Transcript

Solar Energy Development Programmatic EIS Scoping Meeting held in Barstow CA, June 17, 2008

This Acrobat PDF file contains the transcript of the above referenced Solar Energy Development Programmatic EIS public scoping meeting. If you are interested in reading the scoping comments provided by a specific person or organization at this meeting, you may use Acrobat's search tool to locate the commenter's name/organization within the transcript.

UNITED STATES DEPARTMENT OF ENERGY AND
BUREAU OF LAND MANAGEMENT

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SOLAR ENERGY DEVELOPMENT
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT
(PEIS)
PUBLIC SCOPING MEETING

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TUESDAY,
JUNE 17, 2008

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The above-entitled meeting convened at 6:30 p.m. at the City of Barstow Chamber of Commerce, 220 East Mountain View, Suite A, Barstow, California, Heidi Hartmann, facilitator, presiding.

PRESENT:

DOUG DAHLE
National Renewal Energy Lab. (NREL)

JOHN GASPER
Argonne National Laboratories

HEIDI HARTMANN
Argonne National Laboratories

WILLIAM QUILLMAN
Bureau of Land Management

LINDA RESSEGUE
Bureau of Land Management

FRANK WILKINS

Department of Energy

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P-R-O-C-E-E-D-I-N-G-S

6:34 p.m.

MS. HARTMANN: Good evening everyone. Thank you for coming. Welcome to this Public Scoping Meeting for the DOE and BLM -- I'm stumbling already. For the Programmatic EIS for Solar Energy Development.

And we're going to be introduced to the program by Mickey Quillman who is with the BLM Barstow office, the chief of resources.

MR. QUILLMAN: Good evening. Can you hear me? Thanks for coming to this public scoping meeting about the solar energy development on BLM-administered lands.

As part of our ongoing effort to increase domestic energy production and ensure greater energy security, the Department of Energy, the DOE, and the Bureau of Land Management, the BLM, have initiated a joint solar energy development Programmatic Environmental Impact Statement, a PEIS if you

will.

Our agencies believe that preparing a Programmatic EIS is a critical step in evaluating the extent to which public lands with high solar energy potential may be able to help meet the nation's need for renewal energy.

The BLM already has over 125 applications in the pipeline for solar rights of way and the energy potential for these sites alone is enormous. Over 70 billion watts of electricity, or enough power to provide energy to 20 million average American homes on a sustained basis.

This joint PEIS that will be administered or overseen by DOE's Argonne National Laboratory, will address environmental, social and economic impacts associated with solar energy development on BLM-managed public lands in six western states; Arizona, California, Colorado, Nevada, New Mexico and Utah.

This joint PEIS will also evaluate a number of alternative management strategies to determine which presents the best management approach for the agencies to adopt in terms of mitigation of potential impacts while facilitating energy development while carrying out their respective missions.

I'd also like to welcome the representatives from DOE, representatives from the Argonne National Laboratories and the National Renewable Energy Labs who are going to help us with this meeting. We appreciate your interest in this project, your comments and your continued involvement as we proceed with our analysis. Thank you.

MS. HARTMANN: Thank you. Next we're going to hear from Frank "Tex" Wilkins. He is the manager of DOE Solar Energy Technology Program.

MR. WILKINS: Can you start the slides? Okay. Can you hear me? Can you hear me now?

I'll give you sort of a snapshot of why DOE's interested in all of this. It starts off with the goals. Two of our primary goals have to do with, one, adding energy supplies from a diverse bunch of sources and the other is improving the environment while we're doing that. And those of us in the solar program think that solar energy fits the bill in both cases. Solar is certainly renewable and we think because it doesn't emit any greenhouse gases it helps the environment and can perhaps help solve some of our global warming problems.

So a little bit more about the program. This year we had approximately $170 million dollars appropriated for the work. By and large most of that goes towards research and development. DOE renewable energy programs basically are R&D. As you can see on the slide, $152 out of the $170 million is going toward research and development. Essentially that means we provide money to our

national laboratories, industry and universities to reduce the cost of the technology and improve its reliability.

We do though have a little bit of money, around $18 million, for market transformation. And what we have here is working with a variety of cities, other organizations, to try to remove some of the barriers to the deployment of the technology.

The work that we're doing for this solar PEIS with Argonne and the Bureau of Land Management is essentially part of that, although it's a small part of that $18 million.

Okay. What we do in solar, there's two basic technologies. One is photovoltaics and the other is concentrating solar power. Most of you are probably more familiar with the photovoltaics; it's generally found on rooftops, it also powers the space stations. You can see it along the highways powering our phones. But you can also put bunches of

modules together and produce enough power so that it's utility scale or a central plant.

Concentrating solar power on the other hand by and large is generally large scale and for utilities scale systems. Now of that $170 million, photovoltaics takes about $140 of it and $30 goes towards solar power, concentrating solar power. So you can see the emphasis within DOE is on photovoltaics.

Why are we working with BLM on all this? That answer's pretty easy. There's two things that a large scale solar project needs. One is it needs the best solar insolation we can find and in the six states that we're dealing with we have some of the solar insolation not only in this country but in the world. And to boot, the benefit is that there's a lot of people living in this general area so we have the solar insolation and we have the demand for it.

The other is that these plants require a fair amount of land. At least five

acres per each megawatt, so if you have 125 or 250 megawatt project it requires about 2 square miles. And a 250 megawatt project is sort of in the range where the technology is least expensive. So that's sort of the land part that brings us to BLM.

BLM manages 119 million acres in these six states so they've got the land.

What do we expect from this? One is we want to see what land is available. Those of us at DOE, and I'm an engineer, we sort of know the technical aspects of what's required for solar and generally what we're looking for is the most intense areas where solar is best and also we're looking for areas that are relatively flat, within a degree or 5 degrees of flat anyway.

But the other thing is we want to know what the environmental consequences are and there we are at DOE aren't so savvy but the BLM folks are so they're going to tell us what lands are available after you exclude all

the areas that have been excluded for a variety of environmental or cultural reasons.

Okay. So we're also interested in establishing a policy so that in the future when we or if we put together some money to support any kind of solar project, we will know what the best practices are and we will also know which ways to minimize the environmental impact of those projects.

A third benefit is that what we learn from this should help the developers of the technology when they get to have to do an environmental impact statement on a particular area for what project that they're looking at because they will not have to recreate the information that we're going to learn from this PEIS.

And the last thing we have here is that it will give us a more accurate model so that we can predict really the potential for solar energy in this country from the point of view of how much power it can produce, how

many jobs it can create. These technologies tend to be capital intensive, which means that it requires a fair amount of labor to put them together in the first place and then to operate and maintain them. And then also what impact it will have on mitigating climate change. Climate change has become a more and more important element of national policy as we're moving forward and we'd like to have a better idea what role will solar energy had in helping mitigate that problem. Thank you, that's my--

MS. HARTMANN: Next Linda Ressegue will be speaking. Linda is from BLM's Washington office and she is the project manager for this PEIS.

MS. RESSEGUE: Thank you Heidi. Thank you all for coming tonight. I'm looking forward to hearing your comments on our scoping process and I really appreciate you taking the time to be with us tonight.

The Bureau of Land Management is an

agency within the Department of the Interior that manages 258 million surfaces acres and the slide that's in front of you simply shows the distribution of those 258 million acres across the West and about 46 percent of those lands, you'll see in the next slide, about 46 percent of those lands are, as Tex said, 119 million acres are located within this six state study area for the solar PEIS.

