

MINUTES
New Energy Industry Task Force¹

January 24, 2012

The New Energy Industry Task Force held a public meeting on January 24, 2012 beginning at 2 p.m. at the following locations:

State Capitol, the Guinn Room, 101 North Carson Street, Carson City, Nevada 89703, and via videoconference at the Grant Sawyer State Office Building, 555 East Washington, Suite 5100, Las Vegas, Nevada 89101

1. Call to order and Roll Call.

Stacey Crowley, Director of the State Office of Energy, Chair, called the meeting to order at 2:05 p.m. and opened this agenda item.

The following Task Force and Technical Advisory Members were present:

Task Force Members in Carson City	Task Force Members in Las Vegas	Task Force Members Absent and Excused
Ellen Allman Ian Rogoff Jack McGinley Rachel McMahon participated on behalf of Mr. Woodruff John Tull Lawrence Willick Matt Frazer Paul Thomsen Tom Morley (via telephone) Tom Husted	Carla Pihowich	Jim Woodruff
Advisory Members in Carson City	Advisory Members in Las Vegas	Advisory Members Absent and Excused
Alex Gamboa Patrick Gubbins participated on behalf of Ms. Lueders Connie Westadt Dan Jacobsen James Settelmeyer Jason Geddes Jim Baak John Candelaria Joni Eastley Kathleen Drakulich Rebecca Wagner	Marilyn Kirkpatrick	Connie Westadt Amy Lueders

¹ Handout materials provided prior to or during the meeting can be found at http://energy.state.nv.us/resources-forms/EL_TF.html

Also present was Cassandra Joseph, Deputy Attorney General.

Members of the public were asked to sign in.

2. Welcome and Introductions – Stacey Crowley

Chairwoman Crowley welcomed and thanked everyone for attending the meeting. She announced that some of today's presenters were on the phone. These presentations were selected to give the group an impression of the landscape from developers and utilities. Larry Chaset, also calling in, will talk about the California RPS. She then closed the agenda item and moved to agenda item 3.

3. Public comments and discussion.

The Chair opened this agenda item for public comments and discussion. No public comments were made at this time. The agenda item was closed.

4. Review and approval of the minutes of the December NEITF meeting.

The Chair opened this agenda item for review and discussion. Mr. Morley moved that the minutes be approved as submitted. Ms. Allman seconded the motion. A vote was taken and the motion passed unanimously. The agenda item was closed.

5. Review and discussion of member goals and desired outcomes.

The Chair opened this agenda item and asked task force members to tell the group what their goals and intended outcomes are for the task force – based on the Governor's Executive Order and the deliverables that we will give to the Governor in August, to make sure we are all in alignment with our goals and ideas. Each member took a few moments to explain their goals and desired outcomes for the task force.

Marilyn Kirkpatrick: We have a good opportunity to move our state forward in new directions, to learn what the opportunities are and to bring these ideas, goals and make these opportunities come to fruition.

Tom Husted: Agrees with Ms. Kirkpatrick – not only look at the charter before us but also make sure we are looking at existing resources within the state, utilities, etc make sure that those assets are being utilized to the fullest extent for the benefit of the state.

Tom Morley: Make sure we re-train Nevadans and re-train for new technologies that come along and fill up our training centers.

Carla Pihowich: Make sure that solar PV and solar manufacturing stays here in Nevada and other neighboring states, make recommendations that lead to growth in solar overall to further economic development and impact; that we create more opportunities to entice other manufacturers to relocate to Nevada to establish opportunities in the supply chain.

Ellen Allman: We know where resources are, we know where we want to go. We need to figure out how to get transmission built.

Chairwoman Crowley took a moment to acknowledge that Governor stepped into the meeting and thanked the Governor for attending.

Governor Sandoval thanked everyone for their participation and let everyone know that he is staying in touch with Stacey and the efforts of the Task Force. These issues are very important components of what he wants to accomplish for Nevada. He stated that this is an incredible group of stakeholders and thanked them for putting their time in on behalf of the state of Nevada and thanked Stacey for her leadership. This kind of attendance really shows how much of a priority this is within this state. The leadership throughout the state that is at the table will have a lot to do with the future of the state; the group is making history and will make a huge impact for the state of Nevada. He thanked everyone and then took a seat to observe the meeting.

Matt Frazer: His concern is to follow the money. He is concerned about the end product, the contracting group that might be asked to build the transmission line. He is concerned about the assumptions made and asked if anyone has looked at the assumptions. Does California really need us? Everyone wants more jobs, not “how” we get there. He wants to make sure we end-up with a good foundation going forward, not starting with assumptions and then find out we were wrong.

Paul Thomsen: Ormat Technology, a developer in the state will be providing a presentation on developing Nevada’s full geothermal potential and will discuss Ormat’s experiences, realities and policy considerations. We need to discuss how short and long term PPA’s and government policies will play a role in getting access to markets.

Rachel McMahon: First Solar. The groups could revisit the goals of existing policy and development of tax incentives. First Solar has about 500 MW in projects that are under development for the California market, a model that the group is discussing.

Jack McGinley: Long term we need to work with developers and projects, provide equality in tax incentives for all renewables, and make sure we comply with developing technology. What are the barriers to the development of geothermal? With any new policies to come out of this group, we need to take a hard look at those structures and make sure they are right considering customer concerns about raising rates; both for current and future customers.

John Tull: Environment and public land member. We have a common goal of wanting to see renewable energy development happen and we have similar reasons as to why we want to get there. We have to make sure we validate conservation concerns, it’s very doable and we have had strong success. In looking for good places for development, companies like First Solar and Ormat are helping to identify ways to minimize impacts and balance conservation concerns. We need to identify the best locations for maximum use of our resources and come up with a solution to open up the market. We can review the renewable portfolios standards in Nevada. Make sure we pay attention to opportunities and process of federal agencies, like the BLM PEIS program. The conservation community is not opposed to development but feel we need to come up with a zone to concentrate development. We can start building along the zones already identified and pay attention to big species like the sage grouse.

