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CALIFORNIA ENERGY COMMISSION

JOINT AGENCY WORKSHOP

In the Matter of:	) Docket No.
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Renewable Energy Transmission	)
Initiative 2.0	)
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CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY (CALEPA)

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SACRAMENTO, CA

MONDAY, AUGUST 15, 2016

1:00 P.M.

Reported By: Peter Petty

APPEARANCES

Commissioners Present

Chair Robert Weisenmiller, California Energy Commission, CEC

Joint Agency Partners:

Stephen Berberich, California Independent System Operator (CAISO)
Neil Millar, CAISO
Sushant Barave, CAISO
John Laird, California National Resources Agency (CNRA)
Michael Picker, President, California Public Utilities Commission, (CPUC)
Brian Turner, Renewable Energy Transmission Initiative (RETI) 2.0
Jerome Perez, U.S. Bureau of Land Management

CEC Staff Present

Scott Flint, RETI 2.0 Environmental and Land Use Technical Group (ELUTG) Staff Lead
Eli Harland, Strategic Transmission Planning and Corridor Designation Office
Thomas Gates, Environmental Office
Misa Milliron, Strategic Transmission Planning and Corridor Designation Office

Other Presenters (* Via telephone and/or WebEx)

Nisar Shah, ZGlobal (consulting with IID)
Ziad Alaywan, ZGlobal (consulting with IID)
Keegan Moyer, Energy Strategies, LLC

Public Comments: (* Via telephone and/or WebEx)

Kate Kelly, Defenders of Wildlife
Nathan Bengtsson, PG&E
Sandeep Arora, LS Power
*Steve Mills, The Alliance for Desert Preservation

I N D E X

I N D E X (Cont.)

P R O C E E D I N G S

August 15, 2016 1:08 p.m.

MR. TURNER: My name is Brian Turner. I'm just going to get us started with a little housekeeping information about today's events and the room.

Welcome. This is the Renewable Energy Transmission Initiative, Version 2.0, a public workshop, joint agency workshop. This workshop is being recorded and a copy of the recording will be available on the RETI 2.0 website a few days after the workshop. And the notice will be sent to the RETI Listserv. Information about RETI 2.0 is sent to those who have joined this Listserv. There is a handout on the table just outside the auditorium with instructions on how to join the RETI 2.0 Listserv.

There will be a public comment period at the end of today's workshop. For those of you in the auditorium, if you wish to make public comments please fill out a blue speaker card and give it to the Public Adviser's Office staff at the table at the back of the auditorium -- Rosemary Avalos, who just stood up there in the back of the room -- if you could hand your blue card to her.

Then public commenters will be called to the podium at the front of the room at the end of the workshop. Please state your name and affiliation and speak directly into the microphone so that those on the WebEx will be able

to hear you.

For those of you participating remotely by WebEx you will be muted until the designated comment period. We will call on participants in the room first and then call on WebEx participants. We will unmute the phone line for each WebEx participant as we call on them. Please use the raised hand feature in the participant's panel of the WebEx to notify the host that you would like to participate. After your comments or question, please click the hand icon one more time to lower your hand. You may also submit questions or request to speak using the chat feature.

We will have several presentations today from representatives of the several RETI 2.0 working groups. If you have a clarifying question for a presenter we will do our best to accommodate brief, clarifying questions if time allows. If there is time we'll pause at the end of presentations to see if there are any clarifying questions.

For those of you in the room please raise your hand and we'll bring a microphone to you. Or if you're on the Webinar please use the raised hand function, so we can identify you, and invite you to ask your question. If your question or comment is not a clarifying question for the presenter, then we'll ask you to save your comment for the public comment period.

We also welcome written comments on the workshop.

They are due August 29th and instructions for submittal can be found in the workshop notice on the handouts table out front. Also on that table is a RETI sign-in sheet, which we would appreciate your signing if you did not already do so. Alternatively, you can leave a business card.

Finally, I need to share evacuation information for this building. Please look around you now and identify two exits closest to you. In some cases, an exit may be behind you. In the event of a fire alarm we are required to evacuate this room. Please take your valuables with you and do not use the elevators. Staff will endeavor to assist you to the nearest exit. And you should also know that you may find an exit door by following the ceiling-mounted exit signs. Evacuees will exit down the stairways and possibly to a relocation site across the street. If you cannot use stairs you will be directed to a protected vestibule inside a stairwell. Should we have to relocate out of the building please obey all traffic signals and exercise caution crossing the street, which is always wise advice.

And with that, I welcome you all to this workshop. And I'll turn it over to Secretary John Laird to kick things off.

SECRETARY LAIRD: Thank you very much, Brian.

And it's a pleasure to be here and sort of do a

little bit of setting the context for the workshop. And I apologize in advance, because I can't stay, but for a little bit of the first part.

And this project or process was initiated roughly a year ago by the Energy Commission, the Public Utilities Commission, and the Independent System Operator who are represented here at the dais. And as it has gone along the last year the Resources Agency and the Bureau of Land Management -- and Jerry Perez, the California Director, is joining us here at the dais -- became involved. So now we have a five-agency effort with a state and federal focus across energy, economic land use, and environmental issues. And the staff member Brian is nested with the Resources Agency in this.

And in setting the context I thought I'd make a couple of points in addition to sort of talk a little bit about the process that we will be involved with today. And one is the notion of setting of goals.

And I like to tell a story that almost 30 years ago I was a City Council Member and the state set a goal for diversion of 50 percent from what was going into landfills at the time. And as a City Council Member and Mayor I thought, "That's a great goal. I don't see how they're ever going to achieve it. We'll participate." And because the goal was set, because it brought a little money

to the table, we not only have met that 50 percent goal, statewide now we're over 60 percent. We have a goal of 75, and we can almost see on the horizon how we might not need new landfills over time.

And I was a co-author of AB 32 and we did it in 2006. We thought it was really going to be hard and parts of it have been, but we're on target. And you look at many different goals. And setting them helps us reach them in ways that we might not think is possible at the time.

So the Governor has set forth five different pillars of really, climate change response and lowering greenhouse gas emissions. And four of them in some manner are extensions of existing goals. And the fifth one I have the great pleasure of working on in resources, because it's natural lands. And we're trying to quantify for the first time what's going on with forests. We're looking at sea grass and algae in the oceans. We're looking at ag land protection. We're trying to quantify it, deal with it and produce toward that goal.

But we benefit from the fact that there was the goal for Renewable Portfolio Standards that by 2020 really set it at 33. And we are on track to meet it, but that goal forced so much with it to make sure that we were ready. And I think as the Governor, by Executive Order, has gone to 50 percent by 2030 we have amazing amounts of

information from the first process we went through. And we have a certain understanding of what we need and what is required with it.

And that is really what has led to this process is making sure we utilize that information, develop what we don't have, involve all the stakeholders. And as we get to embark on that next goal we have that ready to facilitate things coming online in meeting that goal.

And there's a great argument about whether we're the seventh largest or eighth largest economy in the world. But whatever it is the fact that we have to have a grid that really matches that economy, and is ready for the change in energy dynamic in the state, really requires new planning and coordination.

And at the same time accessing and unlocking this renewable energy in California has environmental implications. And we have to understand these as early as possible to make smart decisions and it's critical for us to be really smart from the start. And we know that as we're going in the last four years of meeting the previous goal, and moving on to the next one, that that gives us a little time right now to put things in place to get those on table, to decide how we're going to meet those needs.

Climate change is a complex problem and when you set the goals you do the easiest pieces early. And then it

gets to things where there's a little more complexity or a little more difficulty. That's where we're heading and it's right at the time. And since Saturday night in Lake County, and Friday I flew over the Big Sur fire, you can see what some of the effects are in the change in climate. You can see why there's urgency for us to lower our greenhouse gas emissions and have alternatives there, because we are already moving into what some of the effects are.

So to see the five different organizations represented here leading this effort and the many others that are represented here by you, whether it's public utilities, country official, sovereign tribes, NGOs, other states that are voluntarily participating and adding their expertise. So when the RETI 2.0 Project was launched last September a staff from each of our agencies has developed a work plan, organized stakeholders, and began acting on the work program in January.

And this is the second check-in session of the whole group, a leadership from the five agency organizations plus all interested stakeholders, since the staff started the program in January. And I know they've been hard at work on fleshing out the issues affecting any potential need for electric transmission from a variety of perspectives. And I'm looking forward to hearing today on

the progress made on these first two stages and plans for the last phase of the work to bring us closer to completion.

And I understand we're still on track to look for a draft and final report from this process in the fall of this year and appreciate the opportunity to check in, so I just wish you best of luck on your work. I know all of us stand ready as part of this to help. And we look forward to a success in this process, so I appreciate the chance to lead this off.

And I'm going to turn it over to Bob Weisenmiller who's going to run the meeting.

CHAIR WEISENMILLER: Great, thank you. Thank you very much, Secretary Laird, for kicking this off.

I think it's been a -- you indicate a great process -- to start teeing up the issues we face implementing SB 350. And I'm going to be brief and just say I think when we had the last check-in that my takeaways from it were one, we have lots of options. I mean, when we looked at the range of renewables in this state there's just a ton of options. And that part of it is there's a pretty wide range of uncertainty about what the loads are going to be going forward. Part of it is we have a very aggressive goal to double down on energy efficiency. We have very aggressive goals to increase zero emission

vehicles. And obviously, the California economy's always somewhat of a wild card although we're sort of in a boom mode now, but over time we expect to go up and down and boom.

So that as we look forward across the range of renewable options, obviously some of the bookends are if we have lots of energy efficiency, a low economy and not very many zero emission vehicles, frankly we're not going to need many renewables to really get to our greenhouse gas goals. On the other hand, if we have lots of zero emission vehicles, very strong economy, not as much progress on the energy efficiency side we're going to need substantially more.

And so going forward part of where we're in the stage now is saying, "For that, can we start ranking some of the potential portfolios of renewables?" And at least start with the ones that we're pretty comfortable we're going to need. And then have things teed up, so over time as we get more clarity on how we're doing on the energy efficiency and zero emission vehicles we can add more into the mix. And again, it's pretty clear we have a lot of options.

A fundamental challenge for RETI is to do that sort of ranking of looking at not just economic costs, but environmental costs for the potential portfolio coming up.

I tend to talk portfolios I think our experience in the past has been doing 100 percent solar or 100 percent wind or 100 percent geothermal. It doesn't make as much sense as having a mixture of wind, geothermal, solar, biomass in a portfolio and have that portfolio scattered around the state. Start moving forward on that and then having teed up sort of the next group of portfolios that, as we look at it, we get more experience.

So anyway, today's a good chance for a read out from the staff on the progress. I think we're at a stage now of trying to really think about where we are in the pieces, start thinking through the steps to wrap this up, and at the same time start thinking about how this feeds into the next round of activities. This has been more of a stakeholder-driven process. Ultimately, we're going to have to commit more into some of the regulatory forms before we can really spend a lot of money on transmission, but anyways, laying a pretty good framework across all the agencies.

So with that, President Picker, do you have a few words?

(No audible response.)

Steve?

MR. BERBERICH: I'll be brief as well. And Chair Weisenmiller, Secretary Laird, appreciate you having us

here all together today.

I think significant progress is being made. You'll hear today I think quite a bit about the transmission system and see what's available. The goal here, I think is to reuse as much as we can, so we don't have to build new. Fleshing out the portfolios and how they will all operate together is going to be a key part of that. But I suspect we'll have to iterate as the Commission makes its decisions down the road, the Public Utilities Commission makes its decisions down the road, and look forward to working through that process together.

DIRECTOR PEREZ: So I just wanted to thank the Board here as well as you, Secretary Laird, for the opportunity for the Bureau of Land Management to be part of this process and to be engaged early. And really I'm looking forward to seeing the presentations this afternoon, so I just wanted to acknowledge that.

CHAIR WEISENMILLER: Great.

And Brian?

MR. TURNER: Great. Well, thanks. My name is Brian Turner. I'm the overall Project Director for RETI 2.0. And I'm going to kick us off with basically the agenda for today and catch us up with where we've been, where we started from last, so that then you'll hear the progress that's been made since we last met.

So like I said, I'm going to kick it off there. Then we've got three presentations from some of our different tracks under the RETI 2.0 Project: The Environmental and Land Use Technical Group, the Transmission Technical Input Group and the Western Outreach Project. Then I'll close out with talking about our next steps and we'll have a public comment period at the end.

So this first part here is really just to catch us up on where we've been and how we got to what are called the Transmission Assessment Focus Areas, which has been our focus for the second phase. That is, evaluating what are the transmission and environmental implications of renewable development or imports or exports through these Transmission Assessment Focus Areas.

First, the overall RETI 2.0 Objectives: this is a statewide, non-regulatory planning process. I need to emphasize the "non-regulatory" nature. It is really more of a visioning effort in response to SB 350 and the Governor's goals. During this process we have explored combinations for renewable generation resources that can help meet those goals. We're building understanding of the transmission implications of accessing and integrating those resources, identifying land use and environmental implications, opportunities, constraints to accessing those resources. And overall the project is rather accelerated,

for government work anyway, agency driven in a high-level assessment that will give direction for future regulatory proceedings and planning initiatives.

Policy context very briefly: I mentioned the Governor's goals establishing the 40 percent GHG reduction target across all agencies and economy-wide. SB 350 which really memorialized many of those goals and specific programs like the RPS at 50 percent. Integrated resource planning, I'll highlight at both the private utilities and the public utilities that will integrate this 40 percent GHG reduction goal, economy-wide; also substantial dedication to substantial transportation electrification.