BLM has a multiple use mission to sustain the health and productivity of the lands that we manage for the use and enjoyment of present and future generations. That's our mission statement if you will.

The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, energy production and by conserving natural, historical and cultural resources on the public lands.

Solar energy is just one of the many energy resources now being developed or

considered for public lands. To ensure the best balance of uses and resource protection for America's public lands, the BLM undertakes extensive land use planning through a collaborative approach with local and state government, tribal governments, the public and other stakeholders.

The result is a set of land use plans that provide the framework to guide decisions for every action and approved use on our public lands. But many of BLM's existing land use plans do not specifically address solar energy development.

So why is BLM involved in the preparation of the programmatic EIS? Well Tex says it's because we have all the land. But there are also other reasons. Executive Order 13212 -- I've never figured out whether you say thirteen thousand two twelve, what's the appropriate terminology, but that's the number -- directs federal agencies to expedite actions related to energy projects.

We also have section 211 of the Energy Policy Act of 2005 that specifically tells the Department of the Interior to try to approve 10,000 megawatts of non-hydropower renewable energy on the public lands by 2015. So that act was passed in 2005. It's 2008, the goal is to have 10,000 megawatts approved by 2015.

Now as I mentioned, BLM must manage public lands for a variety of resource uses and that does include energy production. The federal agency mix managed by BLM already has oil and gas, coal, helium, geothermal, wind and biomass and soon it will have utility scale solar.

Now BLM has previously estimated that as much as two-thirds of the public lands may have high potential for concentrated solar power energy production.

Utility scale solar projects on public lands, the ones that we're discussing tonight are authorized by BLM as rights of way

under the federal Land Policy and Management Act. All activities proposed on public lands must be consistent with the terms and conditions and decisions in an approved land use plan. Before BLM can approve a solar energy development project we have to assess the direct, indirect and cumulative impacts of such development. And we also have to consider other resource values on those lands. Sensitive areas and public concerns. This is all completed through a NEPA process.

Now to date BLM has received more than 130 solar energy projects, or applications, and those are mainly located in Southern California, Arizona and Nevada.

This meeting is not about specific projects although you will have an opportunity to comment on projects as those projects go through their NEPA process.

Solar applications which have already been filed with BLM will continue to be processed under our existing guidelines on

a case by case basis with site-specific NEPA review. Those pending applications will move forward in a parallel process with this PEIS. But for now BLM is not accepting any new solar right of way applications, so the ones that have already been filed will continue to be processed, each on their own merits, each with their own NEPA analysis, but we are not accepting any new applications until completion of the PEIS.

Now just a little bit about BLM's programmatic goals. Under our current solar development policy, applications are processed on a first come first served basis, again each with its own NEPA. But we believe that by looking programmatically at the broader issues associated with solar energy development we will able to develop a more comprehensive, consistent and efficient program approach to address solar energy proposals on public lands.

The programmatic EIS will identify

public lands that are best suited for solar energy development. We're also hoping get out of this mitigation strategies and best management practices to guide future solar energy development, and we are looking at the need for possibly additional transmission corridors specifically to facilitate solar energy development.

And, as some of may know, maybe all of you do I don't know, BLM is currently processing along with other federal agencies a programmatic Environmental Impact Statement for -- I'm trying to think what the word, we call it the West Side Corridor, but it is essentially rights of way transmission needs, a corridor approach across the West and so maybe some of you have participated in that.

We are going to be considering and putting forward the information from that as we look at solar, but we are also looking to see if there are any additional transmission needs specifically needed for solar

development.

We think that the programmatic EIS will be a key to understanding the impacts of solar energy development and will show us how best to deal with those impacts and that the resulting decisions will better foster and support the nation's need for environmentally sound solar energy development.

We expect to amend land use plans in the six state area to adopt the solar energy decisions made as a result of the programmatic EIS and these meetings are an important part of not only the NEPA process but BLM's planning process as well because the result will be plan amendments.

We've included proposed planning criteria in the Notice of Intent that was published May 29th and we're asking for your comments on those criteria during this scoping process. Thank you.

MS. HARTMANN: As was mentioned earlier, the National Renewable Energy

Laboratory or NREL is supporting DOE and BLM im some of their analyses for the PEIS. NREL looks at identifying solar resource potentials in the six state area and also at market transformation. And Doug Dahle of NREL is going to tell you a little bit more about that work.

MR. DAHLE: Thank you Heidi. It's a pleasure to be here tonight with you partnering with BLM and Argonne National Laboratory to work on this important piece of planning for the future in terms of solar development.

Basically I'd like to give you sort of a brief overview of the technologies that we're talking about and this is basically utility scale solar power, generally in the 10 megawatts and larger. We also will show you a couple of maps which is actually the basic raw resource that shows up on BLM lands and how they play into the different resources that are used for each of these technologies. And

then a couple of slides on policies that affect the actual accelerated deployment of solar technologies.

Next slide. This is sort of the mix and the solar technologies come kind of in two basic categories, the first being dispatchable. What that means is there's a stored capability such that you don't have to rely on, these things don't shut down in terms of producing power after the sun goes down. Storage has always been a huge issue with regard to a lot of the renewable technologies.

First in that left hand slide is the parabolic trough. This is a picture of Kramer Junction in the Mojave Desert and in several 30 megawatt modules it uses a parabolic trough, basically a parabola if you remember geometry, and direct normal insolation focuses on a linear tube that using a special fluid gets up at a very high temperature. They run it through a heat exchanger, flash it into steam and run a

conventional steam turbine.

The third slide there is what's called a Power Tower. This is also a concentrating solar power technology and there's one out in Daggett if you've ever had a chance to see it driving along, I think it's I-40. It's a huge tower and on top of it is a molten salt receiver and what it is made up of is what they call heliostats. These are two axis mirrors that track the sun all day long and focus the solar radiation on this receiver at the top which is molten salt.

One of the things about the Solar I that was built out in Daggett originally, some of the interesting performances, they were able to operate 24 hours a day for several days until several days of cloud didn't shut it down but basically it could not produce dispatchable power to Southern Califonia Edison.

The fifth slide shows a fairly new technology called Compact Linear Fresnel Lens

Reflector, and what this is it's a little bit different than the parabolic trough. The parabolic trough is lined up north-south and it tracks east to west as the sun goes by and focuses on the tube.

This is unique in the fact that the tube is actually fixed and the mirrors, flat mirrors, it's a little less expensive in terms of the technology but it actually heats steam running through this fixed tube, a little bit different technology.

The one above that, the fourth one in the corner, is called a dish Stirling Engine and what this is is it's a point focusing rather than linear focusing and basically it runs what's called a Stirling Engine. It basically heats the fluid, pushes pistons and runs a generator. It's not your internal combustion engine like your car. It's more simple in terms of piston power.

And then the last two that I see, the second one there is what's called

concentrating photovoltaics and the lower right is flat plate photovoltaics. So these are categorized into those that are dispatchable, particularly interesting for the investor-owned utilities and you'll see a slide later that kind of identifies the distinction.

Next slide. So going back to this dispatchable power, concentrating solar power, this is again that shot of the Kramer Junction Plant. One of the things about this parabolic trough linear focusing tube is the fact that these are basically commercial. We're seeing a lot of projects beginning to show up as a 250-megawatt plant that Arizona public service just contracted for where they're using the same technology. I say commercial because this plant that you're seeing right there has been in operation for nearly 20 years. They're replaced some mirrors, they've replaced some of the tubes but otherwise they're been running flawlessly pretty much

for 20 years and I would characterize that as commercially viable and reliable.