Lawrence Willick: LS Power. We need to identify the natural strengths and weaknesses that Nevada has to build a strong renewable energy industry – geothermal resources, solar resources. We need to look at other markets that have significant loads, significant renewable markets and moving to the opportunities. What are the weaknesses, opportunities, and threats, like revenue uncertainty, the “chicken and egg” problem for renewable energy developers, we need to identify the policy initiatives to help support the program.

Ian Rogoff: NIREC. Agrees with many of the comments made and indicated we're trying to extend an industry in this state and the economics hasn't happened yet. We need certain functions to make that happen. We can develop a business case and sell it to the customer. We've done good work with transmission planning and research but we haven't looked at the value chain in this industry to see what's in it for Nevada. If a generation facility creates 50 jobs for the next 18 months, should we give them a 20-year tax abatement? We don't know how to make that trade-off today. We don't know what the upside in revenues are, where those revenues come from and what part of the value chain those revenues sit in and how can we maximize them. What's the clearing price in California and what is the revenue to Nevada? What are those forcing factors to make the equation work? Once we have these answers, we can bring this information to the legislature and to the Governor.

Joni Eastley: Her goals, in order of priority, are to meet the Governor's deliverables for this task force; and to work with her colleagues in this organization to help develop the shortest path for success in the renewable energy arena by encouraging all levels of government on the local, state and federal level to create an environment for success. Specifically, by either creating legislation that creates the environment or by lightening up the rules and regulations.

Rebecca Wagner: Gave her standard disclaimer that these are her opinions only and not the opinion of her fellow Commissioners. Ms. Wagner further stated that as an observer of this process, she believes we need a cohesive approach to our energy policy. She believes we keep having disconnects and we need it to all go in one direction but we are on the right track. We need collaboration within state agencies, within federal agency partners and with our surrounding states in the region. So far under Stacey's leadership, Ms. Wagner stated that we have made the best progress that she's seen and she believes Nevada has tremendous opportunities with our renewable resources, but we need the business case, as suggested, to see where we really need to focus and impacts on the supply chain. For instance, with the geothermal plants, they don't want a lot of people working at their power plants because they'll want to maximize the dollars invested at the power plant. Identify a successful business model and have a meaningful basis in which we can make sensible policy decisions, not reactive policy decisions.

Jason Geddes: Dr. Geddes stated that he would like to know where we want to be in 2032 with the RPS and Transmission and how we get there. If we can come up with that goal statement, then he believes we can start focusing on our initiatives and how we view long term costs, not just two or three years out. He believes this would be a good goal for the group. He also stated that the Nevada System of Higher Education wants to play a big part in all of this. They are here as a resource, for workforce development, research and anything else they can do.

Jim Baak: Vote Solar Initiative. Mr. Baak stated that in looking at this from a totally different perspective, he believes the key is to identify markets; markets internal and external, looking at the renewable portfolio standards in Nevada and working with the Department of Defense on finding new potential markets within Nevada, and finding beneficial ways to work with cooperating with California, Arizona and other states. He believes there has been good progress between Governor Sandoval and Governor Brown. Perhaps we should consider a memorandum of understanding with California, or other states, laying out specifically how Nevada and California are going to coordinate on transmission planning and resources. What resources can they provide and what resources might make it beneficial for our state. As for the business case, we need to look at the supply chain analysis and how it impacts other states. California is the biggest market in the west for energy and there's reluctance to look beyond California's borders. There could be benefits in terms of balancing, using resources from other states to balance Nevada's own resources. We need to study the supply chain benefits per region; identify where

the trading partners might be and look at how we might be able to better integrate renewable energy resources in this state and lower our costs of integrating those resources. Mr. Baak also mentioned some important initiatives going on at the federal level such as FERC 1000 and other policy programs that he believes we need to look at those venues to better bring renewable energy resources in this state, to try and identify where the market opportunities are and where we might be able to develop cooperative agreements with other states.

James Settlemeyer: Senator Settlemeyer first thanked the Governor for putting the task force together – he sees it as a very valuable group. He then stated that we're all here for the same goal but to do so and to move Nevada forward, we'll need to balance the environmental and economic impacts.

Kathleen Drakulich: Stated that she agrees with many of the comments made however, her main goal is for coalesce. To get behind and identify what we need to do reasonably in the short-term. We want to be sure we do something responsibly in the short term that will help us achieve success in the market and pushes us towards the goals. We need to demonstrate not only to people in Nevada but to the state of California to make sure we have some success.

Patrick Gubbins for Amy Lueders: Mr. Gubbins stated that he agrees with many of the comments and agrees the group should continue to work together to identify the public and private sector roles. We should also look at developing agreed-upon transmission corridors.

Dan Jacobsen: It would be ideal if outcome of this task force recommendations has a downward effect on Nevada utility rates and if ratepayers would not be the safety net.

Alex Gamboa: Envirolution. His goal is to understand the environmental, social and economic interests while taking advantage of our resources in the most responsible way possible. The ultimate goal from Envirolution's perspective is to have careers and jobs in the industry that will result from the work of this task force so that we can develop curriculum for students from K-12 so that they are better prepared for the future.

Chairwoman Crowley thanked the group for their input and their passion for this project. She believes that this helps set the stage for the hard work that the group will be doing in the coming months. She then closed this agenda item.

