Transcript

Solar Energy Development Programmatic EIS Scoping Meeting held in Tucson AZ, July 8, 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,
July 8, 2008

Amethyst Room
Pima Community College
Downtown Campus
1255 N. Stone Avenue
Tucson, Arizona 85709

The above-entitled meeting commenced, pursuant to notice, at 6:30 p.m.

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AGENDA

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P R O C E E D I N G S

(6:30 P.M.)

MR. AVCI: It's 6:30 p.m. If you will please take your seats we will get started.

OPENING REMARKS

MR. AVCI: Good evening and welcome. On behalf of U.S. Department of Energy and the Bureau of Land Management we thank you for attending this evening's meeting. This is what is called a public scoping meeting for a programmatic environmental impact statement that the Department of Energy and the Bureau of Land Management are preparing.

The programmatic environmental impact statement, PEIS for short, that is the subject of this evening's meeting is on solar energy development in six western states: Arizona, California, Colorado, New Mexico, Nevada and Utah.

My name is Halil Avci. I am with

Argonne National Laboratory. This is the organization that is supporting DOE and BLM to prepare this PEIS.

At this time I have a few requests. First, if you have not done so already, please turn off the sound on your cell phones and pagers.

If for any reason you have to leave the room during the meeting, please use the back door.

As you may have noticed, I have already used several acronyms: DOE for Department of Energy, BLM for Bureau of Land Management, and PEIS for programmatic environmental impact statement. This being a federal program, invariably there will be other acronyms throughout the evening. We will try to explain what they mean as we go along. However, if at any time there is one that you do not understand please raise your hand and we will do our best to explain it to you.

I also would like everyone to know that this meeting is being transcribed and an official document will be prepared for the record. That means everything that is said this evening will be recorded and placed into the official document. The document will be placed on the project website and will be available for viewing and downloading for the public. Our court reporter this evening is Ray Vetter. He is with Neal R. Gross & Company, working out of Tucson right here.

The main purpose of this evening is for DOE and BLM to obtain your input on the scope of the PEIS. However, before we begin the comment phase of the meeting we have a series of short presentations to give you some background information and explain the proposed activities. After the presentations there will be a short question and answer period and then we will begin the comment phase of the meeting. I am estimating that the comment phase will begin at approximately

7:30 p.m.

Now as our first speaker I'd like to introduce Mr. Brian Bellew. Brian is the BLM Field Manager for the Tucson Field Office.

PRESENTATIONS

MR. BELLEW: Good evening. I have the great opportunity to be here with you this evening as the Field Manager for the Tucson Field Office and I'm glad to see the turnout that we have tonight talking about solar energy even on a rainy night. So with this I just wanted to open up this evening's meeting to talk about our efforts that we have ongoing with the Department of Energy and the Bureau of Land Management to look at the initiation of joint solar energy development through the programmatic environmental impact statement that you're here for scoping on this evening.

So our agency believes that preparing a programmatic environmental impact statement is a critical step in evaluating the extent to which the public lands with high

solar energy potential may be able to help to meet the nation's ongoing energy needs. So with that, I welcome your input this evening and we're very happy to have you.

Thank you.

MR. AVCI: Thank you, Brian.

The next individual I am going to introduce is Brad Ring. Brad is a project manager in DOE's Golden Office in the Solar Energy Technologies Program.

MR. RING: I want to thank you also for coming tonight and participating in this process. I just want to take a few minutes and go over DOE's overall goals and the expectations from this programmatic environmental impact statement.

DOE's goals are to add energy supply from diverse sources and really making the most of our renewable sources. If we do that we will include the quality of the environment by reducing greenhouse gas emissions and environmental impacts.

Another key component of this is national security. We want to secure sustainable, emission-free domestic energy.

The solar program from a DOE standpoint had a funding last year of approximately $170 million. We split it up into research and development, and market transformation. The research and development we broke into two, what we consider two different technologies: photovoltaics and concentrating solar power.

Photovoltaics received approximately $126 million in funding, and concentrating solar power approximately $26 million. The market transformation, $18 million was spent for this programmatic environmental impact statement and the majority for the Solar America Initiative for PV and water heating for activities with the 25 Solar America cities developing codes and standards and Solar America showcases, training, and the solar decathlon.

As I mentioned before, the two technologies which we'd been solar is photovoltaics and concentrating solar power. There's tiers within that and some overlap. But photovoltaic most people are familiar with that, that's the direct conversion of the solar radiation into electrical energy.