This is the one I talked about with regard to the molten salt. A receiver, this is the one that actually has what we call a capacity factor of 70 percent. It means that 70 percent of the hours of 8,760 hours in a year, 70 percent of the time this thing is producing energy, and again the key is the storage, thermal storage to be able to take it into the morning and evening time frames when the sun's not out.

Next slide. Here's the value of the dispatchable power. Just sort of a representation, that red line basically is characterized, particularly from an investor-owned utility or a large utility company, this is basically what their system load looks like and in Southern California Edison, for example, their peaks are at 7 in the morning and 7 at night and not necessarily coincident with the solar resource.

The beauty of having thermal storage is you can produce the power when that sun's out at its peak times and then be able to carry it through and meet the system loads peaks of a utility company. And it reduces their utility costs.

The other way you can do it also is by what's called a peaking plant where you're producing all the power when the sun's out which tends to be coincident, and particularly in this part of the country with air conditioning loads, and that's also you see that high point on the red line, that's when their peak hits during the day typically because of air conditioning in the summer time.

Next slide. This is the non-dispatchable concentrating solar power technologies, the one is the Stirling engine, it's a point focusing. These mirrors are focused on basically that axis there. It's a small disc about this big that gets very high

temperature, heats the fluid, runs a small engine which runs a generator. These are typically built in the 25 kilowatt range versus what you saw in the power tower was more like 30 megawatts and that big trough system was collectively 150 megawatts of five 30-megawatt systems.

This is actually a picture of where it's being tested in our partner laboratory in the research and development for solar with Sandia National Laboratories. They've been testing these things for the last several years and they're ready to go commercial.

Next slide. This is another non-dispatchable central station potential and this is called concentrating photovoltaics. The effect here is basically when you look at any one of these but the first one is called reflective. It's very similar to the Stirling dish engine except it's focusing on photovoltaic cells, and the effect here, it always amazes me to see how it happens but

basically it's creating the equivalent of 500 suns.

The insolation of 500 suns on that PV panel. The panel's not very big but the essence of it is to get the same amount of power out of that PV cell you'd have to do 500 flat plate PV cells to get the same energy out of it. The silicon cells are thin film cells is actually the most expensive part of any photovoltaic system, the actual cell itself.

The next technology in the concentrating PV systems is called reflective and what this is is you would call a lens. This lens right here takes that light and diffuses it. This is the opposite, it basically takes the solar radiation and refracts it into and focuses on the solar cells. The same situation and it creates the equivalent of 500 suns so the amount of silicon cells necessary to generate the power is one 500^{th} of a flat plate system.

And then the last is a reflective

panel and it's got an optical rod that does the same thing. It's a little bit different technology but again it's a 500 sun equivalent, less solar cells to generate the same amount of power.

Next slide. What I want to show you here basically all those technologies we just talked about use what's called direct normal insolation, which means it's hitting 90 degrees to sun surface.

This is the total resources based on satellite data as well as some modeling experts that we worked with and this is a public data base of the solar resources. What you see here is a lot of white areas, those are non-BLM lands. This is a solar resource on BLM lands.

One of the things we will be working with Argonne and BLM and DOE is applying if you will exclusions. We're not going to do critical habitat area. That will be removed from this. We're looking for that

parabolic trough is flat land, one to 3 percent slope, that reduces the amount of area that would be high potential for solar development.

Next slide. The last thing that you've probably seen conventionally, again as Tex said you see a lot of these on rooftops, you see them actually in car ports. We're showing basically these two because this is the utility scale that we're talking about. The first one in the U.S. the largest in the U.S. is at Nellis Air Force Base, flat plate collectors, they are single axis tracking so they track the sun as it moves from east to west. A huge plant.

And then the other one that's in the same range is in Portugal. It's 11 megawatt flat plate tilted fixed but you can see just sort of the magnitude of the amount, this goes back to that 500 sun idea. You have so much more cells in the flat plate but it is a fairly cost effective technology today.

Next slide. This is what we call global solar resource for photovoltaics, not concentrating but the flat plates that we just looked at, use global radiation which means it includes that direct normal resource that we talked about for the concentrators but it also is to diffuse solar radiation as it hits clouds and whatnot. So it's a little lower resource but bottom line the PV cells can pick up every direction of sun available.

And the same thing we'll be using exclusions to reduce down where are the high potential areas. It's not everywhere you see this solar resource.

Next slide. In terms of the solar market potential, one of the things that NREL has is a model we call it reads and it basically is, it's hundreds of variables, it looks at transmission systems, state policies such as renewable portfolio standards and tries to predict, including looking at fossil plants, nuclear plants, whatever, the mix of

generation technology and what the potential of the resources is.

This particular federal policy is a huge factor in terms of accelerating deployment of solar technology and we'll show you here in the next slide. What that is is a 30 percent investment tax credit that's available to the private sector for solar development. This is a model we ran with this Reads model and basically saying over the next 50 years what are we looking like in terms of power generation from solar technologies?

This is a situation, I drew that line basically which is the scope of this programmatic EIS is 20 years. Without that investment tax credit that is expected to expire at the end of this calendar year, we might see 6 gigawatts, that's like 6,000 megawatts. That's not inconsequential but it's not near what BLM's goal is and nor in terms of energy security using solar.

Next slide shows you if that 30

percent tax credit is extended we're looking on the order of almost 40 gigawatts of power. This is 40,000 megawatts of solar development potential. So it's obviously a critical market policy. So that's all I've got.

MS. HARTMANN: I'd like to tell you about what an environmental impact statement is and accomplishes. It's an analysis of impacts of a proposed action, environmental impacts, socioeconomic impacts and cultural impacts are included. And it specifically states the purpose and need of the agencies conducting the action and what they want to accomplish.

In looking at the impact they're identified as potential mitigation measures identified. These mitigation measures may completely eliminate the impacts, an example of that might be the case where a certain piece of land is identified as being sensitive or threatening endangered species and so the location of the project is changed. Or the

impacts you can identify mitigation measures that would minimize the impacts to an acceptable level.

I'm going to use this so our court reporter can get all the--

Included in an Environmental Impact Statement is an analysis of whether the impacts are short term or long term, and very importantly a cumulative impacts analysis is included which looks at not only the proposed action but other actions that are either past, present or reasonable foreseeable within the study area.

And finally it looks at the commitment of resources for the proposed action.

Of course very importantly, under NEPA you need to have public input and that always makes for a better EIS and that's why you're here tonight. We want to hear the concerns of individuals or organizations related to solar energy development.

NEPA requires that any major federal action has an Environmental Impact Statement and it's determined that DOE and BLM establishing a program and policies that are agency specific for solar energy development is a major federal action.

For the programmatic part of that, programmatic EISs look at broad agency actions like this and do not look at site specific or project specific impacts.

When we talk about generic impacts for programmatic, examples for that might be comparing land required for the different technologies or water use requirement. And again we looked at potential mitigation measures.

Scoping is where we're at now. Scoping for an EIS begins with publication of the Notice of Intent in the Federal Register which for this EIS was on May 29th. Scoping includes hearing the public's ideas about the proposed action, about the alternatives that

the agencies are proposing to look at which I'll detail in a second.