I will mention the California ISO is continuing its planning around potential regional expansion. This project is not directly related to that, but obviously many overlapping issues. Similarly, with around the west there are many ongoing policy initiatives that have implications for this process: the Clean Power Plan, federal renewable tax credit extensions may have a substantial impact on renewable development.

Other states are moving forward on their policies including the climate policy of Washington state, renewable goals in Oregon, Nevada coming up with a new plan quite shortly. And Mexico, recent, their electricity sector reform, which is ongoing and having impacts on the

renewables market there.

So this is really the overall process and we'll refer to this a few times during the meeting. We did kick it off in January.

I'll draw your attention to the blue line there, which is Plenary Group. That is all the participants in the RETI 2.0 process. They're responsible for the high-level setting of what kind of renewable resource goals are we planning towards. Where are the renewable resources currently that we may want to access? Identifying then these high-value resources that may need transmission -- and this is what we have termed the Transmission Assessment Focus Areas. And then the Plenary Group will be responsible for developing recommendations and next steps.

With these high-value resources that may need transmission, the TAFAs, those were given or turned over to Transmission Technical Input Group and the Environmental and Land Use Technical Group to evaluate the implications of development in those TAFAs. And that's what they've been hard at work on for these past couple of months. And we'll hear some initial reports out about their progress to date.

One of the things we also heard during this process though is that understanding more about the rest of the west and where renewables will be developed there, and

what are the transmission implications, is extremely important for the state to be spending more time, more effort getting that information. However, it's hard for the state to do so, both practically and politically to decide that we know how other systems around the west are going to operate. So we have asked an external party, the Western Interstate Energy Board, to help us with that project. And they're in the midst of a convening of a Western Outreach Project that we'll talk more about today.

A brief list of all the activities, all the workshops that we've held to date, I won't get into too much detail there.

So I did want to review briefly how we got to the Transmission Assessment Focus Areas. This has to do with the renewable goals that Chair Weisenmiller was just speaking about. How do you translate the high-level goals that SB 350 and the Governor's Executive Order set for us into quantitative goals for renewables for planning purposes?

Again, this doesn't have any regulatory weight, but this is how we got to the Transmission Assessment Focus Areas: how much renewables, where might we need, where might they be located? How much from different areas? For planning purposes we need to have some kind of estimate of what could come from different areas. And then is this an

area that will or could require a new transmission, so that we can complete that assessment.

So the first question: how much renewable energy might we need? What we did in this process is take existing energy projections and determine what's the incremental renewable energy demand beyond needing 33 percent in 2020. As Secretary Laird mentioned it looks like we're on track to have that much renewables online by 2020 to meet the 33 percent.

So then the question becomes how much more might we need to meet either a 50 percent RPS or moreover, the 40 percent economy-wide greenhouse gas reduction goal? For that purpose we use the California Energy Commission's Energy Demand Forecast extrapolated to 2030 and adjusted to approximate the SB 350 energy efficiency goals to get at how much renewables might be needed to reach a 50 percent RPS.

For the GHG question it's a little more complicated, because it involves the entire economy and potential demand shifting between sectors. So for this purpose we use the California PATHWAYS Model, developed by Energy & Environmental Economics, as consultants to the California agencies back in 2014 and '15. And they have some projections about how much electricity might be required to meet those GHG goals. And then how much of

that electricity would need to be renewable; that is, an RPS equivalent. And some of the critical variables in that equation are energy efficiency, behind-the-meter solar PV, electric vehicles and other electrification.

And so we use this shortcut of a equivalent RPS in the -- as a result of this model could be in the 55 to 60 percent range. Again, this is a shortcut to represent how much renewables amongst the electricity ones.

So here we have a graph representing the range of results based on these different scenarios. On the left you see the CEC's Integrated Energy Policy Report, IEPR. Low-demand forecasts, then a mid-demand, mid-energy efficiency -- I'm sorry, economic demographic factors is the mid-band and then with the SB 350 energy efficiency projection -- then a high-demand case. And then we move into the PATHWAYS model, which again are modeling very high demand scenarios based upon electrification of large sectors of the economy and that's why you've reached these very high numbers.

But at the low end, at the 25,000 roughly megawatt hours of additional energy demand, renewable energy demand by 2030. And at the high end, as much as 108,000 megawatt hours, which does seem very high indeed. I'll say these numbers, that range in capacity factors is anywhere from 7,000 megawatts to 31,000 megawatts at an

average capacity factor of 40 percent. It gets a lot into which kind of technology you're assuming, so it's difficult to make generalizations. Those mid-range figures are more in the 10 to 16,000 megawatt range for, let's say, the 53 and 81,000 megawatt hours.

I won't get into where the renewables are, but I've got some conclusions. We had a significant stakeholder process to update existing information, determine where not only what's the latest and greatest on the costs and value of different renewable technologies, but also asking developers and utilities where is their commercial interests?

And then asking what at this point is somewhat academic, studies are our best source about how to put together portfolios that might make the most sense for the state overall, utilizing the technological and geographic diversity that could help us meet these goals at an overall lowest cost. So we collected information regarding those optimal portfolios as well.

And we built off of some existing studies the Desert Renewable Energy Conservation Plan and the San Joaquin Valley Solar Convening, which were very much land-use based projects. But had a lot of good information about where the resources are as well.

And our conclusions about, and I'll just hit

these briefly, but the first is the low-cost solar is ubiquitous. And common across the state and low cost, but it does raise some long-term integration challenges for which there are many options that would allow integration of solar energy. But a consistent finding is that resource and technology diversity and exports are amongst the cheapest options (indiscernible). Many options for solar integration, but diversity and exports are amongst the cheapest.

About wind, one of our strong initial conclusions is that the remaining in-state wind resources may have some challenges regarding environmental feasibility and transmission access that are very important for the state to figure out sooner rather than later. If that is indeed a resource that will be important for our long-term portfolio, determining that feasibility and access, is a priority. And it's one of the tracks that we have taken on during the RETI 2.0 process.

Geothermal energy, we understand that may be an important component of a overall portfolio by 2030, but more work is necessary on cost and benefits. And some of that is ongoing, especially at the CPUC. And transmission access is one important component of this costs and benefits of geothermal, so that's another aspect that we can take on through the RETI 2.0 processes is eliminating

some of that transmission access issues.

And finally, one of the conclusions that was generated by our work on where the renewables are, is that when environmental and land use screens are applied, the overall effect tends to be favoring in-state solar development and out-of-state wind development. This obviously relates to that previous point about the environmental feasibility of wind, the remaining wind, in-state wind resources.

And lastly, I mentioned this already, one conclusion that was emphasized for us a number of times during our stakeholder outreach was that better understanding the out-of-state resources should be a priority for this state. There seems to be many high-quality, low-cost resources out there, but our understanding needs some help. And the export options in particular are very important in understanding what markets may be an export opportunity for the state's surplus generation at certain times. It should be a priority.

This led to our Transmission Assessment Focus Areas. And this is what you'll be hearing more about today. I'll first draw your attention to the colored areas on the map. Those are regions of the state. In the south, it's the California desert area -- very much similar areas to those covered by the Desert Renewable Energy

Conservation Plan -- both Imperial and Riverside Counties down in the far southeast there and then the Kern, Northern Los Angeles County, Inyo and San Bernardino Counties, just south of San Joaquin Valley -- San Joaquin Valley being the area in green -- and Northern California, everywhere from the Bay area down up to the Oregon border, in the purplish-pink area.

And within those there were focuses in the more southernly regions. Those are based on where the renewables are currently as well as the areas studied under the DRECP or the San Joaquin Valley Solar Convening.

And then up in Northern California, because there has not been that local land-use planning effort we were really basing this to a large extent off of the wind resources. This is many of these are the areas in the state with the highest potential remaining wind resources and we wanted to study further the implications of any development up there.

And then the red circles you see are what we termed the import-export paths. That is if power is being delivered to the border of the California balancing authority, such as the ISO at Eldorado Valley in Southern Nevada, the Palo Verde-Delaney hub in Western Arizona or over the California-Oregon Intertie with what impacts would that kind of import have on the California system, what

transmission implications might be? And then there are a few smaller paths up there in very Northern California.

These are the ranges that we asked the working groups to evaluate. These are hypothetical additions to new renewable resources for planning purposes, basically asking a hypothetical "if" up to 5,000 megawatts of new resources were developed in Imperial Valley then what would be the transmission and environmental implications? So that's the question we're asking for each of these areas. And our groups have done a great job so far in developing some new information to inform that. It's still ongoing, we hope to get some more refinement of those conclusions, but you'll hear some preliminary results today.

And the last Transmission Assessment Focus Area, are really the resources around elsewhere in the west and what's the capability of the transmission system to deliver those to California? And these circles represent areas that were specifically mentioned to us by stakeholders. Obviously, there are some areas around the west that are not circled there, because we didn't hear about it early on. But now that we're doing this Western Outreach we're starting to hear more about some of those other resources and their availability, which is great. We welcome that. You can see the particular resources that were mentioned there.

Other questions that we're asking during this process that are important are what are resource changes in other states, such as coal plants retirements or changes to hydro energy dams, changes to their operations, what implications could that have for transmission, also these markets for California surplus power? And then a comparison of out-of-state delivery projects and out-of-state network projects -- these are just a way of categorizing different transmission projects that are being proposed elsewhere in the west.

So that concludes getting us up to speed about what we were asking, how we identified the TAFAs, and then what we asked of our working groups. And here's what we've asked and what has been completed or is ongoing and you're about to hear about that.

The Environmental Land Use Group is doing an assessment of the implications of generation and transmission scenarios. There is an environmental analysis, a land-use assessment survey of county and land use planners. We are doing tribal outreach and consultation with the military and finally, a federal coordination in particular with US BLM on their on their West-wide Energy Corridor Overview.

The Transmission Technical Input Group is doing a transmission assessment -- you'll hear about that today --

on both the existing state system capability, the bulk system impacts, new generation or imports, and potential mitigations and corridor options.

And then finally our third track, which is relatively new is the Western Outreach Project, the capability of the transmission system outside of the state to deliver from these high-quality renewables elsewhere in the west, as well as deliver from California, surplus power and types of over-generation here.

So that's setting us up for what you're about to hear from. I'm going to turn it over first to the Environmental & Land Use Technical Group, who'll walk you through their activities and some preliminary results. Then we'll hear from the Transmission Group and then finally from the Western Outreach Project.

So Scott Flint is our Staff Director for the Environmental Group.

MR. FLINT: Okay. Thank you, Brian. Good morning, everyone. So we have a presentation to report on several aspects of the Environmental and Land Use Technical Group coming up here next.

So just a reminder slide here, Technical Group contributions, the Environmental Land Use Technical Group was set up to identify, compile, document and make available statewide data and where feasible west-wide data

relevant to renewable energy planning this was environmental land use data.

Discuss and recommend methodologies to use the assembled data to assess combinations of areas and to evaluate those areas for environmental sensitivity in land use considerations.

And work interactively with the RETI Plenary Group to do so. So that's the point where we're just coming to now, implementing number three.

So to report out on the several aspects of our work I have Eli Harland with me here from the Energy Commission's Transmission Office. And I also have Thomas Gates from the Energy Commission Siting Office Cultural Unit. Eli will speak about the work we've been doing with the counties and county outreach and the county data that we are becoming aware of and getting access to and collecting.

And Thomas Gates will speak about the consultation with Native American tribes. And between those two I'll give an update on the environmental work and the overall work of the data and information site that we're putting together to help document and provide data for this process.

So Eli, I'll let you take over.

MR. HARLAND: All right. Thank you, Scott.

And good afternoon, my name is Eli Harland. And as Scott indicated I work in the Siting and Transmission Environmental Protection Division of the Energy Commission. And I have been assisting with supporting RETI's efforts in gathering county information that may help us better understand potential development patterns or scenarios of renewables in the future.

So what we did is look back at the RETI Work Plan. And we really saw that it's acknowledged in the Work Plan that county processes -- whether they're land use process, polices, politics -- can influence the patterns to some extent of how renewables are developed in California.

So what we did is we looked at the TAFAs that we had created and looked at those areas within the state that were important for us to analyze and began to develop a county contact list of county planning staff to begin engaging with that planning staff. And to identify who it is that we're going to be working with as we go through.

We reached out to a little over half of the 58 counties in the state initially. We did this through an email invitation that Brian Turner, the RETI Director, sent to these counties. And we had initially in that email introduced RETI. We included a "save the date" for an upcoming public meeting that we are planning with counties. And we also invited those counties to participate in two

webinar meetings that we would host. And the purpose of those webinar meetings was to have a place where we could orient counties to RETI and educate them on what we are doing and what we were hoping to find and then also to start preparing for that public meeting that we had scheduled for the end of July.

So between both webinars with those counties we had about 15 folks attend. We didn't gather as much information I would say from the initial outreach as we had hoped. And we have been continuing to work on gathering information and that information does continue to come in.

So I am going to go through kind of some of the general things that we found occurring in counties. And then a few of the counties that have participated in our workshop as well as coordinated with after, or that we've been coordinating with whether through email and phone calls, I'll just kind of go through what we've learned there. And then touch on some next steps and some of the kind of preliminary findings I guess that we've had from some of our outreach.

So we know that a lot of work has been done with the Energy Commission and agencies here with counties in the desert. Especially those counties who have a lot of experience with projects on their own as well as planning processes like the DRECP, so engaging with those counties

really was something that we, is a relationship, we've had for a long time. So building it wasn't something we had to do at the start of this, we just built off of those.

And we had some interaction and engagement with some of the Northern California counties, so the TAFA that Brian shared, that started the Sac River Valley, we had some engagement from Lassen, some from Modoc and Tehama.