6. Presentation from Utility Procurement Manager and Transmission Planner.

Chairwoman Crowley opened this agenda item and announced that Aaron Johnson and Steve Metague from PG&E were on the phone to present. Aaron and Steve are both very experienced in procurement and transmission planning, and they have offered to provide some thoughts on their strategies for planning and procurement for the near and long term.

Steve Metague - senior director at PG&E, involved with long-term transmission planning. He began his presentation by talking about more recent experiences working with Nevada over the past six to eight months. Last May or June 2011, PG&E was looking at northern Nevada geothermal resources and looked at prices of power being supplied in the Nevada market and the high capacity factor in a transmission. It looked attractive if a line could be built so PG&E did some target outreach to geothermal producers to help resolve some of the challenges from a transmission perspective. Are there really competitive resources there and if you're building a transmission line, you want some assurance of that – and really so there's no mismatch between the lead time it often takes to develop a transmission line. He stated that they were somewhat disappointed that the target outreach did not really result in the kind of confidence they had hoped

to build. In a parallel path, they had also been looking at transmission opportunities to make a much stronger connection to bring northern California and northern Nevada working with Transmission Agency of Northern California (TANC) and municipal districts, which appeared to be a potential promising transmission project which depended a lot on upgrading existing transmission lines significantly.

They did not feel that they had the confidence to continue moving forward and they abandoned further work on project in September of 2011. This is just one renewable energy zone and one resource and probably can't be generalized in all ways but thought this might be helpful for the conversations to share the perspective of some recent events relative to Nevada geothermal resources. He then turned it over to Mr. Johnson.

Aaron Johnson: His role in the PG&E procurement shop mainly deals with policy issues, internal role – he helps manage their entire portfolio and renewable contracts and helps make decisions about how much incremental renewable energy they need to purchase in order to meet their RPS goals in California. He then proceeded to say that he had good news and bad news from this group's perspective, and will begin with the bad news first and will then state where he thinks the opportunities are.

The bad news: they are similarly situated to where NV Energy is in terms of meeting its RPS goals. PG&E has not quite hit its goals in the immediate term but are expecting to hit their goal in the near and medium term; predominantly based on commitments they've made over the last 3 or 4 years for renewable energy and a number of projects located in Nevada, AZ, and many projects in state as well as some Pacific Northwest wind projects. They expected to see higher failure rates among projects but the rates have come in much lower than expected. This is a testament to what government agencies, state, federal, and at the local level have done to help move renewable energy projects forward. It's also a testament to many developers, many who are in the room (at this meeting today) and for those projects that survived, have been permitted and they are now under construction. They have a very high number of projects that are under construction for PG&E – a good sign that they will be coming on line very soon and operating. A number of solar projects are giving them an initial early delivery from the first panel that they erect. Mr. Johnson also stated that it's a double edge sword for those looking for future development since much of their need has been met.

Mr. Johnson stated they hold annual solicitation for projects, the latest opened up over the summer and they hope to finish negotiations in early this year. They are now looking for projects in 2016 and beyond. They have a number of compliance periods – the first one is the 2011 to 2013 period. The final period is 2017 to 2020 and that's the period that they are really focusing on for future procurement.

One of the challenges for them in moving forward with this is that there are a number of rules that pertain to "the buckets" in California. There are different classifications for projects based on either their locations or technically in how they deliver power into the state of California to meet California's needs. Those rules have been clarified by the California PUC. There are a host of very complicated issues, some of which have been resolved and many which have been delegated to the staff of the agency to implement. They are continuing discussions with staff to get clarity and continuing to talk through various transactional structures with the agency but are fairly conservative on how they approach their procurement and that uncertainty around the county roles for various kinds of renewable energy in various locations. This definitely casts a shadow over what they are able to move forward with. For the longer term they hope to be able to work out a lot of the these technicalities and get a better, clearer sense with what they can or cannot

purchase, or what the limitations are on what they're able to purchase. Mr. Johnson indicated that they were a very strong advocate in the 33% RPS conversation for a broad access to resources at the lowest possible costs. Their early read on the RPS from their early experience was that many of the projects located outside of California offer higher viability, more certainty of getting built, and lower pricing. One of the phenomenons they are starting to see as the program evolves in the last few weeks of competitive solicitation bids is that projects are looking viable across the west, not just the out-of-state ones. They are starting to see viability within California and also seeing more similarity in pricing across different regions. So, he reminds the group that their procurement is a competitive process with quite a bit of regulatory oversight. For them, bottom line is they are looking for the most competitive projects. That's really the driver versus location or rules. They are focused on what are their most cost effective projects for their customers.

Mr. Johnson then moved to focusing on the good news. They have contacted developers and those folks are continuing negotiations with PG&E. They hope to have another RFO this summer and continue to hold them annually. Even though their need is some years out, they'd like to be doing the planning now for these types of projects and continue to have indications of what projects look like and what pricing looks like in the market so that they can continue to execute on a number of transactions.

Mr. Johnson stated that they also have a couple of other programs that are dedicated to PV projects, including the RAM project, programs that are targeting under 20 megawatt projects and those are solicitations that they are also holding either annually, or in some cases, like the RAM under 20 megawatts, every 6 months. They held the first one in October and will have the next one in April or May and will have two more after that. Those are much more immediate programs for projects that will come on line between 18 months depending on the particulars of the program. That is really where the immediate opportunity is for them and for additional projects.