Also we would like to accept data if people want to submit it and there's different ways for you to submit data to us.

The alternatives that have currently been identified for evaluation in the solar energy development PEIS include a no action alternative, a proposed action and a limited development alternative.

It's easier to start with what the proposed action is, which actually Linda and Tex have already talked about, which is developing agency-specific broad programs and policies to guide and facilitate utility scale solar energy development.

The no action, in comparison to that, would not develop agency-specific programs and proposals would be developed on a case by case basis.

Another part of the proposed action for the BLM is that they will do land use plan

amendments that will identify in their various field offices in the six state areas lands that would be available for solar energy development and also lands that might be excluded.

The limited action alternative, or limited development alternative, just applies for BLM and we would be looking at in that alternative the project that has already been submitted and proposed and has completed plans of development that are at this point just awaiting agency approval. And that would be then the limit of the development that would occur, at least hypothetically, of that alternative.

So for public involvement, EISs are a fairly lengthy process. Starting now with scoping you have an opportunity to provide your comments and the scoping period goes from May 29th through July 15th. And during that time period BLM and DOE are conducting 11 public meetings in different towns and cities

in the six state area.

The schedule calls for the draft EIS to be completed next spring in 2009 and, at that time, it's published and there is a certain public comment period, usually it's 30 to 60 days, and you can submit comments at that time. And then you have one more chance to look at it when the final is published which is scheduled for spring of 2010.

This web site is a public involvement web site for the EIS and it's solarEIS.ANL.gov and it can be an important source of information for people interested in the PEIS process. It talks about there are documents available at this web site that are related to the EIS and general background documents. There's information about the technologies. For example, all these posters that you see on the site about the technologies are available on the EIS. Documents, the draft will be there. Also about the end of August, a summary of the

scoping meetings, a scoping report will be available.

You may have signed up and provided your e-mail address at the registration tonight and that will put you on the web site mailing list and you will receive e-mail notifications of any events that are associated with the EIS. So it's a good place to look.

All right. I'm going to stop for a moment now because the DOE and BLM representatives, Linda and Tex and Doug also, we'd like before we start to take public comments. We'd like to find out if you have any questions about the information that we've presented so far. So if you would like to ask anyone a question, just raise your hand and I'll bring you the mic. If you could identify yourself also.

MR. ARCANTARO: Yes, I'm Phil Arcantaro of Barstow, California. Did you say that the technology, the third technology was

photovoltaic or reflective?

MR. DAHLE: Actually, there is really no preference. What I would characterize today is the parabolic trough or the concentrating solar power, solar large plants has met the test of commercialization in terms of being in place for a long time.

The key there is the fact that it actually in cents per kilowatt hour is now beginning to approach like in Southern California you're looking at 10, 11, 12 cents a kilowatt hour. That's the only technology those solars is beginning to approach that level. Photovoltaic is still in the 15 to 20 cents per kilowatt hour range.

The other way to characterize it is probably closer to commercial power today from large utilities, particularly in this part of the country.

MR. WILKINS: But from another point of view, really we have no preference on these technologies if the Department of Energy

were developing all the technologies, and were hopeful that they will all become more competitive and it's up to the market to determine which one will ultimately or which ones will become real popular and commercial.

MR. ARCANTARO: So additionally I'd just like to ask, you have no plans for wind generation in any of these?

MR. WILKINS: No, this is strictly for solar. The weather part of DOE does wind and indeed there was a wind PEIS I guess done a couple of years ago.

MR. ARCANTARO: Okay. Thank you.

MR. GREENSHIELDS: My name is Ed Greenshields, I live in the Morongo Basin. Of the $140 million dollars you have for R&D and photovoltaic, how much of that is earmarked for point of use systems which are getting more and more popular in the state of California in communities that are offering incentives and tax advantages for those homeowners who wish to try to put those

systems in? That's one question.

Another question is why is the EPA not involved in this process? And the third is how long have you been at DOE?

MR. WILKINS: Let's see. When we do the R&D we don't necessarily look at it as to what the end use application will be. With the photovoltaic we're working with a lot of developers on improving the research and development to make the modules more efficient, but we're also working with them on manufacturing processes so that they can make more of them less expensive.

How they then use those modules, whether it's for rooftop applications or for them to gang them together for utility sale is up to them.

Now there are some developers that we're working with, particularly as Doug has shown the concentrating photovoltaics, those are more likely to become utility scale although they could also be for communities.

And I don't remember offhand the amount that goes there but I would say that's a relatively small amount, maybe less than $10 million of that goes towards concentrating photovoltaics.

Let's see. Why EPA isn't involved in this? I guess I didn't see their involvement in this. I thought that the BLM and the NEPA process was going to be characterizing the environmental aspects of it sufficiently.

MS. HARTMANN: And EPA does typically submit comments on EIS.

MR. WILKINS: And then how long have been at DOE? Forever. I've been there actually since around 1980.

MR. GREENSHIELDS: Thank you.

MR. RAY: Thank you. My name is Robert Ray and I'm with URS Corporation in Santa Barbara and I'm a senior project manager for large energy development projects, and I have a couple of questions.

I think my questions most likely

would be directed at the BLM but anybody that can answer them that would be helpful.

One of the questions I have is it looks like part of the plan is to look at areas that are appropriate for locating solar projects, considering solar radiation of different types, topography, slope and sensitive environmental resources, etc. And I guess I'm aware of quite a few that have been done all over the western United States by multiple groups. And there's a lot of solar applicants that have already considered all that information and put that in their applications.

And I would bet that the majority of the suitable areas have already been filed on as well as quite a few areas that are probably not suitable as well.

So my question is when you get done with your process is really what you're going to be doing is weeding out applications that have already been filed, I would seriously

doubt you're going to identify new areas that were appropriate based on the criteria. So that's my first question.

Then also if you're going to continue to process applications that have already been filed but they don't pass your criteria, does that mean that those projects are just going to be basically not approved? I would think that would be something that would occur regardless of whether you went through the programmatic EIS or if you dealt with those on an individual basis. And theoretically by the time you get to the end of your programmatic EIS you would have gotten to that point anyway if you went through the normal process.

Just a thought. I'm not trying to be negative, I'm just thinking out loud here.

Also I'm wondering, we've heard that there's probably going to be a revised plan of development requirements that are going to be issued and one of the comments

that was made was that if an applicant had a submitted application and an approved plan of development and that they were likely already in the process, potentially would continue to be, their application would be processed I guess if there's going to be revised POD requirements coming out. Does that mean that some of the PODs that have already been submitted are going to have to be revised and reconsidered and that could impact quite a few applicants I would think.

There seems to be some question about what the POD requirements are.

MS. HARTMANN: I think that runs into more comments than questions but did you want to--

MS. RESSEGUE: I can respond to some of your questions but I do hope that you also are planning to submit your questions as comments because I felt that they weren't just questions but they were also important to the scoping process.

You specifically ask about plans of development and BLM is taking a look at what we're calling refining the plans of development because basically the first thing that we have to do under existing solar energy development process is initiate a Notice of Intent and environmental review for a project.

And what we're finding is that some companies do not have enough details in front of us for us to be able to go ahead and initiate the NEPA analysis because we don't know enough about the project.

So what you've heard is correct. We are looking at that and the idea is that the more concrete the proposal the more ready we are to start the Notice of Intent, to start the environmental review, and proceed with evaluating the impacts of the project.