Concentrating solar power, as it states, it concentrates the sun's energy onto a fluid which then drives some sort of a -- through a steam cycle turbine or a direct motor type of a generation of power.

Why is DOE co-leading the preparation of this programmatic EIS? We want to focus on utility-scale solar projects. These projects generate enough power for tens of thousands of homes, but to do that it requires intense solar radiation. And the six states that were mentioned earlier have the best solar resources in the United States. These type of projects require fairly large land masses, approximately 5 acres for each

megawatt of energy produced, so that would be about 2 square miles for a 250 megawatt facility. And BLM in these six states has 119 million acres of federal land. So it's a very good fit.

What results DOE expects from this EIS is the identification of land that is appropriate for solar deployment, both from a technical standpoint and from an environmentally sound standpoint, establishment of policies that would apply to all solar energy projects supported by DOE, and the identification of best practices for deploying these projects.

Best practices would include the identification of important, sensitive or unique habitats in the vicinity of a proposed project. And to the extent feasible, design the projects to minimize these impacts.

It would also be besides the programmatic environmental impact statement there would be site-specific project

environmental analysis ensuring responsible energy generation.

We also expect more accurate modeling for solar energy development and how jobs are created from this and the mitigation to climate change.

That's all I have then. Thank you very much.

MR. AVCI: Thank you, Brad.

Our next speaker is Linda Resseguie from the BLM's Washington, D.C. office. Linda is BLM's project manager for this PEIS.

MS. RESSEGUIE: Good evening and thank you all for coming. It's great to see such a large turnout in Tucson. Thank you.

The Bureau of Land Management is an agency within the Department of the Interior that manages 258 million surface acres. Those acres are shown on the map in front of you in orange.

If you want to go to the next slide.

As Brad stated, about 119 million acres, or 46 percent, of BLM's lands are located in the 6-state study area, 12.2 million of them right here in Arizona. The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development and energy production, and by conserving natural, historical and cultural resources on the public lands.

Solar energy is just one of many energy resources now being developed or considered for federal lands. To ensure the best balance of uses and resource protections for America's public lands the BLM undertakes extensive land-use planning through a collaborative approach with local, state and tribal governments, the public, and 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. Many of BLM's existing land use plans, however, do not specifically address solar energy development.

Next slide.

Why is BLM involved in the programmatic EIS? Two points:

Executive Order 13212 directs federal agencies to expedite their actions as necessary to accelerate the completion of energy-related projects.

And also, the Energy Policy Act of 2005 sets a goal for BLM to approve 10,000 megawatts of non-hydropower renewable energy on the public lands by the year 2015.

Now, as I mentioned, BLM must manage public lands for a variety of resource uses, including energy production. The federal energy mix managed by BLM currently includes coal, oil and gas, helium, geothermal, wind, biomass and soon utility-

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

Utility-scale solar energy projects on public lands are authorized by BLM under the Federal Land Policy and Management Act of 1976. All activities proposed on public lands, including rights-of-way, must be consistent with the terms, conditions and decisions in an approved land use plan. Before BLM can approve a solar energy development project, BLM must assess the direct, indirect and cumulative impact of such development and must consider other resource values, sensitive areas, and public concerns, all completed through the NEPA process.

In the Notice of Intent that we published in the Federal Register on May 29 announcing the start of the programmatic environmental impact statement, BLM said that it would temporarily suspend acceptance of new

solar energy applications pending completion of the PEIS. At the same time, we also announced that we would continue to process the over 130 applications that we had already received before May 29. Those applications are mainly located in Southern California, Nevada and in Arizona. They also cover more than one million acres of BLM-managed lands, and they have a projected capacity to generate 70 billion watts of power, enough to power 20 million American homes.

During the scoping period we have heard from solar industry, elected representatives and the general public, all expressing deep concerns about waiting to accept new applications. In response to the high level of interest in near-term deployment of solar energy projects, we reexamined or no new application policy. A few days ago we announced that BLM would continue to accept and process new solar applications along with the 130 applications previously filed. We did

this in order to be able to aggressively address the growing demand for renewable energy while ensuring appropriate environmental protections.

Those solar energy applications, both existing and the ones we expect to be filed soon, will move forward on a parallel process with the programmatic environmental impact statement.

Next slide.

