And, um, Tom, you have a finger up? I don't know if Mark was, mark is still with us. Uh,

TOM JONES 02: 02:17 Uh, mark appears has departed. We were just checking on that since he asked for both. Josh confirmed that he has left the Zoom, but, uh, David, perhaps it would be helpful in terms of percentage on an annual basis, California imports. Is it still approximately over 20% of its net energy on an annual basis? But it does have a two-way street in the marketplace, but I think just maybe a simple annual percentage would be really beneficial for folks in the room tonight.

DAVID ERNE 02: 02:43 Yes. Yes. Usually treat about 20, 30% of, uh, resources are imported. We get a fair amount of hydro resources from request and solar and moon from the, from the east.

TOM JONES 02: 02:56 Thank you.

LINDA VANASUPA 02: 02:58 Well, I, I'd like to thank our speakers for their, the gener, the generous guest of their time, as well as the community for coming out and, and asking you some provocative questions. Um, also thank everyone else for sticking around. Um, I think that we are at the end of our time. Um, is there anything else that we need to do besides express gratitude for everyone who's helped us make this meeting happen?

KARA WOODRUFF 02: 03:26 Well, I think after the fact we'll post the hearing tonight and as well as the slides will be put on the website for the panel. Correct, Chuck. So after the fact, people can look@diablocanyonpanel.org if they wanna listen again or more carefully to any part of the presentation. And I think one thing that I've gotten out of this tonight is this is a, not just a question of numbers, this is a political question. It's, um, it's very nuanced. It's not like, oh, we have X number of watts and we need X number of watts, and so therefore we have enough or don't have enough. It's, uh, it, it's driven by financial interests, political interests and interests in, um, energy. So it's, it's complicated

LINDA VANASUPA 02: 04:33 For sure. All right, everyone, thank you for your time and, um, I guess the meeting is adjourned.

CERTIFICATE OF REPORTER

I, the undersigned, do hereby certify that the foregoing transcript is a true, full, and correct record of the proceedings in the above-entitled matter, taken via Zoom on September 24, 2025, to the best of my ability.

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