And I think we really want to try to keep focusing on getting information from some of the San Joaquin Valley counties. We know that they have a lot of experience, obviously, with renewables development and they have those resources there and counties who were engaged in the solar San Joaquin effort last year.

And so our next steps for outreach are really to cultivate the relationships with those counties, so that we can begin to understand better with how they see the future of their counties and some of their land uses and their visions for renewable energy development for their counties.

And we also, in the process, we heard from the conservation parties who are the Nature Conservancy, and the group, the Sierra Club. And their comments basically were continue to work with counties. We think this is the right start within RETI. And they suggest that we continue to incorporate some of the questions that we had asked

counties within the RETI analysis.

And I do want to point out too that the Sierra Nevada Conservancy was pretty active in our county outreach because of their relationship to the local governments within the Sierra Nevadas. And they've also suggested that we make sure that we include a look at bioenergy and some of their strategies for the Sierras. Obviously, the size of some of their facilities and their resource size is a little different that we're assessing in RETI. But I thought I'd make sure I bring that to your attention.

So Imperial County's one of the first counties that I'll talk about. And so their county presented back in March at the Plenary Group meeting. They also presented again at our July 21st ELUTG meeting that focused just on county participation. We don't have a comment letter summarized from Imperial, but between both of those presentations I think we understand their county pretty well.

The County did recently complete a General Plan Amendment and adopted that General Plan Amendment earlier in the year. The amendment was supported by a California Energy Commission grant program to help facilitate local land use planning within the desert region. And so the, County, as part of that update to their General Plan, they identified a overlay zone, they've created an overlay zone

for renewable energy.

The map's a little hard to pick out, but the green up around the sea or the cross-hatch green up around the sea and then the cross-hatch green through the larger light green there, that's some of their renewable energy results. So it's 69,000 acres specifically for geothermal development and an additional 131,000 that could be available for solar, geothermal and other renewable technologies.

The County emphasized during their presentation to us, both in March and again in July, that renewable energy for them is really something that they can use to help balance some of their water use, to achieve some of their water use goals by helping to kind of rebalance the way the land may be used. And economic development's another priority for the County. And they see renewable energy as something that can help drive economic development of their county.

Kern County also participated in our July 21st ELUTG meeting. Kern County made a few recommendations during that meeting and gave us an update on where they are with their planning. Kern County has a lot of experience with planning and permitting renewable projects and so they have been a really able resource and willing to participate.

There were some specific recommendations during the County planner's presentation that were delivered to us. And so one of those that I wanted to highlight from their planner was the recommendation to look into or possibly improve planning for interties to substations, that the context for that and the comment was they have had some experience where some of their access to substations might get locked up. And so the recommendation was, "If you're looking forward into the future it's something to consider and think about is ensuring that you can access the system."

The other comment that was made during the workshop -- and it's actually also consistent with a letter that the County submitted in the docket -- and so the County has recommended that RETI consider including an analysis or at least data or information on map layers that would show critically over-drafted water basins throughout the state. In their recommendation I guess in that comment -- they have a comment letter that goes with that -- and they specifically called out a community that has a water basin that's critically over-drafted. It's in the Indian Wells Valley. And the comment essentially or the recommendation is for a special study of that area.

The County doesn't indicate the type of process that that would be or where that special study takes place,

but they wanted to just make sure that RETI and the energy agencies were aware of work they're doing there to rebalance some of the land uses to essentially help solve some of their overdraft issues. And they see solar development as one of the key things you can develop on some of those lands to help balance those.

So the letter is available in the RETI docket. And the County did indicate to us that the Board of Supervisors they have actually approved that letter. So I think the copy you see in the docket was from the Planning staff and that letter has now been approved by the Board.

San Bernardino County also participated in the ELUTG workshop. They gave a brief update on where they are with planning for renewables. The County recently released a Draft Renewable Energy Element for their county. And they are currently in public review for that, seeking public comment. And in the workshop they gave a very brief update that that's where they are with that draft element.

The County also submitted a comment letter into the RETI docket following the workshop. And they remain interested in participating in statewide energy planning, to stay engaged. And they definitely want to make sure that the RETI process reflects, or that we reflect comments that they have made on other statewide venues like the DRECP, and developing that.

And there is some confusion that the County expressed in their letter over the differences between DRECP and RETI. And I think that it would be one of the findings you'll see presented, because that was a comment some other counties had too was, "What does RETI mean for the County and where will this move going forward?" So I think that it's important as we think about presenting RETI that we know how to present that to counties.

So Northern California counties, Yolo County, in the past they developed a pretty large wind ordinance and went through a lot of work to do that. They were anticipating large commercial wind development. And the county planner, essentially said he hadn't seen that or experienced that yet, so I think the words he used were that they possibly over-planned in the past expecting that development. But they do have an ordinance in place and have some experience with some smaller DG projects and some project proposals, but the County hasn't gone through any extensive public review of large projects.

And they did note that Williamson Act in their County could be an issue with solar. And so they've had some issues with findings of compatibility. But we didn't go too much into how that would work and exactly what the outcome would be of projects proposed in that area of the Williamson Act.

And Lassen County also participated briefly in our workshop. We've had some follow-up. They have had some commercial interest as well as some development in the past. Most of that's been wind in the past. And they do point out that they've had an energy element for a pretty long time in their general plan and that the last update was in 2003. They have considered looking into updating that element, possibly. And so they don't have a schedule for that, but it is something that there is some vision and support for it at the county level.

And they did note that there could be eagles and sage grouse impacts potentially as well as visual and scenic, just kind of depending on where projects are sited.

And Modoc County and Tehama County, those are two counties that have also followed up with us through phone calls and through emails, so we've been working with them to gather information. Tehama County did note that they've had a lot of growth in distributed generation over the years and they continue to see a lot of investment and distributed growth.

And they also made a comment that we should revise the renewables assumption down a bit for their county based on having a large amount of county Williamson Acts, environmental sensitivities within their county.

So these are a report out of what we heard from

those counties and key findings. I think that keeping information current and coordinating planning, it really requires time and resources on the counties' part. That's one thing that we did hear from counties.

And we also, as we look at this, we're pretty much looking for spatial information, because we're trying to present county information just as we are with the land use information spatially. We find that sometimes that's difficult to do if counties are using a standards-based approach and not necessarily creating on overlay zone or zoning something. So that's another finding is that it kind of goes both ways and there could be a challenge in trying to display a standard based.

And counties are definitely interested in understanding the next steps for RETI 2.0 and what that means for their counties.

For us we're continuing to add county data in the DataBasin as we have it, so the Imperial maps that I showed earlier, that data is being added to DataBasin and will be made available as part of RETI. The work that Inyo County has done, Inyo County's developed some overlay zones as well and we'll incorporate those. And then the county information we gather, whether it's spatial information or a narrative of what's happening with the county, we want to organize that by TAFA, so that we can geographically

present that. So that's the county update for now. And as we move into Phase 3 we'll continue to populate that data.

So I don't know if we're going over questions now, Brian, or if we're -- keep going? Yeah.

So I'll invite Scott Flint back up to talk about the environmental side of things.

MR. FLINT: Okay, so a little update on the work completed through Environmental and Land Use Group and what we have available now to use. So all of the data that we've assembled statewide, we've assembled several hundred environmental data sets. And we have made them available in a gateway on the Conservation Biology Institute's DataBasin website. So that information is compiled and available to folks there and it can be viewed.

Several hundred data sets in and of themselves aren't really very useful to evaluate anything, so we've put those data sets together into right now nine primary environmental categories, so we have that data organized that way under those categories. And also organized into an overall logic map that interprets that data, so you can look at it on one particular map surface and use that to evaluate whatever you decide to look at against the data.

So we've identified this environmental focus for the data sets and we've identified a reporting format for what the data would look like when it comes out.

The nine groupings that we have now are these groupings. We've talked about them in previous meetings. I won't go into much detail here, but essentially a couple examples we have maybe 20 data sets that go together into a direct terrestrial landscape intactness data set. You can see the individual layers there.

But you can use the resulting overall map for terrestrial intactness to evaluate a site's disturbance or amount of disturbance at the site, so that could be part of your evaluation with that particular data set. And that's been relatively important in siting renewable energy and other projects too, because it typically represents areas that will have lower biological conflicts. So that's why we've selected that sort of thing.

So we have a logic behind each set that we've selected. These are the nine that we have selected, but we'll be adding some more that we'll talk about related to land use.

So as Eli just covered we will be adding some additional information on land use. We will be adding a specific map of more information from the DRECP counties. We'll be adding general information on land use, so that we can get a report out on potential land use implications for evaluating of potential generation areas or potential transmission corridors.

We also are putting in a statewide agricultural and land use set. So when we can tease out a little more information related to agricultural land that might be identified, and that's in particular to its status with farmland importance and also the Williamson Act, that gives us a little more information that comes to bear when we're looking at areas that potentially might have renewable energy on them.

And then we have several federal land use plans that we will be putting in there once they are completed and available.

So already assembled on this site, this is what the site looks like. You can go here now. It's https://reti.databasin.org. You can go here and see the data assembled and the overall rollup maps in those nine categories. Right in the middle of the page there's a base map to get you started. You can click on that and there's a lot of the data is already loaded there. Then you can start turning the data off and on and assessing it from there.

What we have coming out next and what we set up to report out information in this process is an Environmental and Land Use Reporter. So this has two elements. One is the element of what you would see on the screen, so the idea here I just wanted to give you a couple

examples. In those nine categories of data that we looked at earlier you can essentially go into the system and draw an area by hand. Or you can import into the system a set of areas that are derived however you want to derive them in GIS format and load them in and run them against the environmental data.

Here you see an example of an area that is run against some species information. So you will see on the screen you can interact with this information. This of course is a static picture, but on the screen you can zoom in and out, you can click on things and see specifically what they are. And as you manipulate or drill into your map on the right the information changes for you on the left interactively on the screen. So you can drill in and look at all of the data that is available there as a basis for what you are screening or looking at.

A different category, protected areas, it's the same sort of thing. You have an area. In this case it tells you what specific area is in there, what its status is and even the size of those areas. And so instead of just recording size we also have the map to see where it actually occurs within the particular site you might be evaluating. So here you can see the purple area in the lower right is a protected area that shows up inside of this area with where we're evaluating. And so you get the

information on the top left about what that is and how big it is versus the overall area.

You can do the same sort of thing with the terrestrial intactness, essentially reading disturbance. Here, dark blue is highly disturbed and green is not.

Same sort of thing, you can get the report out on the different categories of intactness and how much of it occurs in your area. And you can also see how it's distributed on the map, so that's the key way we have set this data up to read out against areas to evaluate. So on paper you can print these out on paper and you capture the same results. They look a little different, but it has a little more information, explanatory information with it.

So again, here is the same thing. It looks a little different here, but the protected areas readout for that area, that's highlighted in orange on the little map. So you get the map and the information. Terrestrial intactness, it's the same thing. It's just a slightly different set of information.

So you're able to do that for each of the nine areas that we've outlined. We will be able to do that when we add the land use elements also and the agricultural elements for those elements. And what we've done in building out this new statewide data sets have added to our capability to assess sites outside of the areas already

assessed by the DRECP, which is the purple area down at the bottom right of the screen.

And in the San Joaquin Valley convening exercise, which is in the middle of the state we can now do similar high-level assessments of areas in a similar fashion to the way they were assessed in those two longer processes by using this report writer and data sets that have assembled on DataBasin.

So that's up and ready to run. We're ready to input sites as they are identified, either potential generation areas or potential transmission corridors. We are able to run them and generate some issue reports from the system for the nine elements that we have there now. We have additional work going on to add the other elements to land use and build out the land use module for this report. And then we are still updating and finalizing a few data sets on all of the categories, but those should be available soon on the site.

And the way the report writer is set up now we can access and run that and bring back the reports. And there will be another step required too, of course. If you look at a TAFA, if you look at a series of areas that you're interested in TAFA for potential generation, for even potential transmission corridor, you can run those in the tool. But then you need to come back and do a little

interpretation and summarize and have a narrative of what those things mean. They're not spitting out the final answer, so there's a little work left once we run the areas.

So that's what we've generated, that's where we are and that's the work that we have done to complete this. We should have it done by the end of this month with the additional data sets and the additional report modules.

And that's it.

CHAIR WEISENMILLER: Okay, Scott, a couple of questions before we move on?

MR. FLINT: Sure.

CHAIR WEISENMILLER: First one is do we have anywhere online a webinar for folks who want to get sort of the how to use the model?

MR. FLINT: Well, so right now, Chair Weisenmiller we are working interactively with the group, so we can schedule webinars with them and walk them through it.

We do have general tutorials on how to use the site. They are available on the DataBasin website.

The Report Writer part that I just showed, we don't have turned on for the public yet. When we turn it on we will schedule a webinar for the folks who are interested and participating in the Environmental and Land

Use Working Group.

CHAIR WEISENMILLER: Okay. So if we can at least make sure going forward we post it online and sort of follow up from this webinar, so people can use it to get introduced to the tool would be good.

MR. FLINT: Yes, definitely.

CHAIRMAN WEISENMILLER: And in terms of environmental data, I was going to ask if we do have any data on overdraft?

MR. FLINT: We have some --

CHAIR WEISENMILLER: With the layers?

MR. FLINT: That's something that we are looking at. We don't have it in there now. We did collect information related to the groundwater situation in San Joaquin Valley, we do have that. We do have information from the Draft EIR/EIS or DRECP, so we can build and incorporate that information, but we have not put that together yet statewide.

CHAIR WEISENMILLER: And subsidence?

MR. FLINT: Same situation as that.

CHAIR WEISENMILLER: Same situation?