What are BLM's programmatic goals? Under BLM's current solar energy development policy, applications are processed on a first come, first served basis, each with its own site-specific environmental impact statement and each requiring a specific land use plan amendment to authorize it. BLM believes that by looking programmatically at the issues associated with utility-scale solar energy development we will be able to create a more comprehensive, consistent and efficient program approach by which to address solar

energy proposals on public lands.

The programmatic EIS will identify public lands that are best suited to solar energy development, it will identify mitigation strategies and best management practices to guide future solar energy development, and possibly identify additional transmission corridors needed to specifically facilitate solar energy development. We think that the programmatic EIS will be key in advancing the understanding about the impacts of solar energy development and how best to deal with those impacts, and that the resulting decisions will better foster and support the nation's needs for environmentally sound solar energy development.

Because BLM expects to amend land use plans in the 6-state study area to adopt the solar energy decisions made as a result of the programmatic EIS, these meetings are an important part of the NEPA process but also BLM's planning process. In our notice of May

29 we included proposed planning criteria and we are asking for your comments on those criteria during this scoping process.

Thank you.

MR. AVCI: Thank you, Linda.

The next person who is going to speak is Doug Dahle. Doug is a senior program manager with the National Renewable Energy Laboratory, NREL for short. NREL is providing technical support to the PEIS with respect to defining the solar energy resources and technologies.

MR. DAHLE: Thank you. It's great to see you all here tonight. Thank you for coming. And it's a pleasure to be partnering with BLM and Argonne, and as I work for DOE, supporting DOE in this activity.

I'm going to talk to you about three basic issues. I'm going to sort just of introduce the solar technologies that you see on these posters. The focus of this programmatic EIS is on utility-scale power, so

we're not really doing a study on what is known as dispatchable power such as PV on roof tops and smaller systems. So the scale is more on the 10 megawatt and larger.

The second thing is geographic information system based solar energy resources, I'm just going to introduce that to you. And that's the key piece that NREL is contributing to the study in terms of how to use those solar resources, add layers to it in terms of sensitive lands to identify the high potential areas that will be part of the study.

And last I'd like to briefly mention some federal policies that have a huge impact on facilitating deployment.

Basically Brad had introduced this, basically the two technologies, photovoltaic and concentrating solar power. I would say there is another sort of a category characterized as dispatchable and non-dispatchable solar power. Dispatchable

technologies starting with right up here in the corner is the parabolic trough. You saw a picture of this earlier. This is a picture of the Kramer Junction 150 megawatt parabolic trough system. It's a parabola with a tube, this high temperature fluid gets up to a 400 degree cell. The entire system and the tube move from east to west concentrating the solar energy on that tube. It's flashed into steam. Currently the technology is steam, conventional steam turbine. So it's a solar thermal blind focused technology.

The second one that's like that is down here. It's called a linear fresnel reflector. It's a little bit different technology. It's a flatter mirror. The tube that you see here is fixed, does not move. The mirrors move east to west and usually is heating basically water, generating steam to run through a conventional ranking cycle turbine. That's a linear focusing technology as well.

The third one that we see as dispatchable is called the power tower; this one here. This is the first one was actually built back in the late '70s, early '80s in Daggett. If you've ever driven I-40 south of Barstow you actually can see that from the freeway. It's basically about a 180-foot tower. At the top if molten salt, a fluid that's heated by hundreds of heliostats. These are like 8 foot by 10 foot square solar mirrors that actually track, two-axis tracking, and focus all their energy on this tower. Again that generates a flash steam and runs through a steam turbine.

So those are the ones that are dispatchable.

The other technologies that are non-dispatchable are the dish/engine, which is here. This is actually a parabolic mirror. It's about 80 mirrors typically. It heats a spot about 8 inches in diameter, runs a Sterling engine. Heats hydrogen and it's a

piston type of action, not like your car, but basically. And then in that entire engine is generated, it generates electricity. These are typically 25 kilowatts per unit.

The next one is, it's called concentrating photovoltaics. We'll talk about that a little bit more. It's basically high focus on smaller collection of solar cells.

And then the last one on dispatchable is the flat-plate solar technologies.

Talking about the dispatchable power. Basically parabolic troughs, this Kramer Junction plant here it's 150 megawatts which supplies power to Southern California Edison. We characterize it as commercial by virtue of the fact that these have been operating, as identified here on the charts, that some of them have been operating as early as 1982. And they're still operating well. So solar thermal, blind focus solar thermal generating power. And in this particular

case, and it's probably not going to happen in the future, but they used gas-fired boilers to address peak power, which is typically 7:00, 7:30 at night, and in the morning in Southern California Edison's system.