You also discussed the idea of all of the land already being applied for and in southern California at least there are I think Steve Borchard said last night 600,000 acres

under application already. And I am sure that those companies did as you suggested, do their research and choose the best because why would they do otherwise?

But we do intend to continue to process those applications because we have received them and we're committed to going forward with them.

And there was a question in the middle but I don't remember what it was.

MR. ROY: The question was if you're going to reissue or revise the POD requirements, which I don't disagree with, but I'm just wondering you had indicated that the projects that were going to continue moving forward were ones for which applications had already been submitted and for which PODs have been accepted. If you're going to revise the POD requirements theoretically none of the PODs are currently accepted.

I guess I'm just wondering whether you're going to make people resubmit?

MS. RESSEGUE: What we intend to do is once we have our sort of minimum requirements for going forward, we get back with the companies, let them know what we still need, but we fully intend to continue to work with the companies to get to where they need to be even though we might need more information to go forward.

MR. RAY: Okay. Thank you. Can I ask one more? Is that all right? In terms of transmission line rights of way, right of way grants for transmission lines or access roads if an applicant has private land that is not on BLM and the solar project would be completely on private land but they need to interconnect by crossing BLM land or need access across BLM land, are those applications frozen as well?

MS. RESSEGUE: My understanding is that those applications would be a transmission or an access road type application. It is connected to a solar

project but I believe that BLM will view those as an access road right of way, a transmission right of way, not as a solar energy development right of way. That's my understanding.

MR. RAY: Thank you.

MS. HARTMANN: We're just going to take a few more questions so that we can also begin taking comments.

MR. McCLELLAN: Mark McClellan from -- Solar and Wind. Just a question on the R&D stuff. Are you going to be using any of the nanotechnologies or any of the other technologies that are coming up?

MR. WILKINS: When you say use them--

MR. McCLELLAN: Nanotechnologies where they're condensing the chips down, the solar panels down to smaller sizes.

MR. WILKINS: We are working with companies that are using nanotechnology and we're trying to help those folks have a better

system. Whether or not any of those developers submits to BLM for a project, that's going to be up to them. We don't get into that aspect of the projects.

MS. HARTMANN: Is there anyone else? Well I'm just going to go through a little bit of information about the comment process and there's several ways that you can submit comments.

One is here tonight at this meeting, you can get up and make a statement if you like. You can also submit comments on the web site. There's comment forms there and that's a very easy way to get the comments in to us. You can also submit the comments in writing. When you came in, at the registration table there were comment forms that were given to you and there's not a lot of space on those but if you have a short comment you can just write it down tonight and hand it to one of the staff here who you'll know we're staff if we are wearing a name tag.

Or else you can take it with you and mail it in later if you just fold it over and staple it. You can do that.

The comments are accepted through the end of the scoping period, which is close of business on July 15th which is about a week after the last scoping meeting.

The next slide. Oh also I just want to mention you, you don't need to use that comment form. If you want to mail a letter you can do that and if you have materials that you want us to look at you can send those, you can also submit electronic documents if you are submitting a comment on the web.

So for oral comments, okay. Well I think we've probably gone through most of this. The address for mailing in the comments is on the comment forms and also on the web site if you want to do that.

For tonight we have a list of people who pre-registered and I'm going to

call them and then additional people who signed up at the table. We'll take them in order.

We have a three minute initial comment time limit but we want to hear everything everyone has to say and so if you come up to make your statement and you're not quite done after three minutes you can sit down again and we'll go through the rest of the people who signed up to comment and ask if there's any additional and you can come up at the end and complete your statement.

If you did not sign up at pre-register or at the registration table, that's all right too. We'll give everyone a chance to speak if they become motivated to do so during the course of listening to all of the comments.

The way I'm going to instruct you about the three minute comment time limit is I have a yellow card here, Mark is going to show you that. I will flash that card up at the

two minute point and when you've gotten to three minutes I'll flash up the red card and you'll need to conclude and let the next person speak. And am I forgetting anything?

The contact person for the Department of Energy is Lisa Jorgensen, I'm going to introduce her here, and you can contact her or Linda if you have any questions outside of the field. All right. And everyone can come up here to the podium to make their statement. I apologize if I mispronounce any of the names. I'm going to say who the first three speakers are so you know that you're coming up and I'll just do that throughout.

Our first speaker will be Monica Argandona, and then we have Dai Owen and Lee Hayes. Are you all here?

MS. ARGANDONA: My printer broke this evening so I apologize for my computer. My name is Monica Argandona and I'm the desert program director for the California Wilderness Coalition. I'm here today to represent our

5,000 members statewide.

First, I want to commend BLM and DOE for taking the initiative to hold these scoping meetings and performing a programmatic EIS on solar development in the desert. The fact that BLM and DOE are jointly preparing a programmatic EIS and that we're all here to talk about solar development in the desert reflects the importance of this issue.

It also shows that the desert is not just that annoying thing that we have to drive through in order to get to Vegas, but rather a rich and diverse ecosystem that many of us here care about.

Having said that, the California Wilderness Coalition strongly supports the emission reduction goals in Assembly Bill 32, including the development of renewable energy in California.

However, there are appropriate places for solar development and inappropriate places. It's not acceptable to green wash all

solar projects with the argument that they will provide much needed renewable energy if they're doing irreparable damage to the desert.

If your doctor tells you to lose weight for your health and you lose the weight but take up smoking instead, have you really made any improvements?

The same goes for solar development in the desert and the importance of finding the appropriate places. Are we really gaining anything if we destroy important species' habitat, deplete our precious water resources or devalue wilderness and cultural sites with solar development.

We commend BLM for already recognizing places where development should not be permitted, such as wilderness areas, wilderness study areas, national monuments, national conservation areas, wild and scenic rivers, national historic and scenic trails and lands that are environmentally sensitive

including ACECs and quote "other special management" areas that are inappropriate for or inconsistent with extensive surface disturbing uses. In addition to this, it is our hope that BLM and DOE will also consider and protect other values, such as wildlife, air quality, cultural resources and water.

BLM and DOE can achieve this by (1) minimizing the project's ecological footprint, avoiding all sensitive and rare natural communities, analyzing, avoiding, minimizing and otherwise fully mitigating impacts to wide ranging species, avoid identified wildlife corridors, avoid overlap with designated critical habitat for federally listed species and share full and complete coordination with other planning efforts such as coordinating with the west side energy corridor PEIS in order to avoid construction of excess lines. Take into consideration the incredible amount of water needed by solar development and how precious this resource is in the desert, using

existing roads when possible and in looking for appropriate sites, first consider private and public lands previously used for agriculture, developed transportation corridors, abandoned mine sites and--

Since I'm running out of time and I talked as fast as I could, we'll be submitting formal comments but I thank you for letting me speak tonight.

MS. HARTMANN: Thank you. Our next speaker will be Dai Owen.

MR. OWEN: Hi. Thanks for having us and allowing us to speak again and I gave some formal comments last night to BLM DOE so I thought tonight I would address the rest of the folks that are coming here.

And I represent enXco which is a renewable energy company. We have 20 years of experience in winds development and are now looking at solar too. We have a 150 megawatt wind project that's being built this year in Solano County between the Bay Area and

Sacramento, and solar to date we just have a one megawatt so it wouldn't qualify for utility scale for Doug's qualification there. But one megawatt in Sacramento of PV.