MR. FLINT: We have some info, particularly in San Joaquin, but not statewide yet.

CHAIR WEISENMILLER: We're also obviously having huge tracks of the state are being hit by fire, which have

some degree a sensitivity going forward, at least in the short term. So do you have any way of on the environmental data tracking, the areas that have been most -- I don't know if it's the last two years, five years or what the right metric would be -- by fire?

MR. FLINT: That would be easy to add, yes. That's already in DataBasin. We can add it into this gateway really easily and straightforward.

CHAIR WEISENMILLER: Okay, thanks.

Anyone else?

(No audible response.)

Okay, thank you.

MR. FLINT: Okay, Tom?

MR. GATES: Good afternoon, my name is Thomas Gates. I'm with the California Energy Commission. I'm the Tribal Liaison and also the Supervisor of the Cultural Resource Unit in the Siting Division. I'm here to give you an update on where we are with our efforts to consult, outreach, contact tribes.

I want to remind everyone that back in October when we kicked off the RETI 2.0 with a workshop we sent out notices to tribes about that workshop. So we sent those out to both recognized and unrecognized; I think the number was 184 notices.

From that effort we only got one response, one

tribe showed up at the workshop. So when we got to another layer of information with the TAFAs we thought we'd refresh our efforts to go out to the tribes. We narrowed down the number of tribes we contacted, because the TAFAs -- that first effort was statewide for all the tribes -- with the TAFAs we narrowed it down. So instead of sending out letters to 184 tribes we sent them out to, I think, 96 or 97 tribes. And that number can change, it looks like we also double-counted, so somewhere in the '90s is what we sent out.

And that letter went out July 15th and since then up until just last Friday our staff, three of us have made an effort to call, email every tribe that we sent out one of those letters to on July 15th. So what I'm really here to do is present based upon making those calls last Friday to give you guys some idea of where we are with those numbers.

So what you have in front of you is an image, a map that shows you which tribes we renewed our consultation with based upon the TAFAs. You'll see here the tribes in green are those that we initiated consultation with. As of July 15th the ones in purple are the ones we did not initiate consultation with. The orange is the ancestral territories as those would overlap with the TAFAs. So that just sort of gives you an image of who we were trying to

talk to in this recent iteration of contacting tribes.

So of those contacted we have sort of the types of responses. So non-response, not interested, awaiting a further response, or interested. I'll give you some breakdown of that: of the non-response, 47 percent of the tribes non-responsive. That is, we have sent them a letter, we have called them, left a voice message, we have sent them an email and nothing has come back. The not interested, 2 percent, so I think 2 tribes said, "Thanks. We're not interested. Don't bother us anymore."

Awaiting response, 35 percent, so this is a tribe that says, "Huh? Can you resend us the letter? Oh yeah, this looks interesting. We'll take it to our Tribal Council. If we have further information, we'll get back to you." So we're just not sure with that 35 percent where that tribe is at.

That leaves the interested tribes at about 16 percent. So this is 16 percent of 96-97 tribes. Of those that are interested they also tend to be the tribes that we've already engaged with either through the DRECP or through the San Joaquin Valley least conflict exercise, for the most part. And those tribes, their interest is generally, "We are interested. Keep us informed. Let us know when the next benchmark or the next milestone is achieved." That's one type.

Another type of interest is, "We have lots of questions about this. Can you give us more information? Can we have a better map? Can you show up with staff to meet with our staff and talk out some of the nuances of this exercise that we're currently going through?" So that's sort of have more questions.

There's a standard voiced concern for biological or cultural resources impacts that you can almost anticipate in talking to just about any tribe. So we've gotten some of that as well. Again, those types of comments tend to come from tribes either in the DRECP area or in the San Joaquin Valley.

An interesting thing for staff was a small set of tribes, I just think the number is around four or five of the interested are expressing at some sort of desire to engage with a need for them to get some sort of transmission or substation focus for their ideas about how they would like to contribute renewable energy resources into the grid. So we haven't done much in talking about that with those tribes to actually explore what are they planning, or are they just thinking? Do they actually have a project?

But for us at the staff level that was an interesting sort of comment. We normally expect "No." Albeit when staff calls tribes oftentimes we're talking

about a project that we're trying to site, so there's a different set of concerns. This is the first time we've heard tribes say, "How can we participate in this as well?" So that, at least from staff's perspective is a refreshing type of dialogue, which we have yet to engage in.

So that's how those break out. And I would say of the 35 that we are waiting to hear back they probably will break out in a similar way where about 35 percent -- there'll probably be 16 percent that'll be interested. At the end of the day I think we'll end up with about probably somewhere between 20 and 30 tribes out of a total of 194 that we initially engaged with that are interested in some level or aspect of this process.

So that's where we are to date and continue to chase the emails and phone calls. Thank you.

MR. TURNER: Great. So that was several different tracks within our Environmental and Land Use Technical Group.

One more piece I should mention, Jim Bartridge from the California Energy Commission's Transmission Office isn't here today, but he's been leading up some military consultation. Just making sure we're in touch with the services and DOD. And we've both been involving them in how we run and identifying the TAFAs. And also reiterating or confirming their projections for renewable energy

production on base or what their aspirations are and fitting that into the work that we've been doing. So that consultation is ongoing.

And I'll just note a couple of the common themes that we've been hearing from some of this local outreach. I think one very interesting one is this water, land use, energy connection in several different contexts, whether it's Imperial, Kern, San Joaquin, where local agencies or other stakeholders are saying that the changes in water use and its impacts perhaps are opening up land for energy production, which they would like to consider.

And then this other conclusion that I would put forward that we've heard from several different sectors as well, local counties, environmental stakeholders and tribes regarding a desire for local transmission, kind of collector level, inter-connection level planning. How can we think about the resources in our community affecting that on the grid, which has not been a focus of RETI 2.0. But may be a conclusion that we'd like to pose to you at the end of this process?

Any questions regarding the environmental land use discussion?

(No audible response.)

We're going to move on to the Transmission Technical Input Group now. That's Neil Millar from the

California ISO has been leading that project in cooperation with all the transmission planners in the state, so Neil?

MR. MILLAR: Thank you, Brian.

And thank you. I will be touching on some background here. And then we'll be turning it over to Sushant Barave of the ISO and Nisar Shah from ZGlobal representing the Imperial Irrigation District to touch on some more detailed work as I get deeper into the presentation.

So first off by way of background the objective of the Transmission Technical Input Group was to assemble the relevant in-state and out-of-state information, both on the capabilities of the existing system taking into account planned upgrades. As well as to gather an assessment of the technical requirements it would take to achieve the broader goals established through the Plenary session. And to attempt to put some reasonable cost estimates around that work.

As Brian indicated the Transmission Technical Input Group was made up of the parties that already had NERC-registered transmission planning responsibilities within the state as the starting point to collect the information both from their own organizations as well as other parties who provided information through our stakeholder processes.

The key deliverables for the group first was to collect the existing and planned system capability information. That work also rounded up preliminary input on various out-of-state projects that could deliver renewable generation to California. That work was the basis of the Interim Report that the TTIG issued on June 9th.

The next step was to move with the assessment of the initial transmission input based on likely developments necessary to access the potential renewable generation development that was explored through the Plenary Group. That initial set of work has been completed. It was presented to stakeholders in a separate workshop on July 29th and that material forms the bulk of what we'll be presenting today.

The other item about the third deliverable here on potential WECC-wide system reinforcements, that work started through the initial work developed by the TTIG and is now being carried forward through the out-of-state outreach that Brian already talked about.

After this work is summarized the next task for the TTIG would be to work interactively with the Plenary Group and continue to refine that work and provide any additional input as necessary through September and October.

Just to remind people some of this work you've seen before, but I'll step through it very quickly just to make sure we're all on the same page. The initial set of work focused on the existing system capability.

We first looked at that issue, assuming that resources were necessary to provide capacity such as they could participate in the state's renewable resource adequacy program, that those resources were deliverable. The conclusions from the work coming out the ISO's 2015-16 Transmission Plan was that there is additional deliverability available on the system, but not enough to reach the 50 percent renewables target.

We also explored the capability of the system to deliver "energy only" capability. This is where resources would be exposed to a higher level of curtailment, but we were looking at a level that would not be prohibitive. And what we found was that there was a great deal of capability on the system to deliver "energy only" resources. And at the time we were looking at curtailment in the less than 3 percent range, which we saw as being a manageable level.

So to reiterate, I think, some comments that were made earlier, this challenge is not about if we can get there, but it's more a question of what choices will we make in how to get to the 50 percent or beyond.

Now this is a point where I will turn the

presentation over to Sushant Barave from the ISO to walk through the preliminary assessments made of the Transmission Assessment Focus Areas.

MR. BARAVE: So my name is Sushant Barave, I work in the Infrastructure Planning Group at ISO with Neil Millar. And first off I'd like to thank TTIG for this collaborative effort.

ISO facilitated it and we received a lot of useful, constructive input from all the planning entities. And that information has gone into identifying transmission implications for a resource ranges that were identified by the Plenary Group.

Now the following few slides I'm going to be summarizing for all the TAFAs, Transmission Assessment Focus Areas, what would be the transmission implications? And depending on any specific questions we might be hearing from other TTIG members as well.

Now this slide summarizes the resource ranges that Brian has already talked about, so going from north to south, in the north we looked at two Transmission Assessment Focus Areas where on this map you will see them clumped together as Northern California. It includes the Sacramento River Valley TAFA and Lassen and Round Mountain TAFA. And both of these add 3,000 megawatts in Sacramento River and close to 2,500 megawatt study range in the Lassen

and Round Mountain area.

The next TAFA in the north area that we looked at was Solano. And we were asked to look at a close to 3,000 megawatt study range in this area for identifying transmission implications.

And after that is San Joaquin Valley. This includes a Westlands area with a considerable amount of solar potential and some (indiscernible). So we looked at a close to 5,000 megawatt study range in this area.

Then coming into the Southern California transmission system, Tehachapi was the next one where the study range prescribed by the Plenary Group was 5,000 megawatts. Most of it was solar. This was somewhat of a change from what we have seen historically, a lot of wind. Moving forward solar development appears to be a dominant resource here.

And the next focus area was Victorville-Barstow. This was one of the more complicated focus areas, because based on our prior or existing studies what we see is this area is comprised of two or three independent generation pockets that run into different types of transmission constraints. And on the individual slides on each TAFA I will walk through what are the implications of those constraints and what sort of upgrades and order of magnitudes is it that we are looking at.

The next one is Riverside. Again, here we were asked to look at up to a 5,000 megawatt potential, predominantly solar and about 1,000 megawatts of wind.

And the last focus area was Imperial. Here again we looked at implications of adding 5,000 megawatts of more resources. And it included solar, wind as well a considerable amount of geothermal resources in this area.

In addition to these focus areas we were also asked to look at imports and implications of bringing in out-of-state resources into certain injection points within the California Grid.

The first one was imports from the north, from the California-Oregon Intertie. We looked at implications of adding approximately 2,000 megawatts on this part.

Next was imports into the Eldorado-Mead-Marketplace area -- any resources being delivered into this area actually also impact the Riverside focus area.

And then there were imports on Palo Verde to Delaney, the Palo Verde/Delaney Corridor and again, imports coming in from the east, in Southern California end up impacting all three focus areas: Victorville, Riverside and Imperial. And I should also mention that these three focus areas also have a considerable amount of interaction between them. We have a couple of slides to set a context for what that interaction entails for resource development

in these areas and how it interplays with the transmission implication and then transmission constraints.

And there was another import path identified, which was Northern and Central Sierra. But based on our existing or prior studies this -- we don't really have adequate information to comment on exact implications of adding 500 megawatts. And the existing capability on this corridor to bring in -- all the way into California -- is very low.

This slide, again it's the same slide that Brian talked about. But while we are on this slide one thing I would like to highlight is these numbers. If these were looked at as stand-alone numbers and worked out they would impact a given focus area. These are not added though. If you add those in, we would end up with a lot more than what would be required for a 50 percent renewable net short. So we looked at these numbers as separate individual studies or relied-on studies that gave us implications on the transmission system.

And that brings me to the point of interaction between TAFAs as well. This is a conceptual slide that I'm going to use to explain it where for example if we have Area A, which we look at 5,000 megawatts and Area B we look at 5,000 megawatts. And if our existing transmission studies indicate that we have adequate capacity to

accommodate that level of resources in each area it does not really mean that together we can accommodate 10,000 megawatts.

So it's a case where one plus one is something less than two, because of a common transmission constraint behind these areas. So their transmission capacity in the resource development in Area A can actually limit how much capacity we can have in Area B. And as a consequential fact we also know that mitigating that common transmission constraint can benefit two or more renewable development areas.

Another point is the TAFA capability that I'm going to talk about in the following slides. It was based on an assumption of making these resources deliverable.

Now, why we had to make that assumption was mainly because all our existing studies, most of our work in TTIG, was based on existing studies and what we know about the system today. That has already been studied in our previous transmission plan for several entities that have performed different studies. And the only studies that have actually resulted into quantifiable or concrete upgrades with some cost information were with an assumption of fully deliverable resources.

The "energy only" study that we performed, as Neil mentioned, last year we looked at a 50 percent energy

only study. And it indicated that there are no big red flags in terms of accommodating that net short for going on an energy only basis.

And so because of this interaction of TAFAs we would also need more sophisticated and more detailed studies if we want to narrow down on an exact mix of how much resources should be in specific TAFAs. Theoretically we could come up with an equation for Area A and Area B. But I'm not sure if it's worthwhile, because there would be other limiting elements, which are more important or more limiting than just transmission in terms of development of resources in each of those.