The central receiver here that's shown, this was Solar One in California. The power tower, this one had a remarkable record back in the early '90s where the molten salt was stored as well as used to run a steam system. And it had a period over about a week where it was able to generate power for Southern California Edison 24 hours a day until the clouds came in after several days. And the fact that it could actually deliver that kind of power day and night was rather remarkable.

I'm going to introduce basically this thing called a capacity factor. And what that means in the solar technology area is the fact that 70 percent of the time this thing was presenting energy out of that 8,760 hours

in a year. So 70 percent of those hours this thing was producing energy.

This parabolic trough is more in the 25 to 35 area range.

The idea that dispatchable power is basically trying to meet the utilities' peak demand. This is just sort of schematically showing the idea that the solar resource is not necessarily coincident with the solar peak of the utility system. The red line identifies the solar -- the energy supply and use by customers of an industrial utility. You can see the solar resource doesn't necessarily match. It's not always flat. This is an area where clouds came in so you'd see the solar power drop.

The idea here is using thermal storage, molten salts primarily at this point. I heard about an interesting technology tonight for storage. The idea here is you can take that solar energy, generate it and shift it past the high solar resource and try to

match this peak here. That's what dispatchable provides: huge value we can use to peak power generation as well as provide power beyond the sun's resource to provide, meet the peaks of the industrial and utilities.

Concentrating solar power, the non-dispatchable central station for distributed power is shown. We talked about this before which was the solar dish, sterling engine. These are basically, this is showing a pre-commercial system. It was actually worked on with Sandia, our partner on solar development and R&D lab in New Mexico. Had six of these things operated. They really refined the mirrors, improved the performance of the sterling engine. And is an example of it's going to be commercial.

Now one of the developers of this particular technology has power purchase agreements with Southern California Edison and San Diego Gas and Electric for delivery in

2011 and 2012 of over 1,000 megawatts, a gigawatt of power. So there's basically thousands of these that will be built in the Mohave Desert and Imperial Valley.

Next one that's in the concentrating, this is the concentrating PV here. And I'll talk a little bit more about this. But basically what that does, at the peak, the focal point here is actually a small number of photovoltaic cells, polysilicon cells. And what this parabolic dish does is concentrates the sun's energy on this small set of cells.

Let me go to the next slide, that gets into a little more detail.

This one we just talked about. Each one of these technologies, one is reflected, the one we just saw, basically creates the effect of 500 suns of solar energy on a small area of photovoltaic cells. One of the big advantages is we're not using this very expensive polysilicon cell in terms of

the actual quantity of material which is the most, that is the most costly part of the photovoltaic system.

Then on the refractive, the second one here, it's basically it's kind of like, well, we don't see those fluorescent lenses anymore but the ones that had sort of the diamond shape or whatever, that was refracting light. What this is doing is refracting light into the small number of cells, again creating this effect of 500 suns.

The last one is a fairly new one. It basically is sort of a combination of this and the refractive, reflective and an optical rod. So those are the photovoltaic, concentrating.

Here is the, I want to share with you the resource that's used for all those technologies we just talked about except for the flat plate. This is called direct normal insulation. It's a component of energy, solar energy that is actually directly 90 degrees to

whatever surface it hits. What we're using in terms of the baseline is 5 kilowatt hours per meter-squared per day. That's the unit of solar energy. And one of the things we're using for this 20-year study, 5 kilowatt hours per meter-squared per day. All the applications that you heard about, nobody is looking at five in terms of developing solar plants today, it's basically six or higher. But we think with the advances of the R&D, things like that, we may be able to find high potential sites with this level of solar resource.

What you see here is the solar resource. It's an overlay, you can see it matches the exact layout that Linda showed you of the BLM lands. So this is the solar resource matching the BLM lands. This is the GIS stuff that we provide. Now you can add another layer which might be the topography. Typically the parabolic trough systems are looking for 1 to maybe 3 percent slope. So

you eliminate sites that have higher slope than that for that particular technology.

For the pole-mounted stuff such as the concentrating PV you can go up to 5 percent. So those are -- anyway, and then you can add sensitive areas and eliminate high potential areas.