And I thought I would just say a little bit about kind of how I got to where I am today and enXco. These are not enXco comments but more to give you a little bit of the human side of where one person in renewable energy is.

And in my background I spent the first three years out of college teaching environmental education to students and living below the poverty line doing that. And then spent eight years teaching environmental science at a high school level, and then a year at NRDC which is a large environmental organization, working on renewable energy policy before coming to enXco.

And I know that many of my colleagues in the renewable energy field have similar interests. Some of them have similar

backgrounds to me and I think it's really important in this process that everybody comes together, we really figure out where are the best places, like Ms. Argandona just talked about and NRDC has basically the same list when I was working there. Where are the best places that we can go? There will be some compromises that we have to make but I think that the climate change impacts are very big and they're going to be big here and solar needs to be part of that mix. Thank you.

MS. HARTMANN: Next we have Lee Hayes and after Lee will be Chuck Bell and Leroy Corlett.

MR. HAYES: Good evening. I feel a little bit awkward, I brought 30 handouts not realizing anywhere near this many people would be here so after the meeting's over I'll be out front and if anyone would like a handout I'd love to touch base with you.

I can't believe that the BLM is even considering permitting anyone to scrape

off thousands of acres of the desert and then pump water out of it. It's like finding out my brother's a serial killer or something. We're talking about thousands of acres. The Ivanpah Project a little under 4,000 acres. I have friends in the BLM and I'm thinking how on earth can you even consider that.

And then if we look at the parabolic trough system, that's one of the most popular systems because it's the cheapest. But the parabolic trough system uses 800 to 1,000 gallons of water to produce one megawatt hour of electricity. The 400 megawatt plant that we're talking about over there will consume 400,000 gallons of water to produce 400 megawatt hours of electricity.

The desert doesn't have that kind of water. We simply don't have it. One of the things that I do, I work for the Bighorn Sheep Society at times. I go into the high country and survey the springs. A lot of those springs aren't springs any longer.

They're on the USGS maps but there's no water there. We can't possibly pull this amount of water out of the east Mojave, it's not going to work.

And I'll be outside after the meeting and I'll have some handouts and I would really like to touch bases with some of the folks here. Thank you very much.

MS. HARTMANN: Chuck Bell?

MR. BELL: Thank you. Chuck Bell, Secretary, Lucerne Valley Economic Development Association. We're an unincorporated community about 35 miles south of here surrounded by solar and wind proposals and even worse LADWP's Green Path North Project going right through our community.

An excerpt from our mission statement, "promote development that is both economic and compatible with our rural lifestyle environment and resource availability."

And I'll read an excerpt from our

statement that we have submitted through the internet. "We have wind and sun which should be shared with our countrymen, but we also have the Mojave desert which is a treasure unto itself which cannot be consumed for the benefit of the over populated urban mess in the coastal basin" -- not that I have any opinion about that.

"We already provide that megalopolis with limestone cement aggregate with its incessant truck traffic, recreation, particularly the resource consumptive open OHV areas, the largest in the world. Power line, pipe line corridors. Tremendous amount of acreage for expanding military bases with more on the way. Public open space and immense areas already set aside for habitat protection. This programmatic analysis should include a quantitative assessment of the megawatts of solar power that could be potentially generated within the urban areas of demand, i.e. rooftop and parking lot solar

prior to any further commitment of public land resources to the subsidy of urban areas. It should also take into account the nationwide options for nuclear plants at locations with sufficient water sources.

This process must include an in-depth survey of Southern California desert plans and maps, identifying the limited areas available and suitable for solar plants, listing and quantifying the amount of acreage and alignments already dedicated to the land uses that we already provide Southern California.

If this endeavor does that, then it's all worthwhile. This is very important to us. BLM should not displace private sector opportunities. The cheaper use of government land could compete with private and therefore there are a lot of ag land, fallow ag land and other areas in Southern California counties that cannot be developed for any other use because there's no water. So don't compete

with the private sector.

And where do you mitigate all of these impacts? Do you have enough land to do it? I don't think you do. Thank you.

MS. HARTMANN: Next we'll have Leroy Corlett and after Leroy will be Tom Mulvihill and D'Anne Albers.

MR. CORLETT: Good evening. My name is Leroy Corlett, I'm vice president of the Indian Wells Valley water district in Ridgecrest, California.

I am here to state that energy sustainability through these projects must not be done at the expense of other natural resources, which in our case is water. The Indian Wells Valley which is the only source of water for the city of Ridgecrest and the Naval Air Weapons Station China Lake, California, is a closed basin from which more water is already being taken than is being recharged into the basin.

The wet cooling solar projects

being proposed for the Indian Wells Valley will consume an abnormal amount of water from our finite source.

I urge you to consider the effects of these projects on other natural resources such as water and require the best technology that has minimal effects on other natural resources be used in these projects.

You tout Kramer Junction and the solar plant as an example but it is also the biggest user of natural gas on the upper Mojave Desert. Thank you.

MS. HARTMANN: Tom Mulvihill?

MR. MULVIHILL: I'm Tom Mulvihill the general manager of Indian Wells Valley water district.

I want to bring your attention that solar thermal power plants with wet cooling towers use substantial amounts of water. While an exact figure for the water consumption using wet cooling varies from plant to plant because of technical details,

the extent of thermal storage, the location and degree of conservatism being exercised by the proponents, it is necessarily a very significant use of water. Wet cooled solar thermal power plants may use as much as 1,000 acre feet of water per year per 100 megawatt of capacity.

Dry cooling technology uses air for cooling and consumes 95 percent less water than wet cooling and there are numerous projects which are either under construction or proposed which show the economic feasibility of dry cooling.

Water is our most vital resource. It is the position of Indian Wells Valley water district that the development of one natural resource, solar power, should not come at the expense of another.

Dry cooling should be used only if local agencies responsible for water supply determine that there are environmentally reasonable sources for water available for wet

cooling. Therefore the use of water must be identified as a significant environmental issue that must be included in the scope of this PEIS.

Specifically, this PEIS must require an analysis on the part of proposed applicants as to whether proposed projects substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that a net deficit in aquifer volume or lowering of the local groundwater table level would result.

The PEIS must require an analysis on the part of proposal applicants as to whether proposed projects substantially degrade water quality. Specialists with expertise in hydrogeology must be part of the agency's interdisciplinary approaches which was alluded to in the Notice of Intent for the PEIS.

So this decision must be made in consultation with local agencies whose mission

is to develop, manage and supply water. Thank you.

MS. HARTMANN: Next we'll have D'Anne Albers and after D'Anne we'll have Nick Panchev and Ed Greenshields. Is D'Anne here? All right. Then we'll move on to Nick Panchev.

MR. PANCHEV: Good evening panel. I am so flattered of you to be here. Nick Panchev, CEO Aquasystems Solar Electric, Solar MW Energy, Inc. SFM-1 through SFM-30 $4.5 billion dollar proposed projects, 30 super peakers. May I have some of our staff yield three minutes to me or should I go incrementally each three minutes come back here. I have Peter Panchev, president, would you like to yield three minutes of your time? Thank you. Rudy, would you like to yield three minutes of your time? This is staff member of Aquasystem. Mike, would you like to yield three minutes of your time? Thank you. Got 12 minutes.

The California Commission counts the same way, it's a rule. So I do the same way.