With that context I'm going to dive into each TAFA, so on the next seven or eight slides you'll see two high-level takeaways for each TAFA. So in our July 29th workshop we had a more detailed presentation with all the transmission constraints listed for each area. Here we wanted to bring out what are the two most important things that came out of our work and the studies that we have looked at.

So for Northern California we looked at Sacramento River Valley, Lassen and Round Mountain TAFAs. How much can these areas accommodate today? And by today, I mean that's with an assumption of all the planned and approved upgrades, so based on information that we have

today.

In terms of deliverable amounts, we don't have a good estimate for this area. The primary reason being in our generation interconnection queues for the ISO as well as other planning entities in the north there has not been a whole lot of commercial interest. So we have not had the opportunity to study large amounts of megawatt numbers in these areas. So in terms of deliverability we don't have an exact number.

For energy only capability we did look at this area last year in our 50 percent special study and both areas together, our estimate was close to 35-3,400 megawatts. But that is with an assumption of curtailment of some resources as well as reduction in some of the imports. With those assumptions we concluded that the transmission system there would be adequate to accommodating sources on an energy only basis.

Now what would it take to make this study range deliverable? Some of the transmission planning studies that were performed by the ISO, as well as TANC, have indicated that for a deliverability we would run into numerous problems in this area. And we are looking at upgrades similar to adding another 500 kV line if we want to bring in another 34 or 3,500 megawatts in this area. And that sort of upgrade, ballpark estimate is $2 to $4

billion.

Now I would also like to classify this with -- so in TTIG work, the upgrade costs that we relied upon are very, very high-level. They were conceptual upgrades that we might have identified in some of the interconnection studies or some of the reliability studies. These were not -- detailed engineering and costing assessment was not done on these upgrades. And throughout TTIG's work the upgrades that we are mentioning here are not to advocate or suggest any particular upgrade, it's just to give a sense of what is the magnitude of system reinforcements that we are looking at or we would need if we were to integrate at this level of resources in each TAFA.

The next area in the Northern California region we looked at was Solano. Again, this area is we have a moderate amount of commercial interests in the interconnection queues, but it's not enough. It's not more than 3,000 megawatts where it would give us enough information to comment on how much we can deliver with the existing system. As for the energy only estimates we did have last year's 50 percent studies. And close to 880 megawatts was our estimate.

Now, in terms of transmission implications what would it take to make this range deliverable? Depending on the location and size of some of these resources there may

be a need for a 230 or 500 kV collector station to either loop it into an existing 500 kV system going into the Bay Area, and make those resources deliverable towards both sectors. But none of our or any other planning entities studies have run into that constraint yet; hence we don't have a concrete cost number for this estimate.

The next area was San Joaquin Valley. This includes a Westlands area, for which our estimates for deliverable capability out of this area is upwards of 1,800 megawatts. And this is based on the latest cluster eight interconnection studies that have shown some constraints on this system, primarily because of the system between Gates and Los Banos. We noticed several transmission constraints on the 230 as well as lower voltage system between Gates and Los Banos, so that is a limiting constraint for making resources deliverable in this area. And the estimate, a very high-level estimate for fixing these problems is close to 440 million.

MR. BERBERICH: Could I ask a little question? Neil, this may be best for you. Gates-Gregg, which we decide may not be needed, how would that play into deliverability out of this area?

MR. BARAVE: Well, Gates-Gregg was an assumption.

MR. BERBERICH: You assumed it was there?

MR. BARAVE: It was there, but also on some of

our different studies it indicated that there was not a very big impact on increasing deliverability from this area.

MR. BERBERICH: So it doesn't have that material of a difference for deliverability?

MR. BARAVE: Yeah.

MR. BERBERICH: Thank you.

MR. BARAVE: Moving into Southern California, Tehachapi was one area where we actually did not see any big red flags or any area-wide constraints. At the prescribed level, close to 5,000 megawatts, that was the study range prescribed by the Plenary Group. And obviously we don't see much deliverability issues, so energy only is also not going to be a big concern in the Tehachapi area.

Out of Victorville-Barstow TAFA is the one that I said is a bit complicated, so we actually broke it down into sub-pockets. But there is also an overarching constraint that spans beyond this TAFA, so if you can visualize a big bubble that limits Victorville, Riverside, and Imperial, so that is one constraint. And then there are smaller pockets and constraints within each TAFA.

So I'm going to walk through each one of these. We divided this TAFA into two or three sub-pockets. One is the North of Lugo system. This is a 230 and 115 kV system that goes up north from Lugo to Kramer, Victor, Inyokern

all the way up to the control area. This area is limited to 2,000 megawatts total, but within this area there are sub-constraints.

For example, in the North of Kramer system our estimate is that we will maybe able to accommodate close to 400 megawatts, because there is already severe constraints to get power South of Kramer towards Lugo. There is also a constraint on the Calcite, in the Calcite-Lugo area, which limits generation in that area to 400 megawatts. So these are the smaller sub-pockets within Victorville.

The 5,500 to 8,500 megawatt range for deliverable amounts, this is the one that spans across three different TAFAs. So this range encompasses east of the Pisgah area, which is part of Victorville TAFA here. It also includes resources in Riverside as well as some resources in Imperial Valley. And because of the size of this footprint of this constraint this number is very large, but you'll be mindful that this number is resources developing in three different TAFAs, so not just in one TAFA.

In terms of energy only our 50 percent studies indicated that just in the East of Pisgah area within Victorville we have close to 2,700 megawatt room and close to 470 megawatts in the North of Kramer system.

Now, the second major takeaway for this area is what would it take to make all these resources deliverable?

So the biggest area is the desert area constraint, which is the 5,000 to 8,000 megawatt range. And a fix for that constraint would be something such as a Lugo-Victorville 500 kV upgrade, which would cost $34 million. And the cost estimate comes from a transmission project that was submitted in ISO's request window in last year's transmission planning process.

But in the North of Lugo area constraint we are looking at upgrades similar to a new 500 kV to 230 kV transformer bank at Lugo. Also, to mitigate constraints South of Kramer we are looking at a transmission upgrade similar to Coolwater-Lugo line or Kramer-Llano 500 kV line. And then the smaller constraint in Calcite-Lugo area, we are looking at upgrading or rebuilding the Calcite-Lugo 220 kV line.

And the cost numbers are based on like per unit cost estimates, very high-level cost estimates, that were used in some of the generation interconnection studies, Phase I interconnection studies. So these are preliminary estimates and preliminary constraints identified in this area.

MR. TURNER: Can I ask you Sushant, can I pause you back -- go back there a second?

MR. BARAVE: Yes.

MR. TURNER: A couple of things I'd like to just

add here. One is that we're not including the LADWP information here?

MR. BERBERICH: Yes. One reason is, so the input we received from LADWP -- and if they are on the call, if they want to chime in -- I'll try to summarize the input was that they have in our Interim Report that was posted on June 9th, LADWP provided a lot of information on upgrades and enhancements that they are doing near their Barren Ridge system going all the way into Haskell Canyon, I believe.

And by 2022 there will be two more lines that they are expecting would show up. And this information is in the Interim Report as well. So these upgrades would add some capability in this area and so there is no constraint that we could identify. So this slide identifies constraints and what would it need to fix those on the LADWP system side where it comes very close to the Inyokern system, on SCE's system, SCE's transmission. On that area we really didn't see any existing studies that indicate any definite open transmission constraints.

MR. TURNER: Right, thank you. I think they said by 2022 they expect to add another 1,700 megawatts or so of capacity going up into the Owens Valley there. And that then is a key part of their strategy for meeting their 50 percent RPS goals. And they foresee significant solar

development and I believe some wind as well up that way.

MR. BERBERICH: Sushant, for these constraints, for the projects to relieve these constraints is there a way to say okay, so for -- let's use the first constraint, the upgrades to Lugo-Victorville -- how much would that provide from a deliverability perspective as well as from an energy only perspective in sort of kind of walking down that line? So you'd get 800 megawatts if you did this, you'd get another 1,000 megawatts you did this. Now I suspect there's interplay between the constraints.

Do you have any sense of that?

MR. BARAVE: For that particular constraint, fortunately we do, because we have had enough interest in our queue where we have studied higher level of generations. So for that constraint we are looking at 1,500 to 2,000 megawatts of added capability.

MR. BERBERICH: Just for that one?

MR. BARAVE: Just for that one. But unfortunately some of the other ones we are either right where our generation interconnection queue has just started showing those constraints, so we don't have enough information. We have not essentially done studies to go way beyond that and establish a ceiling for the next required upgrade. But some of these constraints we do have that information and we will include it in the final report

that would be compiled based on the feedback for our July 29th workshop as well as today's workshop.

MR. BERBERICH: Yeah, I think that would be great. And I think it'll instructive as the Public Utilities Commission goes about doing -- you know, because if you can get 800 with $50 million and the next 200 costs $1 billion you may want to look elsewhere.

MR. BARAVE: I wanted to make a note before I forget.

PRESIDENT PICKER: I know we're not quite there, but I'm going to have some similar interests about the import regions you identify in the south state for Mead, Eldorado and --

MR. BARAVE: We have a slide on imports and how that actually ties very well with the TAFA that the import is going to inject megawatts into.

PRESIDENT PICKER: But I'm curious as to how that's going affect the ability and constraints on development within those areas. I'm sure there's going to be some impacts back and forth on this.

MR. BARAVE: So the short answer is that all these constraints exactly apply the same rate to imports as they would apply to most of the development within the TAFAs. So for example, imports coming into Eldorado will basically be constrained by the same four things that you

are seeing, barring the ones in North of Lugo, because North of Lugo doesn't have as much interaction with generation connecting or feeding into Eldorado. But the desert area constraint would still apply to either generation developing at Eldorado or coming into Eldorado from out of state.

PRESIDENT PICKER: Oh, but you had discussed the several different efforts to make the study area deliverable. Are all these constraints applicable to imports or just several of them that --

MR. BARAVE: Yes.

PRESIDENT PICKER: Okay. All right, fine.

MR. BERBERICH: Yeah, but to further President Picker's point though there are constraints though, even for the -- all right, so you've made it deliverable at Eldorado. We realize that whether it's on this side of Eldorado or coming in to Eldorado, those same constraints come in to play. I think maybe what President Picker is trying to get to, in addition to that, getting to Eldorado is going to have its own sets of issues too. And I think trying to understand those is important. And maybe you have a slide for that or not?

MR. BARAVE: I don't have a slide for that, but I think Brian -- and you can chime in -- the outreach to divisional entities as well as some information that we

have in the Interim TTIG Report about all of the out-of-state projects that may be required to bring -- to deliver power up to Eldorado.

MR. BERBERICH: Right.

MR. BARAVE: So there is some information there. And I think the WIEB outreach on that effort is going to narrow down on what would be needed to get to these injection points.

MR. TURNER: Yes, just confirming the basic breakdown is we've asked the TTIG to take everything from the point of injection at the California border, like Eldorado and in. And that's where you'll hear in just a second about how those imports do compete with the generation inside California as they're flowing along the same path. And then we've asked the Western Outreach Project to tell us about everything, the resources out in the west, coming to that injection point of Eldorado.

Now I agree that there is that actual substation at -- substations around Eldorado, Marketplace, Mead, etcetera that we will see if we've got more information from the TTIG and the Western Outreach Project about the actual access into that valley. We've heard of some potential constraints. We haven't fleshed that out yet.

MR. BERBERICH: Okay.

MR. TURNER: I think if you don't get it I think

we do need to get it, because particularly I'm mindful as we move to the next steps, which is trying to figure out what portfolios look like. And particularly as they move through the Public Utility Commission processes they're going to want to know the answer to both of questions.

So let's say Edison, as an example, contracts for 500 megawatts of solar someplace in Arizona. Is that deliverable via Palo Verde or something?

MR. BARAVE: Right. The next TAFA we looked at was Riverside. The study range was 5,000 megawatts. This focus area again is constrained behind the Lugo-Victorville constraint or as we call it this desert area constraint. And again this is not the only TAFA constraint behind this limitation, it is in combination with East of Pisgah generation as well as Imperial.

Energy only estimates for Riverside only, based on our 50 percent studies last year were close to 4,750 megawatts. And the fix here would be very similar to what we already talked about, Lugo-Victorville. But this is the area where we had the luxury of actually looking at some studies where we had an even higher number of megawatts that were studied. And so we also know about, have some idea about what would be the next constraint we would run into and what sort of upgrade we are looking at.

But that's just an information-only piece, which

we had it with us. So we thought so we'll put it in here, which would be if we go beyond 5,000 megawatts in this area -- if there is enough interest and feasibility -- then we might be hitting a constraint that will require Red Bluff to Mira Loma 500 kV lines and upgrades similar to this new line, which would be a very expensive upgrade.

The next area is Imperial focus area. And now here I will be walking through what our findings were based on studies that we looked at internal to ISO. And I will ask Nisar and Ziad to talk about IID's input based on their studies and some conceptual projects.

So ISO's studies so far indicate that there is close to 500 megawatt deliverability available only in Greater Imperial, but this is with a note that this number is very likely going to change based on some of the recent, updated models that we have received from IID. And with their coordination we are going to study this capability again in our 2016-'17 Transmission Plan. And we are going to update this number. Only thing is it probably is not going to happen before we create the RETI final report. So we will have this note in there.

Now that number is based on constraints close to Miguel. Trying to deliver power east of Miguel is where we notice all these constraints. The other constraint that applies to this area is again desert area constraint,

because some of the generation in this area is -- it hurts the Lugo-Victorville limitation, not as bad as generation closer to Eldorado and that whole other area, but it has some impact because the generation in this area might be limited by that constraint as well.