This is the flat-plate systems that you've probably seen. This, delighted that the U.S. has the now largest photovoltaic flat-plate system in the world at Nellis Air Force Base. It's a 14.2 megawatt flat-plate system. So each one of these are single axis that track east to west to increase its performance. And it's been operating for about 18 months now.

Also wanted to just show you, this is number two if you will in the world, is in Portugal you can see where the pole-mounted-- it doesn't seem to have too much of an impact on the actual vegetation right now. But again 11 megawatts. We're looking at the large

scale 10 megawatts or larger in terms of siting areas.

And this is the solar resource that applies for photovoltaics. This is called global solar resource. What it includes is the direct normal that we just talked about, about 80 percent of it is the direct normal, and the remaining 20 percent is the scattered light off of clouds, off the atmosphere, whatever, so it maximizes the use of all solar energy available.

Now I'd like to get into sort of the policy now, the fact that the federal policy, the federal investment tax credit has a huge impact on the deployment of solar technology. What this is showing here is when you are trying to identify what a particular solar plant can produce in terms of dollar, cents per kilowatt-hour. What's shown in the blue is basically without federal tax credit you calculate, you analyze the project and it maybe comes out at let's say for concentrating

solar power maybe 15, 16 cents per kilowatt-hour based on the technology today.

You apply the federal investment tax credit for solar systems which is 30 percent, that's a tax credit to the developer, has the effect of reducing that cost, levelized cost of energy, cents per kilowatt-hour by about 20 percent.

One of the models that we're going to use in this study is called the ReEDS Model. It's a, what it is is hundreds of variables looking at about 350 regional transmission areas, corridors, things like that. And what it does is it identifies is fossil, there's nuclear, whatever all in all these different regional areas. And what it tries to predict is what would be in the next 20 years the deployment of solar technology throughout the six states. And what we're showing here is without the federal investment tax policy which expires at the end of this calendar year we think that potentially 6

gigawatts or 6,000 megawatts could be developed without the solar tax credit.

Using the same model, and this was run hundreds of times, we think with the 8-year extension which has been proposed three times now and has been shut down, an 8-year extension with sort of a declining percentage of tax credit that we can see the potential for almost 40 gigawatts of power in solar technology.

That's all I have.

MR. AVCI: Thank you, Doug.

Now I will give you a brief overview of the NEPA, National Environmental Policy Act process. To start off with let me see a show of hands, how many of you have actually seen an EIS before.

(Show of hands.)

MR. AVCI: Practically everybody. Good. I will go over very quickly.

Just to remind you that the EIS that we are planning to write is a

comprehensive document that provides an analyses of the environmental and socioeconomic impacts of the agency's proposed action as well as the alternatives. And I will go over what those alternatives are very shortly. It describes the purpose and need, identifies the impact and mitigation measures, gives the short- and long-term impacts as well as the cumulative impact, not only the impacts of the proposed action itself but everything else that is going on in the area. And it also describes the public concerns.

Now, why is this EIS being prepared? The short answer is NEPA requires it. NEPA says whenever federal agencies propose a major federal action with potential to significantly impact the quality of the human environment they have to prepare an EIS. Now, the proposed actions could be site-specific or they could be programmatic. Programmatic in the sense that they cover broad agency actions such as the development

of programs or the setting of national policies.

In this case the agencies, the two agencies, DOE and BLM determined that their proposed action falls under the category of broad programmatic actions. And the document that is appropriate for that level of proposed action is what is called the programmatic environmental impact statement. A programmatic environmental impact statement, or PEIS, does not evaluate specific projects. Instead what it does is it considers generic impacts of actions, in this case of solar energy technologies, and provides potentially applicable mitigation measures.

Now, what are the proposed actions and what alternatives will be analyzed in the PEIS? By law every EIS has to have an action called a "no action" alternative. Basically it is the alternative that analyzes what the impacts would be if the proposed action did not go forward. It does not mean no action,

it just means the proposed action does not take place.

The proposed action in this case is, as you can see, developing and implementing agency-specific programs that would facilitate environmentally responsible utility-scale solar energy development in the six western states. And it includes programs and policies and mitigation strategies related to solar energy development. For BLM, as Linda Resseguie mentioned earlier, it also involves amending individual land use plans to adopt the new program.

Prior to last week we had a third alternative called the limited development alternative. Again as Linda Resseguie mentioned, this alternative is no longer relevant to this PEIS.

At this time BLM has not decided if there will be a third alternative and, if so, what form that alternative will be.