The final issue is about conventional resources – and the story is quite similar with going through a regulatory process. They are generally quite long on conventional resources in California. However, it's PG&E's take that they don't necessarily have the conventional resources they need. As they add more and more renewable energy to the system, they are going to need more conventional resources that offer greater operational flexibility. They have a fleet of resources in California that are quite old and a number of them don't have the operational capability that they need in order to meet the intermittent side of the renewable energy technologies so it's PG&E's position going through the regulatory process to determine how much integration resources they could use and need. The process should be underway this year hopefully. It is to figure out what is the conventional need and not just let's count how many power plants we have but do power plants offer the flexibility that we need. The California ISO has come out and said that there is a need for a considerable number of additional resources that offer flexibility. There's a lot of debate, everybody's writing their different models and there's no standardized way to answer this question yet in this industry. But, Mr. Johnson believes it is one that is open and one that he thinks a lot of folks recognize that there is going to be this need for additional flexibility and resources. So, from the conventional side, he thinks that generally, we might not be building a lot of plants in the near term, but we may be building other technologies that can offer flexibility and perhaps replace some of the existing and older fleet in California that doesn't offer the same operational flexibility that will be necessary as we add much higher levels of renewables.

Mr. Johnson then stated that he saw one of the concerns – and an issue he believes exists in all states, and the state of the economy, is concern about costs. And a particular concern about over-procuring renewables in an environment where customers are very concerned about the size of

bills. Certainly a concern they hear from their customers in California so they certainly want to meet their renewable goals but there's not a lot of appetite to significantly increase the goals beyond what he's already stated for the near term given the current economic reality. So cost is something they certainly have their eye on. Mr. Johnson then opened to receive questions.

Chairwoman Crowley thanked Aaron and Steve for their presentations and stated that it helps her to understand the current environment and stated that they too (Nevada) have come to understand that the majority of potential need might fall to 2016 and beyond. She then asked Steve if he could just perhaps reiterate the obstacles that he maybe ran into when he did the initial reach-out to some of the geothermal developers, and asked him if it was mainly due to transmission capacity or was it pricing.

Mr. Metague stated that, as Aaron stated, it's based on competitive and really well priced resources. They were looking for indications from a transmission perspective that there really is a competitive resource there. At the end of the day, when you build a transmission line, it's got to go somewhere and that's where they kind of lost it. He said that it was nothing about the ability to site the line or develop the line that was causing them difficulty, but it was just a look at whether there's enough assurance that if they start spending some serious money on a transmission line, that it will be one that leads to resources that end up being cost effective for their customers, and that was their stumbling point.

Mr. Johnson stated that one of the challenges they face from a procurement standpoint is that there's a little bit of consolidation going on and a little bit of a shake out. And that has certainly meant tremendous competitive pressure for projects that want to come on line in the very near term because there's very limited need. And, one of the challenges they wrestled with is much less demand from PG&E's standpoint in 2010/2011. They continue to keep an eye on those market prices but it is hard to get people to commit to building projects when we could be in a very different economic state five, six or seven years from now. Nonetheless, they have to make the best of those uncertain circumstances.

Kathleen Drakulich stated that Nevada is probably the only state in the west that openly discuss price for megawatt hours. She asked Mr. Johnson, 1) If he is free to talk about geothermal prices that he would be competitive with, and 2) In the conventional power procurement, would out of state conventional power be allowed to participate in the RFO, if there is an RFO process?

Mr. Metague stated, going back to history, that one of the things that sparked them and encouraged them to do targeted outreach, was what they saw at the time, to be attractive geothermal prices in Nevada, that were published prices, so that was one of the stimulus for them doing the outreach. Unfortunately, he stated, the conclusion of their experience they didn't see enough evidence that the pricing would be either competitive or committed to in a way that gave them enough confidence to move forward on the project.

Mr. Johnson jumped in and stated that they do not have the same kind of openness that Nevada has around pricing. He stated that clearly, there are a lot of folks involved in this industry in California that went through the California energy crisis. He stated that if maybe a decade ago, but it makes it very hard for people to have confidence to run this market in an entirely open way with full disability in the pricing. They do release the data; all of their PPAs signed are released three years after execution. They are made public so the PUC goes through and publishes them. So everything they've executed since the FOA goes public. Most of their activity in '08 and '09 – things like the solar market have changed hugely since that time period so they do have some price information released but there is a significant lag.

With regard to the second question on conventional generation, he stated that they currently have no plans to issue an RFO; and to meet these active resources, they have to go through a regulatory process, the PUC to reach an agreement on what the issue is or need. A challenge for them in this process is to educate folks on when they look at their resource table that shows how much resources they have in California. They look like they have more than enough. He stated that they have a very, very, significant reserve in California. So, people will probably think “How can you be talking about adding additional resources?” When they see themselves very much in education mode, convincing folks around this operational flexibility, that their plans have raised and convincing folks to understand what they need to operate a grid that will operate very differently from the grid we have today. After they go through this process, they have to be given some number such as 1200 megawatts, if that’s what they tell PG&E, then consider how much time they would have in an RFO process and they would put open that process. His understanding and his guess is that they would make that open to resources throughout the west subject to the import rules. So to the extent that a power plant can provide the flexibility and the operational benefits, they would need and with the import rules that exist or are contemplated then those resources would surely be available to be competitive and to compete in such a process. He further stated that the import rules are fairly restrictive and can prevent the resource from providing the flexibility they need then it would meet the criteria for the RFO. However, he is not an expert is that subject and he said that those are details that would need to be worked out once they get that determination of what that need is. Again, he stated they hope to get that determination this year from the California PUC but said that this could very well slip into 2013, although they are pushing to have it in 2012.

Another question asked of Mr. Johnson. 1) It was unclear if you were talking about data requests or an RFP or request for information? 2) What are the parameters on your data request and were people replying to it?