In terms of energy only capability our estimate was upwards of 1,800 megawatts in Greater Imperial area.

Now in terms of fixing the problems close to Miguel we are looking at upgrades similar to either a new IV to Valley 500 kV line, which we'll provide under their path for all the injection into Imperial Valley to go up north.

Also a DC conversion of North Gila to Miguel 500 kV line: this upgrade, which is directly enhanced illuminates that there are limiting elements today. So some sections of this Hoober line would just have higher capacity with this kind of project. Then Midway-Devers, 500 kV AC Intertie, as well as Hoober to SONGS HVDC Project.

Now these are the projects that we have seen these submitted in ISO's request to renew in our 2015-2016 transmission planning process. And so we are looking at an upgrade that is the order of magnitude whereas it would be something between these four or five upgrades that we have listed here.

For the desert area constraint, I already talked about Lugo-Victorville upgrade. We also thought that Hoober-SONGS HVDC could partially mitigate this constraint, it would alleviate a little bit on the Lugo-Victorville part.

And another constraint we have recently noticed in our interconnection studies has been the West of River, which is Path 46 rating limitation. And that may be just a matter of looking at if there is a path rating increase available or feasible on this path without an upgrade or with some of the planned upgrades.

Now the DC conversion of North Gila to Miguel 500 kV line as well as the Lugo-Victorville upgrade, it's our estimate that it would help with some increase in Path 46 rating, so both of these individually could help with increasing that limitation.

Now with that I would like to invite Nisar or Ziad to talk about the IID's input in their summary based on their estimates.

MR. SHAH: Thank you, Brian, thank you, Neil, for giving us the opportunity to talk about IID. Hello, my name is Nisar Shah. I work for ZGlobal and today I'm here just to represent IID. This is one slide, I just have three points to talk about, three important points.

Point number one is what we call Path 42

upgrades. This is something that IID completed last year. There are two 230 kV, which are 600 megawatts each. They are now upgraded to almost 1,500 megawatts each and those lines are completed since last year. However they are very severely underutilized. Those lines are being used between 300 to 500 megawatts only depending on the time of day.

And I think IID spent about $40 million to complete that project. At that time there was a lot of generation activity in the IID queue and they thought this was necessary to transport all of the generation coming up in the IID system into Southern California's IID system. But things kind of stopped, because the flow on those lines is between (indiscernible) simply because it does not make generation go up in our IID there.

The second point is the existing transmission capacity and the existing transmission capacity in the IID system today is approximately 1,400 megawatts. This cannot be used, because there's not much generation activity there. There's just plenty of cheap land, lots of opportunities, but the developers basically withdrew from IID queue. We had about 1,800 megawatts in the IID queue. They just withdrew, because they couldn’t get a power purchase agreement, so they just withdrew. So the lines are there, the capacity is there, but no one renews.

And the third point is something we call the STEP

Project, the Strategic Transmission Expansion Project. This was a very active project about three years ago, two-to-three years ago. IID was very active on it 2013 and 2014. In 2013, SONGS had just closed, so there was a deficiency of 2,200 megawatts right there. So IID thought that we can really fill some of that gap by utilizing the renewable energy in the IID area. And just transport straight to SONGS substation.

So there was one big project at the time and then IID also considered a second project, so it was basically two projects we already submitted in the ISO queue -- not the queue, but ISO request window -- for consideration. And it is highly likely that IID might just pursue only one. And this project is basically from the IID substation named the Midway substation to the Devers substation. That's about 80 miles of AC line and that'll be about $350 million.

Now, this project will also materialize -- this can carry 1,100 megawatts into load centers in Southern California Edison utilizing IID's cheap land for renewables. But only if there is generation development, then this project can also materialize. So today we have almost 1,400 megawatts of capacity available and another 1,100 megawatts can be made available through the STEP Project. So 1,400 and 1,100 we're talking about 2,600

megawatts can be made available in a relatively short time if there is generation development.

The other important point on this IID system is it's a huge system and it has strategically, from an analytical point of view it can be split into two areas: IID North and IID South, simply because any generation that's coming into IID North there is a big route, which is the Path 42 which is sitting almost idle now. That generation coming into IID North can just flow straight on that Path 42 straight into Devers substation.

Path 42 is basically a IID substation, which allows the sub going straight into SCE Mirage substation, just direct connection. And the generation in IID South cannot reconnect through that path. It has to go the other route, which is the Imperial Valley route.

And then the Imperial Valley Route already is constrained. They have a major ECO-Miguel line, which is a huge line, but it's a constrained path today. So any generation coming into IID South will do no good, actually it will make things worse. I'll just give one set of numbers, if you put generation in the IID North it has an adverse impact of about 2 percent on the ECO-Miguel path. But if you put generation in IID South there is about a 20 percent adverse impact on the ECO-Miguel path.

So therefore depending on where you put

generation, generation has its own effectiveness where you put it, and how to best utilize it. So IID North is the best area for promoting and really encouraging developers to put generation there.

I think those are the three key points that I wanted to bring to your attention. If there's any questions, I'll be happy to answer.

CHAIRMAN WEISENMILLER: Sure, I just wanted to understand the relationship between your company's STEP. Are you doing it for time and materials or do you have any sort of contingency fee or financial piece of the project, if you know?

MR. SHAH: As far as I know we have Ziad here, who can explain better, but as far as I know we charge them based on the hours that we spend on the projects.

MR. ALAYWAN: The proposal is to have that line in the ISO.

CHAIRMAN WEISENMILLER: I realize that, I'm asking about your arrangement. As an ex-consultant I know I did things for time and materials, but there were also times where there were contingency fees and stuff. I'm just trying to understand the whole thing.

MR. ALAYWAN: No, there is no contingency fees.

CHAIRMAN WEISENMILLER: Oh, that's great. Thanks.

MR. ALAYWAN: It's just a cost base.

CHAIRMAN WEISENMILLER: Thanks.

MR. SHAH: Any other questions?

(No audible response.)

Thank you, sir. Thank you, I appreciate it.

MR. BARAVE: Thanks, Nisar.

The next slide summarizes the interaction of imports and what we have noticed for individual TAFAs and what's the interplay between the study ranges specified by the Plenary Group for imports and the instate transmission limitations that we have seen.

So for the Eldorado-Mead-Marketplace import is the one that would impact Victorville TAFA as well as the Riverside TAFA. And transmissions constraints applicable for this import, the main constraint would be the local Victorville desert area constraint. And currently, the capability behind that constraint is 5,500 to 8,500 megawatts and so that applies to this import as well, so an import will essentially compete with any development in these two or three TAFAs. And if we exceed that range, that's when we need the next ugrade.

MR. TURNER: I just wanted to pause there and jump in, because I think this is one of the points that you were asking about, President Picker. And I think if I can try to characterize how I understand it, which is not

perfect but imports from either of those two hubs: Eldorado or Palo Verde add on to some portion of the generation in Imperial, Riverside, San Bernardino. And that you have had a 55 to 8,500 megawatt range before you reach those constraints.

And then the next upgrade's fairly cheap, 34 million, the L.A. to Victorville-Lugo upgrade, but then that adds another 1,500 to 2,000 megawatts. But then you've got a really big constraint or mitigation that may be required at that point. And this is all very generalized information and the actual interaction between where the generation and where it's coming in from will impact that significantly.

But if we get involves anywhere near a scenario that involves that high level of generation in these desert regions and imports then you look at some potential implications there. And we'll do our best to sketch out that supply curve and what that means.

PRESIDENT PICKER: That would be helpful, because I'm trying to understand given that there are different pathways into those load centers, which of these improvements may relate to which particular substation you're targeting or whether they're all implicit in imports from out of state. That's really the question or you can brief me at some point in the future.

MR. BARAVE: The next big import that will have implications on the same three focus areas: in Victorville, Riverside, and Imperial, would be imports on Palo Verde-Delaney Corridor. And this would again be limited by the Lugo-Victorville constraint as well as to some extent, since it delivers into Imperial area as well it might be constrained by the East of Miguel constraint that we talked about on the Imperial TAFA slide.

To summarize, so the first note is that the resource ranges that we have looked at that were prescribed by TTIG, it's a much bigger number than what we were required to meet the renewable net short of 50 percent goal. We looked at individual areas, that I mentioned, at the beginning of our presentation and tried to isolate impacts of transmission implications with an understanding that there will be interaction between multiple TAFAs, especially in the Southern California areas.

Based on the existing estimates that we have available transmission capability was provided in the Interim Report that was posted on June 9th, I believe. Some of these numbers have been updated, because we finished our ISO Cluster 8 Phase 1 studies and had some implemental information that was available.

And between June 9th and today is when TTIG performed the work to actually identify and narrow down

transmission implications for the type of upgrades we need and what is the magnitude we are looking at, not the exact upgrades, but the bigger implication and what sort of costs would these entail?

And the takeaway is that barring the Tehachapi TAFA pretty much all other focus areas, if we were to make all these resources deliverable, then we are definitely running into transmission constraints that would require some sort of transmission enhancement.

For "energy only," I think that part is still under discussion. Last year, some (indiscernible) studies indicated that overall transmission in California would be able to accommodate energy-only resources to get to 50 percent.

And this is the point I talked about, so we have limited information on this energy only aspect. We will be performing another study as part of the 50 percent special studies in the 2016-'17 transmission planning process. And we hope to add and get more insight into what are the existing capabilities and what would it take to go beyond that.

MR. BERBERICH: Would it be fair to say though, that from an energy only perspective you'd need a relatively minor amount of transmission. Is that correct?

MR. BARAVE: Yes.

MR. BERBERICH: As opposed to making it fully deliverable, which would mean billions of dollars of transmission as I --

MR. BARAVE: Right, so the extent of upgrade in the same area might be smaller provided we are at an acceptable level of curtailment. And that is I think a --

MR. BERBERICH: A trade-off.

MR. BARAVE: -- a problem, which we haven't gotten to a solution yet at this time.

MR. BERBERICH: But again, I think that to the extent as you prepare this report think about the decisions that need to be made and anticipate them to answer the questions. Because the questions are all right, so if I can do much of this energy only fine, I have this curtailment rate. Now let's say I want to have a curtailment rate of instead of 8 percent, 5 percent. Well, the best thing to do would be able to put these renewables here, here and here. And you have a $500 million price tag as opposed to putting them here, here and here and it's got a $3 billion price tag.

So that's -- you know, it's a narrow process I get, but it's sort of that multi-regression equation to get at what the right answer is. And I think it's important to provide the decision makers as this process unfolds. It's much of that kind of information you have, I know some of

it will be difficult to tease out. But if you can get to at least an 80 percent solution, so that you can get directionally correct about this energy only versus deliverable perspective as well as how much can you deliver at the lowest price tag effectively.

MR. BARAVE: The one last point in the summary is regarding the out-of-state resources being delivered. And these essentially would be subjected to the same transmission constraints that we identified for individual TAFAs. So these are the five high-level takeaways from the TTIG work so far.

Now, to talk about Next Steps I think Neil Millar will walk you through those.

MR. MILLAR: Thanks, Sushant.

So the next steps we were just wanting to reiterate, the TTIG will be reviewing the regional outreach work to see what we can add on in terms of what it takes to get to the California system. Sushant's material today was covering, once it gets there, what the implications are downstream.

The other effort now is to focus on bundling up the information today, the comments we've received from the workshop. And put together the final report capturing all of the information we've pulled together to this point.

There was just one other point I thought I should

make that as we went through the presentation the Victorville-Lugo constraint seemed like a pretty obvious fix. It's not approved at this point, because that project was identified as needed in the ISO's Transmission Plan last year. But we held off asking our Board for approval to move forward with the project until we had the coordination in place in LADWP. So we consider that an active project that's moving forward, but we don't have Board approval yet pending getting the arrangements in place with L.A. So I hope that helps in that.

Are there any questions on the TTIG effort at this point?

(No audible response.)

Thank you very much.

MR. TURNER: Great, well we are running a little bit short on time, because we've got one more presentation I wanted to share with you. This third track to our current assessment activities -- that is the Western Outreach Project that was taken on by the Western Interstate Energy Board.

The project manager for that, Tom Carr, is over at the WECC, Western Electricity Coordinating Council, today. So we've asked Keegan Moyer from Energy Strategies who's the contractor that WIEB has brought on, to go through a presentation about that project.

MR. MOYER: Okay. Yeah, so ideally I think it would have been likely Tom Carr or someone else from WIEB here today. And unfortunately they couldn't be here, so I'm standing in and I'll do my best WIEB staff impression. But as Brian said my name's Keegan Moyer, I'm with a consultancy based out Salt Lake City called Energy Strategies and we support a number of clients throughout the west in the energy space.

So the Western Outreach Project, so I think what Tom and Maury and the rest of WIEB would have me say today about this is that my understanding is that WIEB was approached by the various sponsors here to conduct this portion of the RETI effort. This portion is focused generally on the out-of-state transmission assessment focus areas that Brian went over earlier. And really, those areas along with any other information that is collected kind of rounds out the scope of this effort.

That scope primarily is an information-gathering exercise just like the information that Sushant just presented about prior studies that the CAISO and other California entities have done. This parallels that and it's not envisioned at this time, at least to my understanding, we're doing any additional assessments. This again is acting on existing information and bringing that to light and asking stakeholders for input in trying

to draw out common scenes in that input.

The specific stakeholders that are being consulted is a very broad base on this broad regional issue. We are seeking the input from state regulatories, various utilities across the west, project developers both on the generation and transmission side as well as advocates on the environmental land use side and the air quality side as well. So a lot of various outreach and so far a lot of interest from those various groups.