Now, I said at the beginning that

this was a public scoping meeting. The way the NEPA works is that it is quite procedural in its approach to how the federal agencies need to consider environmental factors into their decision. As part of that procedure it requires that the agencies go out for public input. Initially the agencies have what's called internal scoping, they have some preliminary ideas in terms of their alternatives and the issues that they will consider in the EIS. And then the Notice of Intent is published in the Federal Register; in this case it happened on May 29 of this year, which sets of the public scoping phase.

It is during this phase that the agencies obtain input from the public to crystallize their ideas and finalize their decisions. It is in this vein that the third alternative has been revised because a lot of the comments we have received so far in previous meetings of this sort and on the internet indicated that appropriate, that the

third alternative was causing public concern. So it's totally within the realm of NEPA to alter alternatives and decisions because no decisions are made until after the scoping phase is completed, which again in this case is scheduled to occur on July 15.

So during this scoping phase public are invited to provide comments and input on the proposed action, on alternatives to be considered, significant issues to be analyzed, possible mitigation measures. If they have any data that they would like to share with the federal agency they are requested to provide that information. And the interested individuals in our organizations and their specific concerns are noted and considered in the development of the EIS.

Now, the public has the opportunity to provide input during this scoping phase. As I said, it runs through July 15. But the public will also have an opportunity to comment and provide input after the draft EIS

is published which is currently scheduled to occur sometime in spring of next year. And then also after the final EIS is published which is scheduled for spring 2010.

I have mentioned the project website several times. The address of the website, as you can see here, is solareis.anl.gov. I know a lot of you have visited the website because quite a few of you have registered on the internet through the website. If you have not done so already I would strongly urge you to visit the website because it has a wealth of information about the program. Not only it includes information about the EIS process but it includes copies of the view graphs that are being shown today as well as the posters that you see around the room and a lot of other information, technology information and program information. So it is quite a resource for everybody.

In addition to providing

information it also allows for people to receive updates about the program when something new occurs. For example, when BLM decided to stop the moratorium on the new applications an e-mail was sent to everybody who has registered on the website to inform them of that situation. So you can get e-mail notifications.

Now, there are basically three ways to provide scoping comments. One, at this scoping meeting tonight. You can do it on the website. When you go to the website there is a special button where you can follow to provide your comments. Or via regular mail.

The written comments, as I said, could be through the website or you can fill out paper comment form that you were all given when you came into this room today or the form is also on the website. And you can mail it to the address shown on the bottom here on this address.

Now, it does not have to be on a

form. It could be on any piece of paper. Or if you have any supporting documentation you can mail all that to this address and it will be considered fully.

Now, our next phase of this meeting is going to be getting into the oral comment phase. However, as I said at the beginning, before we start the formal comment phase we will have a brief question and answer period. In this question and answer period I would like to ask that you please limit your questions to matters related to presentations made so far, mainly clarification types of questions. Please hold your comments until after we get started with the comment phase of the meeting. You can direct your questions to anyone at the head table or to nobody at all and the appropriate person will respond to your question.

The way it will work is if you raise your hand if you have a question I will bring the microphone to you and you can ask

your question.

PUBLIC Q&A SESSION

MR. DOWNING: Thank you. I am Ted Downing, former state representative here in Arizona. My question is for Linda Resseguie.

Could you help us understand the rationale and what was behind the initial decision not to accept applications or to suspend application processing?

MS. RESSEGUIE: That is a question I was expecting.

Initially we believed that with 130 applications covering more than a million acres of public lands, representing 35 different companies and all variations of current commercial utility-scale solar projects, that we had plenty of work to do and plenty of watts of potential electricity coming online with those existing projects. We believed that a -- that the individual site-specific NEPA environmental impact statements and individual land use plan

amendments that were going to be required for those projects would in some sense become duplicative and not very efficient. And so the idea with the programmatic was to develop an overarching environmental document, mitigation strategies, best management practices, siting criteria that could be applied to all future applications.

And we believed that with that in hand the new applications that we would accept after the PEIS would be streamlined, that the environmental work would be streamlined, the projects would proceed much more quickly because everyone would be more knowledgeable about what the impacts were and what the mitigation measures should be. Anyway, that was the idea.

MR. DOWNING: Did you say you were understaffed?