Mr. Johnson said that data requests are not a terminology he would use and said that they just did some outreach in hopes of giving information however, he is not in a position to disclose the content of everything they saw but just at a high level they did not see either volume or price that was attractive. Were there parameters – the potential responses not that he was aware of. He stated that they tried to keep the whole process pretty informal and let any producer speak to them in any way they thought would be helpful after they described to them their challenge. And, their challenge is competitive resource and long lead time, and transmission in a way that parties could work together to help give neutral resources to each other from producer and transmission developer side that could lead to a viable project.

Final question from Jim Baak. You had mentioned the additional capacity for 2016 or 2017 and beyond, what is that additional capacity that you are looking to fill and you also mentioned capacity on RAM. Can you tell me what the capacity is on each of those programs that you are looking to fill with?

Mr. Johnson replied that for the long term capacity, they don’t publicly state what their open position is for the utilities. It’s not insignificant, but their general guidance is to buy one or two percent of their overall need. One to two percent represents 800 to 1600 gigawatt hours of energy on an annual basis and they would expect that they would need several more solicitations to fill up that need. The greatest variable for them is they have a lot of projects that are operational today but have contracts that expire before 2020 and they don’t know whether those projects will have additional life.

On the RAM project, Mr. Johnson stated that the entire program as approved by the PUC for all three utilities in California to contract for 1,000 megawatts over a two year period holding solicitations every four months; a total of four solicitations, 250 megawatts each solicitation for a total of 1,000 at the end of the program. Those projects have to come on line within 18 months so there are some delay provisions that allow for another 6 months so it could be up to 24 months for those projects to come on line from the date of approval. They are on a fast-track approval process at the PUC, it doesn't require the same level of scrutiny as other programs. There's also a standard contract that has been approved, so it's not a contract that get's negotiated, it's just a contract you sign which is very helpful for them because it could otherwise take up to 6 months to get contract up through the CPUC, because they have received an enormous amount of contracts from us. PG&E's specific requirement out of all this is 120 megawatts and 105 megawatts, out of each solicitation. We are very close to announcing the results in the next month or so from the first solicitation and then we'll be quickly moving on to setting up the parameter for the next solicitation for April or May. He also stated that it's worth noting on RAM that it is not a PV only program, but it's all technology – wind, geothermal, biomass, any technology just the project has to be under 20 megawatts.

Mr. Baak asked if PG&E is looking at using a broader geographic dispersion of renewables and balancing rather than bringing on new national gas resources. Mr. Johnson said that yes, they are open to all things. There's a regulatory proceeding in California to look at storage requirements. Developing their own energy storage project that has DOE funding that they are doing the initial development on and would probably bid out to a third party developer in 2014 to see if somebody would want to build that project for them. So they're looking at a variety of technologies and different approaches but are not wedded just to gas technology.

He stated that many people say, "Let me provide storage for my renewable facility." He said that this could have some advantages, however, generally they handle their portfolio on a portfolio basis and not so much on an individual projects. So, if we can find a way to get that same kind of storage or level out that intermittency from a different facility for a lot cheaper than having somebody build a massive storage facility, solar thermal, molten salt facility, or a whole bunch of batteries, or fly wheels or whatever it is that you have at your renewable facility. We're really looking at it from that perspective and so it does improve the economics of a project the need to have storage but it's based on comparing with other renewable facilities and whatever other technologies might provide on a portfolio basis and the least cost way to integrate those resources. That's a complicated compilation and provides lots of resource models and we attempt to capture that as we look at other resources.

There were no further comments made. Chairwoman Crowley thanked Aaron Johnson and Steve Metague for the insights to their company and how and they are looking at the future. She then moved to agenda item 8 since the presenter was on the phone and calling from D.C.

7. Presentation from Renewable Energy Developer, *Paul Thompsen, Ormat.* (This item was moved to allow Larry Chaset to present first)

Chairwoman Crowley opened this agenda item and provided a copy of a powerpoint handout received from Mr. Thompsen, Director of Policy and Development for Ormat Technologies.

Paul was asked to discuss how Ormat sees the business case in Nevada. Karen Douglas, Commissioner with CEC, released an article about CA not renewing the San Onofre nuclear power plant in 2025; there was another project called Diablo Canyon which they don't think they're going to renew in 2024, and CA is looking at taking up their once through cooling permits

in 2015. She sees a demand of 31,000 megawatts so when we look at this business case, and if there is a need, Ormat sees a big one.

Paul stated that they are a public company – and presented a disclaimer. His agenda is to discuss geothermal history in Nevada, Nevada’s geothermal potential, Ormat’s experience, the development reality of many of our projects and as we discuss the policy considerations, how we will be moving forward.

Slide 3 of the handout, is a culmination of all the projects in Nevada and it currently has 20 power plants in operation in 12 geothermal fields producing approximately 300 megawatts. Developers in Nevada have identified close to 3,000 megawatts that could be developed in Nevada. Developers have approximately 200 megawatts under contract with NV Energy. Next slide - we looked at our projects, that will remain anonymous, in certain areas of development in Nevada you can see Ormat is looking at approximately 370 megawatts of development from Nevada that are in line with the renewable zones proposed by the RETAAC task force in 2009. We weighted them to give you a range, you’ll see from 370 megawatts to 102.5. Why is this important? When you hear PG&E say things like, ‘there’s no projects in northern Nevada’, I think we have a disconnect that we need to analyze, which is if they’re looking for 1200 – 1600 megawatts of geothermal before they get enticed to build a line, they’re probably accurate in not getting as many proposals as they wanted.

We want to sell first to NV Energy, and if that market is full, then we’ll look at going to other places. Recognizing that our typical project sizes are in the 30-40 megawatts size range so setting expectations on 1000s of megawatts on transmission line may or may not be realistic and that’s for this group to decide.