So in case you're not familiar with the entities that I'm mentioning, we added this slide here. So the Western Interstate Energy Board is explained here briefly, but they're an organization of the 11 western states and the 3 Canadian provinces. They have member representatives that sit on this Board.

They also have some very committees that operate under the Board. One of those committees that you may be familiar with is called CREPC, that's the Committee on Regional Electric Power Cooperation. And I just want to mention that this type of activity for CREPC and WIEB is right within their scope and where they're comfortable in acting. Several years ago this group took on an effort to inform the regulators about the energy imbalance market. That led to a series of studies done that ultimately helped lead to better informed kind of state regulatory

perspectives on that particular issue. So this type of regional effort that requires broad input is something that they're familiar with.

We also have NASEO as part of this project as well. I won't do too much of an introduction to them, I think a lot of people are familiar with that group.

And lastly the third leg of the stool is in Energy Strategies who's providing technical support to the effort. So our job is to really support WIEB in trying to compile and develop a summary of information (indiscernible)as part of this effort.

MR. BERBERICH: I'll ask a quick question, maybe this is a question for you. With the MOU between California and Mexico and with Mexico now indicating or at least CENACE and Baja Norte indicating they may want to participate in the energy imbalance market, what outreach have you done probably with CENACE I guess, in coordination with them? Because you've got the Canadian provinces covered, but I don't see any mention of Mexican collaboration.

MR. TURNER: Yeah, you've caught me out there, we have none to date.

MR. BERBERICH: You might make at least some tacit overtures to them and suggest our Roberta could probably help with that.

MR. TURNER: Yeah. Thank you.

MR. MOYER: That issue actually came up in our Portland workshop last week about the international outreach and the same thing was asked as well.

So this is a short summary of again, the different aspects of the project. The regional consultation or the regional outreach really is being led by a steering committee. That steering committee includes members from these various states. Those members hold positions in various energy offices, public utility commissions, department of environmental qualities, so they run the gamut. So that really is the group along with WIEB and support from Brian as well, that are guiding this effort.

The effort is primarily organized around two different workshops. The first workshop has been complete. It was held a few days ago, Friday August 12th up in Portland. And the effort of these workshops is really kind of broken down regionally where the Portland workshop is focused on the northwest and kind of the intermountain area and the Las Vegas workshop is focused on the southwest and the southern half of the intermountain area.

And the Las Vegas workshop is still being scheduled and organized, but we do have a date and a location and a time and it is on September 1st. More

information on that workshop, I think can be found both on the RETI website page right, Brian, and also on the WIEB website.

MR. MOYER: So the workshops themselves as well as the entire project have been organized around a set of focus questions. And so these are the questions that are being posed to stakeholders to gather information about the Western Outreach Project. And so those topics, I'll go over in a few minutes and I do not have a comprehensive list for you today, because there are a lot of questions that we are asking, but we'll preview some of them.

So the general format is when we're in these workshops we have a series of panel discussions. Those panel discussions have experts from different companies like I said: utilities, developers, various advocates, regulatory commissions so on and so forth, that are responding to some of the questions that we pose live and during these meetings.

In addition to that, we've also structured them so there are some response panels to respond to some of the things that are said. And then as well as that, plenty of time left over for general and kind of a broad discussion around the various issues. And a kind of having gone through one workshop already I think in Portland that's definitely when we drew out the most information is when we

moved on from the structured piece and people were able just to talk about the issues and the hurdles and challenges that were on their minds.

So the idea is to conduct these workshops. Energy Strategies is taking notes and trying to summarize the information real time and also afterwards. And then we're going to combine that with the written comments that we received. That comment window is open through September 8th and so the idea is for participants to respond in written comments to the questions that we pose. And those comments can be sent to Tom Carr there, WIEB staff, at his email address.

From there the rest of the effort is basically an iterative process of report writing and coordination with the steering committee and Brian, of course, and interfacing on developing some final conclusions and recommendations surrounding those focus questions.

So that's the general structure of the effort.

CHAIRMAN WEISENMILLER: Okay. About how many participants were in the Portland workshop?

MR. MOYER: Yeah, great question. I meant to cover that, I think we had almost 30 people in the room, right around that. And I haven't got the fully tally on the phone, but when I looked at it there was about 30 to 40 on that, on the phone. So right about 60 to 70, somewhere

in there.

So the focus questions, my thought here today was just to kind of walk through these to give you an idea of what's being posed to these stakeholders and what we're asking for information on. Again, these aren't all of the questions that are being posed. I think the complete list of questions is posted to the WIEB website and will be posted to the RETI page as well I believe.

And I'll also provide a little bit of narrative on some of the feedback we got from the Portland meeting on Friday. We, of course, haven't had time to digest and kind of condense down that input, but I'll just give you some snippets on what we've heard out of that conversation so far.

So, on the renewable demand piece this focus question, this Focus Question #1 is really intended to kind of set the stage for a discussion about the transmission that happens later. And so the idea here is to understand what the potential for renewable markets in the west are, sort of outside of California. And Brian talked about earlier, we know what the potential demand is within California in this effort as opposed to what's outside of the state.

So one of the things we're asking is what the demand is in these particular regions. And that demand,

we're learning and also asking about in a detailed manner, is going to be driven by renewable portfolio standards, clean power plant components potentially, as well as just a drop in technology costs for those resources.

One of the things that we talked about and we kind of went into at length on the panel, is we have a representative from PacifiCorp's Integrated Resource Planning Process and Origination Group that talked about a recent RFP they conducted. And that RFP actually drew out about 6,000 megawatts of interest primarily from their eastern side of their footprint. So that was exclusively their -- sorry the western side of their footprint, so half of the PacifiCorp footprint effectively led to about 6,000 megawatts. So that's the type of information that we're trying to draw out to get an idea of how much resource potential is there still out there.

We're also asking questions about renewable supply and where the development might occur. We are asking these questions to specific advocacy groups, which were on this panel as well. So we had a group that had done some analysis about the various northwestern states and how much renewable energy would be developed to comply with the Renewable Portfolio Standards of Oregon and Washington, for instance. And so that's an example of some of the data that we covered as well.

We also dug into this notion of patterns of trade. And so the idea here is to look out at a future that has sort of a different grid of renewables located in places where they currently aren't and to sort of conceptualize how that system might operate.

And one of the things that came to light here, that was a big point of discussion, was coal retirements in the northwest. We talked about the pending Colstrip retirement at length, and the interest in repurposing that transmission (indiscernible) out of Montana into the northwest for use in renewables.

And then again, PacifiCorp and others commented on the potential long-term retirement of one of the fleets out in Wyoming and the preference and interest in repurposing that transmission as well for wind to build out of Wyoming. So again, more information coming in on that front as well.

One other point worth mentioning is we had the Northwestern Power and Conservation Council, which is an entity in the northwest that does regional planning for several northwestern states. And one of the key assumptions they make in their planning exercises is how many imports can they rely on from California during their seasonal peak, which occurs in the winter. So that's the type of information that we're gathering is 3,000 megawatts

that they're using now in their studies. And we're hoping to get more feedback from them on what we can report back to this.

So the second focus question after we identified the demand supply of renewables and how sort of the development of those resources might unfold, is to get an understanding of the transmission system, where it stands today, what the existing constraints are, and where current trends are leading the operation of this system outside of California.

On this panel, we had representatives from Bonneville Power Administration, we had some environmental advocacy groups here, and also we had representatives from the renewable developer community to opine from that perspective on where the transmission opportunities were and where they were being constrained and under development by the transmission system in the northwest.

Again, we ended up talking on this last point. We talked at length about the changes in hydro system specifically and this notion that the northwestern hydro system can potentially serve as a battery and a resource potentially for integrating resource within California. And we had some hydro experts talk to us about some of the challenges associated with doing that. And how much warning they need before they start cascading water down

their hydro system, for example.

One of the stories that they gave us was there's a series of dams all linked together and they sequentially don't have a lot of storage the further down that you go. So once you start the flow it's going to have to finish, for example, so that's the type of information that we're collecting under.

And then finally we get to the transmission aspect of this and so the goal effectively was to review the proposed projects that are out there to access the resources that we've been contemplating the prior two questions.

The first question that we asked is really do we have the right slate of projects identified? It's effectively a survey. Are these all of the projects in this region that might help California meet its Renewable Portfolio Standard and greenhouse gas reduction goals.

In this particular panel, we had four project developers speak to these various questions. Those projects are all -- really see in one way or another, California RPS compliance as a key value proposition, and a driver of new business opportunity. And we reviewed those projects, learned about their permitting status. We learned about the capacity that those projects could supply to the California market. We learned about the

interconnected nature between a handful of those projects. And we began a discussion about the potential scenarios that could play out in their development.

And one of the things that I think we had continued discussion about is it was the belief of the developers that it wasn't just what project was going to be needed, but in which order was one of the things that they spent some time talking about, and how to come to that conclusion about which ones.

So let me think to see if I missed anything else. Again, there was a lot of information shared at this first panel and I apologize for not having a more concise story to tell you yet. We do have a lot of information yet to collect. Again, I think as far as next steps are concerned I don't have a slide for it, but I can just kind of verbalize the way that we see this playing out.

We, of course, have the Las Vegas session coming up on September 1st. We expect to be receiving RETI comments between now and then. And then for seven days thereafter, at which point we'll embark on the report writing effort and try to draw some conclusions out of this.

Thank you.

CHAIRMAN WEISENMILLER: Thanks, comments on this presentation or overall?

(No audible response.)

MR. TURNER: Great. Well, thanks Keegan.

And I just want to reiterate the call there for comments; I think the workshops that we're putting on are just an instigator for comments. We're putting up people that will make intelligent and informed, and hopefully, statements that get people excited to put in their own two cents. So we're really hoping that people will put in written comments responding to the questions that we have asked that will provide some insight into the resources and transmission available elsewhere in the west.

So look at the RETI 2 website, you'll find the -- I think the questions are up there now and if not we'll ensure that they are. And folks can get started on those now; the deadline will be September 8th.

All right, so this is the last bit. I just want to talk about what's next: next steps

Here's our process and timeline again. There's our Plenary Group, which will be presenting the recommendations, the Transmission Group pretty far along, they've got a final report in production that we should have some time in September, that red box should go out a little bit further.

The Environmental and Land Use Group is doing a lot and has several tracks within it, and is still ongoing,

and I'll talk about some of the outstanding work that needs to be completed there. So that'll be continuing well into September.

And then lastly, this final piece that we just heard about, which we are continuing into the end of September as well.

Some of that unfinished business, we need more land use info from counties, we want to continue with the tribal and military consultation. I think there'll be some refinement to the transmission implications pending on the comments received, also we have a few questions outstanding that we want to nail down, and also explaining them in a more sensical format for the kind of supply curve of options and scenarios. And the environmental assessment that Scott mentioned, we've got the tool ready to go, just need to identify some areas to evaluate, and then the Western Outreach Project.

The next deliverables to look out for there are the September 1st workshop. In mid-September the Transmission Group and the Environmental Group should be ready to present on draft final reports, the TTIG further along than the Environmental Group. And by the end of September I'm hoping that we get final reports from each of those tracks, so that we can begin preparing our conclusions and recommendations.

Now, our working assumption is that our goal is to propose both scenarios and data to inform near-term regulatory proceedings. These are things like the transmission planning process, the integrated resource planning or LTTP at the California Public Utilities Commission, data to inform the specific databases we use and cost assumptions. Also the BLM's Section 368 Corridor Review will have some scenarios to inform that regulatory proceeding.

Recommendations for future planning initiatives, these could be things like the local land use planning for generation or interconnection transmission or a corridor study as we identify a corridor.

Then recommendations for further study, I believe that there will be some real opportunities for important next steps regarding for instance the energy only, and institutional issues or northwest resource planning in this idea that is being discussed to some degree in Portland and through our western outreach project. And identifying in more detail where are the markets for California's surplus generation at specific days and times of the year, what are potential hydro system changes, how to utilize in a more -- how to outline the possibilities for sharing of resources, that's not the right word, complimentarity of resources across the west. So that we'll have some more information

to recommend how to study that in more detail.

We will discuss that initial slate of conclusions and recommendations early October, finalize that by the end of October, and have a draft report for you all in mid-November.

Our next steps, and I just wanted to leave with our comment portal for anybody who wishes to make comments.

CHAIRMAN WEISENMILLER: Great. Thanks, Brian.

PRESIDENT PICKER: So, this is an enormous amount of work and it's really starting to bring a variety of issues and opportunities into focus. So I just wanted to take a second and not only thank all of the other agencies who are represented up here by their decision makers. But the lead staff who worked on this, Brian and Scott and Keith, I think you also helped to sharpen the kinds of challenges and decisions we may have to make soon.

And I'm actually very pleased to see the broad issues, I mean it really does sort of replicate at least what I hope to see out of this. It does, in fact, replicate a lot of the tools that came out of the RETI 1.0 process that began in 2006 and resulted in the transmission, enabled the projects, and allowed us to make the progress that we've made on California's initial renewable energy goals. And so we move into a set of greenhouse gas goals, of course, we still have all the

other challenges.

I want to point out one thing that also came out of that process, which was an MOU between the regulatory agencies, between CPUC which does the forecast, the PUC does the long-term procurement and the CAISO, which actually then starts to prepare a series of bids to come forward.

And that's kind of dated and so we might want to revisit that, but it's not so much that it's not operational still, since it does include that core process I just talked about between the regulatory agencies. But it specifically mentions only the RETI 1 process in the California Transmission Planning Group. And so I'm going to ask my staff to take a look at refreshing it and perhaps strengthening it in the some ways. And maybe actually look to see whether we want to include some of the work of the agencies including some of the environmental tools.