MS. RESSEGUIE: I did not say that we were understaffed. But the realty specialists that process rights-of-way

applications for solar energy are our same realty specialists that process rights-of-way for transmission lines, gas lines, perform all other land-related activities. And so to continue to accumulate additional applications would have and will strain the system.

MR. SCHLICHTMAN: My namer is Don Schlichtman. My question is with the scheduled adoption of the final EIS statement in spring of 2010 does that imply that any approval for go-forward development of any of the existing 130 projects or any new applications cannot in fact be taken until that time?

MS. RESSEGUIE: No. We are going to run existing and future applications that are received through our process as quickly as we can. And we are not going to hold up any application approvals or right-of-way grants pending the outcome of the PEIS. So all of the projects that have now been filed and are going to be processed will go forward at their

own pace as BLM and the company, the proponent work together to do the individual NEPA. But they are not going to be withheld, right-of-way approvals will not be withheld pending the PEIS.

MR. PATTERSON: Daniel Patterson here with Public Employees for Environmental Responsibility. That's a very important question. And a follow-up to that:

If BLM is in fact going to be giving out permits for these --

MS. RESSEGUIE: Rights-of-way.

MR. PATTERSON: Right. Right-of-way permits for projects coming in, how is the agency going to be able to do that in a way that considers proper siting? And is there concern that handing out permits before in fact the EIS and the criteria that the EIS is going to put forward is there concern that that might in fact in some ways undercut the entire purpose of the EIS?

MS. RESSEGUIE: We do have an

existing solar energy policy that was put into place in April of 2007. So we have guidance for our field offices to follow. And we continue to refine that guidance.

I don't know, I don't think we've talked about this, but BLM has not approved any utility-scale solar projects yet. We have just one project that has entered the where notice of intent to prepare an environmental impact statement was issued last fall and we expect the draft EIS to be issued sometime this fall. But that is the single project that has progressed the furthest through the environmental review process.

Now I'm losing the last piece of your question. Could you repeat it?

MR. PATTERSON: It was, just briefly, given that the EIS is needed to develop criteria for siting these plants is there concern within the agency that continuing to issue permits before the criteria that the EIS is going to establish

does that in some way, there's certainly concern, does that in some way undercut the entire purpose of the EIS?

MS. RESSEGUIE: I think that the -- let me go ahead and try this, Halil -- I think that the decisions that come out of the PEIS will be very important for any future development. Okay? And I think that we believe that it's important enough to proceed. Even though we are going to have a large number of projects that are going forward without the benefit, they will each have their own site-specific environmental impact statement where indirect, direct, cumulative impacts will be addressed, so they will just be less efficient. We think that when we get to the end of the PEIS and adopt the mitigation measures and best management practices that come out of that analysis that we will be more efficient.

How much will, you know, how much will be left, how many projects will be left

to which that policies, those policies and procedures can apply I can't tell you. I can't predict that. But we still think it will be beneficial. And not all of the projects that are on the books right now or all of the projects that will be filed during the work on the PEIS will be completed before the PEIS is issued. So some of the existing applications may ultimately end up having the same mitigation strategies and measures applied anyway.

MR. SCHWARTZCHILD: Hi, Arthur Schwartzchild. About the 8 and 40 gigawatt capacity figure, I think Brian, I think a lot of people will take that away not understanding or that cliched confusion about capacity versus actual energy being generated. And just having glanced at the two different curves, you're getting 8 gigawatts, much of which is not getting any tax credit, investment tax credit. So it would seem it would be towards the end of the eight years,

the last seven having no investment tax credit, that much of the growth would occur in capacity. So it seems in providing those two numbers, the 32 gigawatt spread it's very misleading.

So if you could just clarify, if you could just clarify that and say something about how you see growth occurring and how it would continue to accelerate after the eight years maybe in a way that the kind of the price supports prevent?

MR. AVCI: I think that's a comment that I think could be directed to Doug Dahle. But it's too detailed at this point. Doug, do you want to address it at this point?

MR. DAHLE: The only thing I would say is the idea is the cost of this technology is going to come down on a slope. So the idea is there will be some development for those technologies. The other incentives you have to address is the fact that there are a lot of state incentives. New Mexico has a production

tax credit totally separate from the federal.

The thinking in terms of our modeling is the fact that we have a, in the R&D world we see what the curve is in terms of the cost of developing let's say concentrating solar power. Five years ago it was 15, 18 cents. It's now with the tax credit 10, 11, 12. The idea is the 8-year extension is going to expand those projects where the R&D hasn't caught up into it, caught up in terms of the fact that 10 cent, 12 cent per kilowatt hour may be the conventional systems after the R&D is completed.