Water here it's of value, one to maybe 100. If the energy commission sees volume 1000, pages 1 and 2, it's only the tip of an iceberg. It is so big.

Here we have millions of acres. That's fine. Grateful BLM United States. Maybe only 2 percent will be next or close to a load centers of transmission lines. Unfeasible.

Most of the most viable projects run supplemental natural gas. Of course, 300 El Paso runs from Arizona border all the way north. You pass us right here and continues to Boron, continues all the way then 395, it's a small line which is reserved for the military. But that 34 inch line is critical in the existence of a viable of course parabolic trough, especially the twin parabolic receivers and twin parabolic collectors, the

new invention. The reason is being not revealed because not to fall into the public domain.

The next one is water. There's answers by a company like ours for everything. We don't need one drop of water from wells. Three minutes or more ten minutes?

MS. HARTMANN: We'll give you a little bit more time and you can come up afterwards and continue after everyone has spoken. All right. Is Ed Greenshields here? And after Ed I believe Kevin Harper had to leave so Tony Malone.

MR. GRRENSHIELDS: My name is Ed Greenshields, I'm with the Desert Community Association of Realtors working on a committee of alternative energy and reporting to the California Association of Realtors, and I'm also with a group in the Marango Basin called the Alliance for Responsible Energy. Both of these are in the Marango basin and close to Joshua Tree National Park.

I'm not here on an expense account. Last night, members of these groups and environmentalists expressed concern for the applications of the point of use solar and wind systems. They were told by representatives of big solar that their facts were wrong and that they should not be taken seriously.

It is true, yes, that point of use solar and wind systems are expensive, not as efficient as we'd like and utilities companies for the most part do not want to deal with these microsystems. That makes the big solar industry, no excuse me, that makes this industry not very popular and that's what big solar is counting on. They don't like splitting up the pie.

If our government can invest real R&D money and develop these environmentally friendly microsystems we would not only take the burden off the larger systems, increase property values and impact individual family

economics as well as develop a new world market for rural communities alternative energies.

That's big for our economy and our nation that wants to help future generations around the world. And I'd like to thank DOE and BLM for having these meetings.

MS. HARTMANN: Is Tony Malone here? After Tony we'll have Phil Alcantara and then after that Norman Diaz.

MR. MALONE: Hi. I'm Tony Malone. I'm a local resident of Lucerne Valley. I'm also a teacher of renewable energy at the local college in Victorville, Victor Valley College, and I not only talk the talk but I walk the walk. I have a 3.3 kilowatt photovoltaic system on my house and I'm completely off the grid.

One of the things that you probably know, this is a desert, and the reason this is a desert is because we have more sun than just about anybody. But that comes at a cost, we

have less clouds. And not only do we have less clouds but, because of that, we have less rain and we in fact have a very minimal rain.

So water is a very precious resource here and I really do want to hammer the thing home, that water is something we really have to watch.

Now I've looked at the CEQA and NEPA of the Ivanpah System and they're using a system where the water's reclaimed, just like your car where you've got a radiator and you radiate your heat off of it and you keep the water. This is in lieu of places like Luz or Kramer Junction that just take the water, turn it into steam and then let it blow off. Now that's where you use a lot of water and we don't want that. But we do want energy but we don't want it at the cost of water. But it can be done and it can be fixed, you know, such as they've alluded to.

The other thing that I want to

point out is when you have a solar concentrator tower I'd like to know if there's any studies done on retinal damage because when you look at one of those towers it's like looking at the sun. There's no question about it. And I think that retinal damage is something that we're going to have to consider because of places like well Kramer and Ivanpah, if you're looking at that and you're driving along and you see it and you look back, it blinds you temporarily and it may blind you somewhat permanently for all I know. So I'd like you to take a look at that too. Thank you.

MS. HARTMANN: Phil Alcantara? Sorry if I pronounced that wrong. Is Phil here? All right. Well Norman Diaz? Are you Norman? No? Okay. All right. Then Tami Tripp-Massie. Okay. Here comes Tami. I thought everyone left already.

MS. TRIPP-MASSIE: Good evening. I'm the executive director for Armagosa

Conservancy. I'd like to say it is commendable to see that the agencies recognize that the large scale solar development can have a significant impact on the desert region.

Water is a rare commodity here in the desert, especially groundwater. The impact would have substantial ecosystems and habitat effects. We need to do a careful analysis of the ecological effects of removing groundwater at each site.

The PEIS should capture existing trends regarding land use, make reasonable predictions about future use and try to describe all the links between them. The large demand for individual site for alternative energy on public lands cannot be viewed in isolation.

We need to consider the cumulative effect and avoid and minimize adverse effects to the vulnerable and imperiled ecosystems and species in this desert environment.

The proposed option entitled "Facilitated Development Alternative" seems to be a desirable choice to approach these issues since it is also points out the need to define a limit on the total acreage of public lands. The safe availability of water may be an appropriate limiting factor since water is rare in the desert.

BLM's resources and staffing to conduct a major alternative energy area program is currently lacking and in the longer term monitoring enforcement resources are even more questionable.

The Armagosa Conservancy offers these comments with the intention of assisting a study team in understanding the needs of biodiversity in the desert. We will provide more comments in writing and we thank you for listening and have a good evening. Thank you.

MS. HARTMANN: Thank you Tami. Is Robert here? Robert Canaway? Mark McClellan?

MR. McCLELLAN: Decline.

MS. HARTMANN: Decline? Okay. And Brad Mitzelfelt?

MR. MITZELFELT: Hello. Can you hear me? I'm Brad Mitzelfelt, I'm the 1st district supervisor for San Bernardino County. I'm also a member of the Public Lands Committee of the National Association of Counties, Chairman of the Quad State Local Government's Authority but tonight I'm speaking on behalf of the County of San Bernardino.

First, I want to thank the agencies for having this PEIS process. I agree wholeheartedly with the moratorium on new applications until this process is completed. I have nothing but praise for the local BLM offices, Barstow and Needles and also the Desert District Office in Riverside. We've been working on this, in fact have an MOU, Memo of Understanding, between our agencies to work together on processing permit

applications so the county actually has a role in your process, and there are other examples of such cooperation.

We actually meet quarterly with the managers of those three offices and we have a pretty good working relationship.

My main concern here is a loss of habitat, particularly for the desert tortoise but also for other species, and this is something that is since I believe 1991 we've been working with BLM on the West Mojave plan. We've watched military base expansions occur and now more are being proposed and that is putting a great amount of pressure on the remaining habitat. Incredible pressure from urban growth, habitat protection, military bases like I mentioned, demand for recreation, especially OHV.

This document must look at general plans, habitat conservation plans not only that are adopted but that are in the process, a demand for OHV use, camping, mining and

other uses for a comprehensive picture of where solar fits and where it doesn't.

We also have a groundwater management ordinance and I'll direct your attention to Ordinance No. 3872 of the County of San Bernardino which protects the health of aquifers in unadjudicated desert basins. And by a Memorandum of Understanding with the BLM dated December 2, 2003, it is applicable on BLM lands. So I will include that with my written comments.

I also wanted to mention that with regard to transmission corridors, we are working on a new corridor from Victorville to Palm Dale. It is a 50-mile highway but also the joint powers agreement includes authority for transmission lines and we are in the process at the Southern California logistics airport in Victorville developing a 100 square miles of warehouse space. That's a lot of rooftops that could be used for solar and I think that should be discussed as a possible

alternative to some of these applications.