So that -- I just think that this is really useful -- we are continuing in moving forward. And that's the one specific task that I will raise for us to consider and see whether we want to look at that again in a new fashion.

CHAIRMAN WEISENMILLER: I was just going to say I think you're right. I mean, the thing that's --

PRESIDENT PICKER: I know you're right, you're

also the one who raised this issue to me.

CHAIRMAN WEISENMILLER: The first time, no it's sort of I think the thing which I -- you know I've been focusing on a lot at this stage is that in the old paradigm we were looking at renewables. We were looking against the goal on renewables. We're pretty focused on what do we need for transmission and how do we get there, least cost best fit, so to speak.

At this point we're looking really at GHG, because you know I can't find a baseline for any entity in California, what the GHG numbers are that we went them to reduce by 40 percent. And then we need to get that agreement and again as you get more GHG focus, more cutting across the silos, there's a whole new world there. I mean, it's not even getting into the question of what happens if a utility has a CCA spun out. I mean, what is the baseline on GHG for the utility or for the CCA?

So anyways we're in a Brave New World, which is going to require rethinking a lot of the pieces on how things fit together.

MR. BERBERICH: Yeah, I think the point raised by both of you is on the mark. We're going to have to examine how the process works. I think in particular we're going to have be more iterative as we go through, because if we're solving for GHG we need to do it as cost-effectively

as possible as well. And we could go this path or that path and I think they have economic considerations.

So we kind of have some fairly ponderous processes right now that if we iterate like that it will take ten years to solve the what if questions. So I know the ISO is going to have to work on that too, we're going to have to be a little bit more iterative on our transmission planning although -- oh Neil's still here and Sarah -- they were sitting over there -- to make sure they knew what they were signing up for.

But I think I also want to echo what President Picker said, this is really starting to come together. The amount of work that's gone into this has been outstanding and the collaboration amongst parties including all the stakeholders who have showed up and given us their input too.

I think the work shows, and we're deeply appreciative of that.

MR. PEREZ: So just a few remarks, again acknowledging the good work that's been done by everyone. I wanted to recognize the fact of the engagement with the Bureau as we come to completion of the DRECP is key. And then also as you brought up, Brian, also as we move into Section 368 the kind of review that'll be coming up this fall will be another key component to think about as we

move through the RETI 2.0.

So I just wanted to acknowledge the work, the engagement with us, and keeping our eyes on those two prizes from the Bureau's perspective.

CHAIRMAN WEISENMILLER: Thank you.

Yeah, again I also thank staff for their hard work, thank the stakeholders for their participation, for everyone here today.

We have a couple of public comments, at least we'll get to in a second. But again I think we've come a long way. I think we're starting to see the closure and again, coming back to what I started out with, it's pretty clear we have a lot of options. And our challenge is going to figure out how to do phased portfolios that really cover diversity of resources and diversity of locations in the state. But do it in a way, which really minimizes economic and environmental costs going forward and to do that in the context again, of thinking back to greenhouse gas issues.

So again, I thank everyone and looking forward to your comments, which are due August 29th. And let's take some public comment.

First, Defenders of Wildlife.

MS. KELLY: Good afternoon, Kate Kelly on behalf of Defenders of Wildlife. Thank you for holding this session today and the thoughtful comments we've heard and

the update. It's been very helpful.

The environmental organizations as a whole, and Defenders of Wildlife, as you know we've been commenting pretty consistently and persistently. We are very supportive of these types of processes and the need to do thoughtful planning and looking forward to the future.

We have a couple of recommendations based on what's come forward so far and some thoughts of thinking forward as the process continues and beyond RETI 2. Based on what we've seen this far, we really strongly recommend that we focus on those areas where we can build off the science and data that we worked so hard to get collaboratively. So looking at the area within the Desert Renewable Energy Conservation Plan, DRECP, as well as the work that was done in the San Joaquin area focus as those TAFAs, look at the DFAs in the desert, look at the least conflict in the San Joaquin as the sort of initial priorities.

You've got Data Basin on hand and it's building and growing into an amazing tool. Utilize Data Basin for those studies, rely on Data Basin for looking at those areas that are identified as needing additional transmission or that we need to look at a little more deeply.

And the thinking on forward, yeah this process

has brought out really the value of landscape level planning as we have also learned from some of our other activities. We know now that West Mojave is going to be very important looking forward and so we urge you again to focus on West Mojave, focus on completing the Phase II of DRECP and using Data Basin for that type of work.

And then finally looking at the north state and thus far is there may be a sort of a disconnect between what we may be anticipate are the resource values that are up there versus some of things that we know about land use constraints, transmission constraints, those types of things. So let's look and see where we can get our energy first and then even think about whether we need to be looking at north state. If we are going to look at the north state we've got a long ways to go in developing the same level of information as we've generated in the desert or the San Joaquin.

And then finally as we look at out of state, we've built a great framework of knowledge here in California, so that we have the understanding to make the decisions. There may not be that same level of environmental data in other places, in the western states, and so we should get an equal level of information so that we are actually comparing apples and oranges and making good decisions.

With that I again thank you for your time here today as well as the work that you've done thus far and looking forward. And we'd be happy to answer any questions.

CHAIRMAN WEISENMILLER: Thank you. Thanks for being here.

MS. KELLY: All right, thank you.

CHAIRMAN WEISENMILLER: PG&E, Nathan?

MR. BENGTSSON: Hi there, Nathan Bengtsson, PG&E. Thanks to you all for holding this workshop. I'm on right? Great, thank you.

Just a quick comment and then a question I think probably for staff. I think it's really great that the energy only numbers were put on those slides. I think it's really good to have that side-by-side, so you can see those objects going forward. As Brian often says it's an envisioning process and the more vision you have the better.

I had a quick question, it's my understanding that the last workshop, the last ELUTG workshop there was a discussion of sort of narrowing the area where we would be focusing on environmental data. And I wondered if that would be trued up in some way against what the Transmission Group is doing? I know right now the Transmission Group is working off what the Plenary Group initially gave them in

terms of their study range. Will that be impacted in any way?

MR. TURNER: I think that's the usual clarifying question, no. One result we had from the Transmission Group is that the results that they were giving us were not necessarily dependent on where that generation showed up within that TAFA except for the Victorville-Barstow one, which has those three regions that Sushant mentioned.

So it wasn't necessary to take any specific generation assumptions from Environmental Group into the Transmission Group. Now the Environmental Group would like to look at some areas of potential generation to evaluate environmental implications. We haven't gotten to that stage yet and that's some of the outstanding work that remains, but it isn't necessary for the transmission evaluation.

MR. BENGTSSON: Excellent, thank you for clarifying. And thanks to you all for being here today.

CHAIRMAN WEISENMILLER: Thanks, same here.

LS Power?

MR. ARORA: Hello, this is Sandeep Arora with LS Power. First of all I want to thank you for the opportunity to be here and participate actually in the entire RETI process so far.

And I want to take this opportunity to commend

the RETI team for all the work that they have done, especially collecting the input from stakeholders and especially within the last few weeks we have started the out-of-state outreach process, which I think is very effective. And we would like to see that continue going forward.

For those who don't know, LS Power has been in the business of developing, owning and operating power generation and transmission assets since 1991. We are very active in California and our interest is especially in helping the RETI process develop forward is due to our long transmission project in the Southwest Intertie Project.

The Southwest Intertie Project basically brings about 1,000 megawatts of transfer capability into Eldorado substation, so essentially when we are looking at these out-of-state renewable portfolios that translates to roughly 2,000 megawatts of Wyoming wind full capacitor ability. Nameplate capacity that could be brought to the SWIP-North transmission line into Eldorado, essentially leveraging on the existing transmission investment that California has made in the Harry Allen and Eldorado transmission line.

I'm not here to talk about the project itself. There is a lot of information available and we did provide supporting documentation and comments to the RETI process.

There was a study report done by the Brattle Group and NREL, which is available out there on the RETI website for folks to take a detailed look at the benefits of the project.

In terms of the RETI process itself, we did have a couple of comments that we'll also write up more formally. But as we compile all the different inputs we are collecting through the process, especially the question of out-of-state transmission. I think we should also look at the question of is there an out-of-state transmission solution that also has an interplay with these in-state transmission constraints? So because it would help to quantify the benefits, because out-of-state means if you build a big transmission line it impacts the entire WECC region, it brings reliability benefits.

And for instance, I can speak for the SWIP-North Transmission Project based on the study work that we have done, if you have the SWIP-North transmission line into your power flow at (indiscernible) that helps reduce California-Oregon Intertie path flows, improves 300 to 400 megawatt transfer conversion from California-Oregon Intertie.

So to go back to the Northern California TAFA that was being reviewed, does an out-of-state transmission project have an impact in improving deliverability across

those TAFAs as well? I think that would be an important question for us to address going forward.

And then in general as we do go forward we are looking at different scenarios in terms of California is going to be 50 percent RPS however, there are three different scenarios which is status quo with just California and EIM market-in-place. Scenario B with PAC integration and scenario C is with the full westwide integration.

As we were going and looking at these transmission options our recommendation is to look at is there a transmission option, maybe one or two or three, which provides benefits to California ratepayers and in general overall WECC under all three different scenarios? I mean, that would get important consideration to include within the RETI process as the report is being finalized around mid-November timeframe.

And then to answer the question which was brought up earlier by President Picker and Steve is how do these -- we are trying to answer the question on what do we need to do to improve the ability at an import point into California. But I think it's also important to answer that question on what additional transmission is needed to improve deliverability into that delivery point, the boundary point, into California.

At what cost and how many megawatts of deliverability can that transmission provide, so again going back to SWIP-North roughly a 1,000 megawatts of transfer capability can be essentially built at around $400 billion capital costs, it brings 2,000 megawatt of full capacity deliverability into California.

So those considerations should be reviewed. Thanks a lot.

CHAIRMAN WEISENMILLER: Thank you. Anyone on the phone?

MS. MILLIRON: Yes, we have one, the next commenter, Steve Mills, your line's unmuted.

MR. MILLS: Oh, can you hear me?

CHAIRMAN WEISENMILLER: Yes.

MR. MILLS: Hello? Good. Good, okay. Yeah, my name is Steve Mills and I did see that consensus building with local governments is a key component of RETI 2.0. But I see also that RETI hasn't been listening to San Bernardino County and that concerns me greatly as a private citizen. I often visit and recreate in the county and I feel a need to take up the county's point of view when it comes to RETI.

And the county's put that forward in a resolution they enacted last February and they stated that they tentatively approved utility scale renewables in only five

specifically identified areas. And these areas represent a minuscule subset of Victorville-Barstow TAFA. But nevertheless RETI is planning for 5,000 megawatts of renewables in that TAFA and, of course, the associated transmission work.

The County wrote a 2015 letter that took issue with the Draft DRECP, but I did attend the -- or by remote -- the July 29, 2016 RETI workshop. And it was said that the TAFAs build on the DFA areas as they're designated in the Draft DRECP, which of course entirely discounts the County's position on that. And it also ignored the fact that due to a great deal of criticism that came from all quarters, the DRECP was revised to address federal land only.

So the question is why then is RETI 2.0 continuing to adopt an obsolete planning approach that was discarded by the DRECP itself where the same subject was addressed in a recent letter that James Ramos, who is the Chairman of the San Bernardino County Board of Supervisors, sent to the CEC?

Chairman Ramos stated in that letter that, "We are somewhat perplexed by the shift from the DRECP to RETI 2.0." Here he's politely, but unmistakably expressing serious discomfort with the fact that RETI 2.0 has become in a sense a continuation of the Draft DRECP. He also

reminded the CEC about the County's resolution that I mentioned previously. And he noted that the County's never received any substantive response to its stated concerns.

So what's RETI 2.0's take on the County's letter? I have to say that it is an inaccurate take on that letter. And that that tends to greatly distort and minimize the County's position. So for instance, today's presentation materials and the report by Mr. Harland reported that the County's letter expressed confusion about the relationship between the DRECP and RETI 2.0. But there's nothing in the County's letter that shows even the slightest confusion on that score. It is not a request for clarification. Rather, it is a statement of alarm about the direction that RETI 2.0 is taking.

Another example, today's presentation materials say that according the County's letter utility scale should be prioritized on transmission aligned degraded lands. But the letter doesn't say anything like that. As stated in the letter the County's resolution provides that utility scale should be confined meaning at best tolerated in five specific areas. And RETI can't claim that it's closely collaborating with local governments when it's recasting their criticisms as if they're weak endorsements of sorts and mere requests for clarification.

So the County has spoken often and quite

forcefully on the subject. And we urge that the RETI agencies really listen, which would mean taking another look at the letters and the communications that have been coming from the County and recalibrating the TAFAs so that they comport with the County's vision.

That's my comment. Thank you.

CHAIRMAN WEISENMILLER: Thank you.

Anyone else on the line?

(No audible response.)

Okay. This meeting is adjourned.

(Whereupon, at 4:00 p.m., the workshop was adjourned)

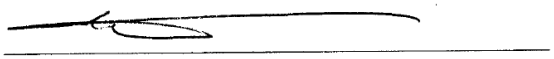
--oOo—

REPORTER'S CERTIFICATE

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

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 12th day of September, 2016.



PETER PETTY
CER**D-493
Notary Public

TRANSCRIBER'S CERTIFICATE

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

And I further certify that I am not of counsel or attorney for either or any of the parties to said hearing nor in any way interested in the outcome of the cause named in said caption.

IN WITNESS WHEREOF, I have hereunto set my hand this 12th day of September, 2016.

Myra Severtson
Certified Transcriber
AAERT No. CET**D-852