Slide 5 is our economic impact slide just to give you some metrics that 300 megawatts of geothermal base load that supplies power 24 hours per day, 7 days per week, is enough for about 225,000 homes or 900,000 people it represents about a billion dollar total investment, 210 full-time employees and if you take the geothermal association heating number on direct and indirect jobs in Nevada, you’ll look at about 892 direct and indirect jobs. This is important because as Commissioner Wagner pointed out, our projects themselves don’t employ a lot of people, we use an incredible amount of vendors. If we bumped this up to 500 megawatts you’ll automatically see the incremental growth. The vendor impact here is huge when we look at the business case of how we attract vendors to the state of Nevada.

For long term economic impact, we’ve partnered with the Department of Energy geothermal technology programs and we’ve invested 47 million dollars in grants. 9 of those 10 projects are in the state of Nevada they’re looking at things from structural modeling, the EGS geothermal systems, and what this has done is really created a center of data. We’ve seen the Truckee Meadows Community College create a power plant operators program. The industry worked very closely with them. The National Geothermal Academy, which was founded at UNR last year, has been reappropriated by DOE to come back to the University of Nevada, Reno this year. So that coupled with our projects, our 47 million is going to create the need for 350 jobs. Those jobs come from all over the country – they’re experts, we have 15 institutions and 29 lead scientists on the project and those are good jobs that we need to figure out how to capture and keep here within the state of Nevada.

I would like to highlight that we don’t just work in Nevada. We have approximately over 250 megawatts in the state of CA from CA facilities. We supplied equipment for about 1400

megawatts worldwide, and obviously, Nevada is our home and corporate headquarters so we're invested in this as much as anybody and we will continue to develop projects here.

Slide 8 is a summary of our projects. We have 10 geothermal power plants in Nevada. Our combined net generated capacity is about 127 megawatts and we currently have undertaken the largest single effort taken by any company to categorize, map and drill –trying to find geothermal resources. We have at least 200 acres in the state of Nevada and currently just completed construction of the Tuscarora plant, in Elko and are under construction in Lander County.

Critical drivers for these projects – permitting. They've made huge strides on permitting. Access to resources is imperative, access to markets, project financing, supportive government policy, and regional planning efforts, which I think is why we're all here.

Focusing on Ormat's experience, I included a slide that shows you the typical 5-7 year timeframe for geothermal development. The reason this is important is because (looking at the slide, permitting phase, drilling phase, etc.) you'll come to the realization that we do a lot of exploration to try and find this resource. Whether or not a power plant comes to fruition or not, we are still putting a lot of people to work, and throughout this entire process, our variables are changing. So when we introduce a power purchase agreement to a utility in the pre-exploration phase, there's a lot that has to align in order for everything to stay perfect. More often than not, we have to make changes and we're always looking forward, to the utilities that we work with to be responsive and trying to adapt to our having to find that elusive geothermal resource.

Slide 11 is Ormat's inverted triangle to say we all have prospect and potential, we start exploration – full blown will cost us today between 4 and 7 million dollars. Slim-holes cost in 100k's to &1M. You need to get financing for 5-7 exploration wells to prove your resource and then you get into the developing, permitting, financing, and fine tuning your PPA. Then you get to that small triangle at the bottom, which are the successful projects that finally shape out of (in Ormat's case), the 200,000 acres that we're going to be scouring trying to find potential projects. In 2010 there was only 1 greenfield project brought on line and it was only 15 megawatts in Jersey Valley and it's actually a project that's struggling. We've had some injection issues on the site but when you hear the utilities asking for thousands and thousands of hours of megawatts, we have to realize this is an incremental process and that Nevada didn't just generate the 300 megawatts overnight.

Policy considerations – focusing on three of them from previous slide. PPA flexibility is important in Nevada and CA if we want to reduce the attrition of PPA rates. Could we do an open season on a transformer at Harry Allen that will allow us to access the El Dorado sub? The state has invested a lot of money on the ON Line transmission line and from a development perspective, we're seeing a bottleneck from Mead to Harry Allen which allows us to access the CA markets. A debate for this group is going to be can the utility rate base transmission for out-of-state markets? There's been some interesting legislative activity that could have led us to a decision. The other question is does an open season set a precedence for future projects that we can or can't live with?

Supportive Government Policy, we talked about working on the fringes of an RPS or maybe modifying it on a much greater way to increase the demand. From a business development perspective, we're being told that our utility in Nevada has reached its RPS goals. We have 370 potential megawatts of stranded projects that we need to get out of the state. Unless we can increase the demand for the utility, that's what we will be looking at. Exploration is risky – so another questions for the group is could a developer replace its designated resource within

another one as long as it has similar characteristics and the transmission costs were the same? If we say we're going to drill somewhere for a 20 megawatt project and we need to move that 50 acres to the left or to the right would contracts allow us to do that?

Slide 16 talks about the OnLine. We've been told by NV Energy that a transformer upgrade would be needed to access El Dorado at \$46M. To put that in perspective for Ormat as the developer, our 20 megawatt power plant costs 40 million dollars so it's as much of a facility – so how do we get around small incremental projects being able to put up this letter of credit. Since there's existing capacity and multiple developers need to export to CA is an open season mechanism appropriate or a short-term fix until the OnLine is part of the SWIP project? The second phase which goes from Mead to Harry Allen would this be an interim fix, but would it be a permanent fix?

On slide 17 going back to the RPS, the obligations have been met so how do we expand that? The RPS in our state has been instrumental in our developing projects. Eight of our ten existing facilities were built under the new renewable portfolio standards and created between 500 and 750 construction jobs.

Mr. Thomsen then posed the following questions to the group:

1. Should an out of state PEC be reviewed or preapproved by the PUCN?
2. Should demand side management (DSM) be a separate requirement?
3. Are current PEC multipliers appropriate?