Finally, I would like to just strongly encourage the agencies to use the mitigation hierarchy developed by the Council on Environmental Quality, a rigorous methodology for an analysis of this scale.

I'm just going to wrap up now. A member of the Nature Conservancy I believe made that suggestion at the meeting in Riverside last night and I certainly support that.

This is an issue that's uniting a diverse array of groups. I am committed to if necessary commit the resources of the County of San Bernardino and I look forward to continuing to work on this process with the agencies and hopefully if there are any impacts they're mitigatable. Thank you.

MS. HARTMANN: Next we have Joe Rowley.

MR. ROWLEY: My name is Joe Rowley. I'm responsible for project

development for Sempra Generation. We've been known as a company that develops very clean and efficient natural gas-fired plants. Over the last ten years we've sited a number of such plants and what we find to be very important is that there are places where power plants belong and there are other places where power plants really don't belong.

We've put power plants in the middle of oil and gas fields. We've placed them in urban areas. We've placed them on fallowed farmland. And for those kinds of plants we think that those are appropriate areas.

We've recently over the last year retooled our company and we've taken our focus away from natural gas-fired plants to renewable energy projects, both wind and solar. Now I think though that that same principle really applies to wind and solar projects. There are places where projects belong and places where they don't belong.

We really applaud you for the work that you're doing here with the PEIS. In fact, we've been in our own little way doing similar work, trying to figure out what really makes sense in terms of solar development. And I think that this PEIS will go a long ways to helping the overall situation and understanding of what's appropriate for solar development in the desert.

But what concerns us is that there are roughly 100 applications that really each one individually, while it would be looked at, also needs to be looked at from the standpoint of a cumulative impact perspective and there needs to be really a relationship between the analysis of cumulative impacts on those 100 projects and the analysis that's done in the PEIS. There needs to be a consistency and a communication there so that the analyses that are done on those individual projects really ends up making sense.

A hundred projects is a lot. Even

if only one out of five of those goes forward, 20 projects, each one of which could be a square mile or a couple of square miles, that's a lot of development out in the desert. I've lived in the desert a good part of my life, I love the desert. I think that there are places that really should not be developed and when you look at the cumulative impact of all those projects, it may look differently than when you look at the projects individually. So I'd really recommend, or our company would strongly recommend that you consider the relationship between the PEIS and those individual projects as they go forward in parallel. Thank you very much.

MS. HARTMANN: That's the end of the list of speakers. Is there anyone who was not on the speaker list that would like to come up and make a statement? I'm surprised. I thought we'd have someone for sure. In that case is there someone who spoke previously and would like to continue? I

thought you might.

MR. PANCHEV: More issue, serious problem, resolved. A new technology for NREL. Ice plant. Not in the middle of the desert. Do you know how many acre feet Sparkletts takes from Lake Arrowhead? Seventeen thousand. Can we just put one of our ice plants in Lake Arrowhead or I'm going to take it to Mexico, Baja. This solve the war. Make ice cube one cubic foot each and then a call bring it here with an ice truck and fill up underground storage tanks. I can run 30 plants like that. How do you like that one? No need water from no desert. Thank you. Nobody. We got our own water.

Can BLM give us right of way (ROW) up there? I show you the places. National Crest Highway, that's all we want. We are on our private land, we don't want land from you. For all our solar, multifuel, wood storage, not molten salt. We don't want to use torches in December to unfreeze the joints. We use

ionic liquid.

However, the problem is 200 degree Celsius degradates that's why boiler No. 2 key from Visala engine brings the rest of the heat to 500 degree. DOE don't have to worry about some magic additional fluid. We got it. Recovered energy from the plume is 540 degrees Celsius, 300 maximum comes from the solar fuel, I got boiler No. 2 run steam turbine, the best. I don't need no water to burn the steam to hell out of from power towers, etc. I have 15 minutes more or no more?

MS. HARTMANN: You're at 2 minutes now.

MR. PANCHEV: Okay. Two minutes.

MS. HARTMANN: Can I ask you something--

MR. PANCHEV: The issue of water I believe is the result of the new technology. This is a highly I would call it for security of the United States of America, it's highly

secretive, we cannot disclose to the public domain. It's like copyright to the maximum extent and we can be talking with NREL on a separate issue and different location. That's one issue.

Next thing is to do with environmental. Yes, we got a lot of tortoise, all the three major creatures out there, and that is the reason we scaled down all the land we bought. The mitigation ratio keep in mind will be intervenor if the issue gets brought in as to unfair practices.

Example, project specific gets only one to one. We get like Victorville three to one ratio. Well we'll be intervenor obviously. So we need to establish mitigation ratio for the endangered species. Sub-species, A, B, C group category, 1, 2, 3 and keep on going 1.1, 10.1 and then goes down to the groups but must be uniform, and I do believe the California Commission is going to work with us eventually on that issue. They have a

sense what is coming in our next AFC. So that's that issue.

Another issue is to do with we can have all this land, we mapped the whole desert. We know exactly the checkerboard where BLM is, where private land is, where the gas lines are and any other technology. Oh well, God bless all of them but anyhow we are going to bring what we are trying to achieve. We know obviously why do you think FPL is going with 250 meg the same way they did 17 years ago by losing--

MS. HARTMANN: I have to suggest that--

MR. PANCHEV: Thank you.

MS. HARTMANN: But we would like you to--

MR. PANCHEV: One more time.

MS. HARTMANN: Well I was going to suggest because these are so detailed if you could submit--

MR. PANCHEV: Oh it will be a

volume. I'm just wishing the public not to be discouraged. It is coming, the solar, no matter how. And big time. We have the technology. We will not tell you how it is but it's coming.

MS. HARTMANN: Well we're going to give you one last chance. Anyone want to submit a comment?

MR. GREENSHIELDS: I would like to think all of you shared with the homeowners for our rural communities because a lot of these big solar plants are feeding large urban developments and we have homes, we have schools, we have small businesses that are having problems now and we need solar technology on small scales for them to help those families.

MR. PANCHEV: Thank you. All of our power blocks are below ground. Thirty six feet you cannot find another technology.

MR. MALONE: I just do want to add, you were talking about sharing the

technology with businesses and people. If you need a CD we have a CD at the Air District that I work at. We put a 72 kilowatt system of solar panels on our roof and we'd like to share that with you and if you wanted to you could contact us and we'll give you the CD which includes all of the steps to you know going out for bid, etc. All the way to the completion of it. Thank you.

MS. HARTMANN: People are turning up.

MR. BELL: Chuck Bell again. Again, what you're doing is extremely good, we've been asking for this kind of a process. I think some of us are just concerned that the renewable energy industry is going to conceive of this as putting all of the eggs in BLM's basket. And I think it's important not to make the siting of solar energy, or wind or anything else, on BLM public lands so cheap that you compete with the opportunity to put it on those private parcels that are

available, fallowed out or whatever, that cannot be used for anything else.

It's absolutely critical you do not compete with the private sector and deny landowners the opportunity to do something with their property that they otherwise could not do. Thank you.

MS. HARTMANN: Thank you all for coming tonight. Don't forget to leave written comments that you have with us.

So once again thank you for coming. We really appreciate your comments. We want to consider ideas and concerns that you have about solar energy development and also please visit the web sites that you'll get continuing information about what's happening with PEIS. Good night.

(Whereupon, the Public Scoping Meeting went off the record at 8:15 p.m.)