These are all things that have allowed us to achieve our goals. The question is, are we happy with that achievement? Or do we want to continue to expand it?

Slide 18 is my summary slide so I will now take any questions that you may have.

Senator Settlemeyer: Are Muni's required to comply with the RPS and would it also create demand for more domestic renewable projects?

Thomsen: They currently do not have to comply with the RPS and pointed out the fact that our mining industry (don't know their designation) one of them is their own utility entity and they have to comply.

Kirkpatrick: What's the impact to rate payers if people move or mining companies go off the grid in some states, what is the impact to the RPS for those folks?

Crowley: The Coops and Muni's are on the grid and create their own resources. So they most likely would be impacted by procuring renewables. It would just have to depend on how it's structured. We would have to identify what those impacts are in relation to the benefit that we would receive from additional renewable energy development.

Thomsen: He stresses that there is urgency to projects that could potentially be on line. The impact of federal tax credits which expires December 31, 2012, we have projects that we think could be on line and we have a goal but we don't have a contract for Nevada and we don't have a way for them to get out of California. So those are near term economic development projects that we don't see a future for unless we make some of these changes - time is of the essence.

Chairwoman Crowley thanked Mr. Thomsen for his presentation and stated that he brought up some good points that the group will need to think about. She then closed this agenda item and moved to agenda item 9.

First Solar agreed to table their presentation for the February meeting since the meeting was running over the scheduled time.

8. Presentation of current status of California's RPS, *Larry Chaset.*

Ms. Crowley opened this agenda item and stated that Mr. Chaset would provide an update on the California RPS. She also verified that all members had a copy of Mr. Chaset's presentation.

Mr. Chaset gave a brief background about himself and said that he would talk about the California RPS and what some of the problems are in administering it and would give his best guess about the role of out-of-state resources. He believes it may be a much longer time before California gets serious about out-of-state resources. He also said that he believes it is important for out-of-state resources to play a role in the California market. He then proceeded to go through his presentation handout – see handout for the detailed information.

Mr. Chaset then opened for questions.

Ms. Crowley thanked him for his presentation and stated that it appears that pending rulemaking is what is causing uncertainties in the procurement of renewables; and there are potential opportunities a couple of years out. She then asked if the members had any questions for Mr. Chaset.

Jack McGinley asked Mr. Chaset about pricing.

Mr. Chaset said that Aaron provided the truth and that pricing is a mystery to everyone except the utilities and Commission staff. We know for example that large solar projects were \$130 per megawatt hour range. We know that some of the new PVs are probably in the \$90 per megawatt hour. When we can get some of the balance of the PV further, that price can go down even below \$80 but of course, that's with tax credits. He further stated that the CA utilities would be concerned with anything more than 15% of the load served by distributed generation.

Mr. Chaset addressed a few additional questions from the members. Ms. Crowley thanked Mr. Chaset for his presentation and closed this agenda item. She then moved to agenda item 7 for the next presentation.

9. Discussion on elements and structure of the business case.

Chairwoman Crowley opened this agenda item and referenced the draft business case scope, a spreadsheet document that she had provided to the members in advance for consideration. Ms. Crowley stated that the spreadsheet identifies potential elements of a business case. In discussions with advisory and task force members, she narrowed down the items. One of the main goals of the Task Force is to understand what the renewable energy industry does for Nevada.

Ms. Crowley asked Mr. Rogoff to begin the discussions by providing his thoughts on the business case document. She stated that the document lists 7 categories of elements that might be considered for the business case. Are two different goals that this study might pursue - the transmission planning and financing opportunities?

We want to study the full stream of benefits and the supply chain impacts in the renewable industry. Are the benefits of those jobs and the creation of an industry beneficial to this state, and if so, in what way? What changes do we need to make in policy because of this? Do we change our tax structure or do we provide more or less incentives? We should be able to answer that question “I’m going to bring 50 jobs to the state, how can you help me, what incentives can you provide?” We need to do that in a way that makes sense so that sum total is a gain and a win for the state.

She then asked the group to consider the structure, and if an RFP was out, how it might look and what would go into it. She then turned to Mr. Rogoff.

Mr. Rogoff started by saying how few jobs are created with a generating facility, but what we’re not looking at how there’s a lot of highly educated positions that are associated with renewable energy. Whether it’s engineering, legal, finance, development, (and we’re pretty good with the development), when we talk about jobs and the economy, there’s a lot of net value that we don’t yet count. We hear that a geothermal plant doesn’t take that many people, but my point is there’s a lot of other involvement. So we take a look at what’s the benefit for Nevada. We’ve got a lot of market studies, going back to the petroleum study in 2000 and we’ve had successful studies since then.

Consider how to create an industry where one hasn’t been created before with a whole layer of things from market to market, the job training and some of these other layers. There are a lot of utilities in California other than PG&E. LA Department of Water and Power (LAWPD) gets 40% of their power from 2 coal power stations in Arizona. So we know they’re going to move, what’s the market clearing price to move into El Dorado that will allow us to reach the LAWPD rate payer? We’ve got very few studies based on what would it take for us to sell to them? So if you start with a couple of those points in mind, why would Nevada do anything? Why would Nevada build a plant? Why would we do any of this if we don’t know, we can’t tell the Legislature, we can’t tell the Governor that this is the economic benefit. A lot of us have been talking for some time now, can we make the case? Yes, I think we can and I think we’re all sitting here because we think we can. But can we really make the case so that it can stand up to scrutiny? Do we know what the revenue will be, do we know what the sales tax will be, and do we know what the abatement should be?

So the goal for this task force, if we can take these activities on the business case and in September we can present to the Governor of Nevada, here’s why you should get behind this – we know he wants to do this but we need to give him the ammunition to do this. It does get quite technical but these are just a few observations that I have to share with you.

Ms. Crowley stated that one of the phrases used was a “revenue model.” We work back from that focus and say ‘how does Nevada want to focus on the revenue as a successful industry’? We put that focus on the business case study and make some assumptions. Matt made it very clear that we have to make sure those assumptions are verifiable and somehow grounded in reality. We make assumptions to the best level that we possibly can, and try to focus on what the revenue model would be for the state. If we have to change something, we would know what we have to change to reach that success in the bottom line. The last thing we would want to do is put out an RFP that is too vague. We want something that is very specific so that we can get the exact information that we want. We really want to get a response that is very deliberate and one that we can take to the Governor with surety.

Ms. Crowley then opened up for discussions and comments from the members. She stated that since this is a big group she asked if the group would like to break up into two smaller groups 1) the transmission planning group, which has to deal a regional effort, FERC 1000, the Corridor Studies, the conservation and natural resource impacts, the planning zone, and then 2) the business case financial model. They are intricately tied but can they be taken off into two paths and then brought back together when needed.

Jason Geddes: We have to look at the whole picture. Renewables are only at about 15% of the total load, so 85% is traditional fuel and yet we have some of the highest rates in the region. So he wants to know where we are headed and what the goal of the state and Governor is so that we can find the right solutions. Is it mostly a long-term effort how will the rates look 20, 30 or 40 years out.

Ian Rogoff: This effort is something you haven't seen the renewable energy industry develop, but when we go to the legislature and want to increase our RPS or whatever we do on the DSM; we need to have the numbers. I wouldn't want to be in a conversation with the Governor and not have this information.

Kathleen Drackulich: Can we break up into 4 groups and bring them together as a whole. We need to find some commonality in order to create this business case. It would be best to break up the group into smaller groups and give us a different task so that it won't be so vague and we will have more direction to create something to bring to the table.

Ms. Crowley suggested maybe a group to review RPS, one to look at transmission planning, and another on the business case. She also stated that the subgroup meetings would need to occur more often than the task force monthly meetings.

There was discussion amongst the group about a PUC docket filed September 2011, and a decision that will be made soon. They talked about the economic impact and an economic development report that was recently done, and placing an economic metric in the RFP so we are all responding to the same economic metrics. There are many studies done that include indirect benefits as well as direct benefits, some great tools out there that we need to start looking at what's available now, so that we don't reinvent the wheel.

If we plan on doing an RFP, there's a lot of information that we can glean from looking into some of these studies already done. In terms of in-state versus out-of-state for the RPS, and creating internal demand, that's something we're hearing from Governor Brown's people in California. When they're talking about trading partners, and not just about exporting to California, they are very explicit about mutually beneficial value chain and resources in transmission planning and we need to be looking at this as well. Discussions included taking a look at in-state power fees, the out-of-state export market, transmission issues. Ms. Crowley asked the group if they know of a report and would like to list them and get a summary understanding of what those economic impacts were that could draw some information back to the group. She also asked if those familiar with the PUC docket mentioned above, if they could summarize it. She said we are taking existing information and placing it into a shape and form that helps us make decisions and would be a good start.

Ms. Crowley then proposed having the following tasks done:

- Kathleen, Paul and Jack – docket research
- Jim, Dan and Rachel – economic impact studies

In the transmission planning, the state hopes to understand what makes transmission development financially attractive and to whom? Is it utilities? Is it private transmission developers? Is it state, is it a combination of those and more? And funds, there are energy investment funds. If it was an RFI or an RFP, who would respond and what would we be asking for. What's the most successful, attractive model to make these projects happen? What is that model and what would the state have to commit to? What would be investors or utilities have to commit to and basically wave forward these transmission projects. These are all discussions while keeping in mind the federal and regional level planning that's happening as well.

Ms. Crowley said that this is where she will be spending most of her time and would volunteer to participate in this group on the transmission planning. The transmission business case group is as follows:

- Stacey, Connie, Ellen and John.

Senator Settlemeyer moved that the Chair be allowed to expressly determine the working groups and assign tasks appropriately. Mr. Gamboa seconded the motion. A vote was taken and passed unanimously. (The motion was amended at the February 15, 2012 meeting.)

Ms. Crowley said that she will send everyone a summary to let everyone know the subcommittee groups they will be working on. She also advised them that all subcommittee meetings will be held in compliance with the open meeting law and that she would provide them conference call information so that their meetings can be held by telephone conference if needed. She then closed this agenda item.

10. Review and discussion regarding schedule and goals through August 2012.

Chairwoman Crowley opened this agenda item. She stated that this is in part the motion that had just passed in item 9 above and she would send a summary out. She then closed this item.

11. New business, future agenda items and announcements.

Ms. Crowley stated that First Solar will provide a presentation at the next meeting. She also stated that NV Energy would be presenting at the next meeting to provide a status on their procurement and general load. There were no other comments made and the agenda item was closed.

12. Set time and date of next meeting. (Action)

Ms. Crowley opened this agenda item. She reminded everyone that the next few meetings are scheduled for 1:00 p.m. on February 15, 2012, and March 21, 2012. She also asked the members if the third Wednesday of each month until November would work for them. No one was opposed and approved of the schedule. Ms. Crowley also announced that the March meeting will be conducted from Las Vegas and videoconference to the Carson City facility. The agenda item was closed.

13. Public comments and discussion.

Ms. Crowley opened this agenda item for public comments. No comments were made and the agenda item was closed.

Ms. Crowley adjourned the meeting at 4:49 p.m.

Note: These minutes are in draft form only and are subject to revision at the next Task Force meeting.