Bottom line, we have the slope of what the cost of solar power is and it's been dropping for the last 20 years and we're kind of leveling out. But the bottom line we believe the R&D and the improvements in the optical technologies, thermal storage, things like that will bring it down to where it's going to be cost competitive with conventional power. Plus the fact that we're also looking

at what's going on in the fossil world, it's getting very expensive, so they're probably going to be without the tax incentives cost competitive or cost competitive fairly soon.

MR. AVCI: Another question?

MS. DUNAY: My name is Deb Dunay and I have a question about the general planning process itself. And it's specifically in regard to the involvement of regional level entities in your process. I sort of took from this presentation that the map that you showed us was an assessment of land that could receive, that would be best use for solar development. And from that assessment you basically created a comprehensive plan for those six states. So it's a very broad-reaching plan. And then you are going to take and do almost like little specific plans or site-level plans you're talking about.

But for each area such as in California -- I just use that because I know

that state a little bit better than this one -- SANDAG, SANBAG, those large regional agencies that cover several agencies. Were they ever invited to take a look at it under the G, at all the various layers of GIS to see how it fit into their regional plans and therefore potentially impact other activities they had going on? Although I don't perceive this as a major impact. But if it was a true test, from my standpoint that would have been part of a process.

MS. RESSEGUIE: There are a couple other initiatives that are going on in the west right now. One of them is California's Renewable Energy Transmission Initiative. The Western Governors' Association also has a renewable energy zone initiative going on. We are working closely with both of those efforts so that we don't duplicate effort.

But in California specifically, the California Energy Commission -- thank you, always want to say Electric -- the California

Energy Commission has taken the initiative to set up an interagency work group for the solar PEIS. So at the table we have the CEC, the CPUC, California Fish and Game, a number of California state agencies and also local federal representatives. So at least in California we are doing that. And the state agencies have stepped up to the plate to help us accomplish that.

MS. DUNAY: (Off-mic comment.)

MS. RESSEGUIE: Right. And one of the things that we are going to do through our screening process in both the areas shown in Doug's map with the high solar energy potential, my maps should show all the BLM lands. Doug's maps were showing all the BLM lands with the high solar energy potential. But we will continue to screen out the sensitive areas as we work through this and in addition to -- well, remember that it's just on BLM-managed lands. So BLM's planning and BLM's analysis of sensitive areas in

consultation with state agencies will continue to filter through those areas that are best suited for solar energy development in the programmatic EIS. So that's part of the process and analysis that we will be going through.

MR. AVCI: Let's have one more and then we'll be done.

MR. ALTER: Hi. Lee Alter with the Arizona Department of Environmental Quality. And I guess I will have the honor of having the last question which I think should have been the first. And what kind of -- and forgive me if this is on the website already -- but what kind of environmental impacts are we talking about? Can you just quickly summarize? I mean obviously they cover land but I can imagine things if you're piloting small aircraft and being blinded by all these mirrors. So I'm wondering what is the list of impacts and if you want to go into some of the mitigation measures I would be curious about

those too? Or if you could point me to if they're on the website I'll take a look later?

MS. RESSEGUIE: The notice -- oh.

MR. AVCI: Actually there is a list of impacts in the Notice of Intent. If you look at the Federal Register Notice on May 29 there is the usual list of impacts, you know, from land use, noise and ecological impacts and all the list of them. But that's a good thing, I think maybe we should save that for the comment period, the impact that you mentioned. If there are any impacts that you would like us to consider please include that in the comment.

Okay, I know it's getting later than I said. It's 7:35 and we will start with the comment phase of the meeting.

PUBLIC COMMENTS

MR. AVCI: Okay, here is how we will proceed with the comment phase of this meeting. Some of you registered online before you came here. Some of you registered at the

door as you came in. Whether you registered online or at the door you were asked if you wanted to speak, provide oral comments. I have the names of individuals who want to speak tonight. And I will invite you to the podium here to present your oral comments in the order in which your registration was received.

After everyone who registered to speak has had a chance to make his or her oral presentation I will ask if there is anyone who had not registered but after hearing the presentations and other speakers would like to present comments tonight. So they will be given a chance and they will come up here and present their oral comments in the same way that the registered speakers did.

In order to allow equal chance to everyone that's speaking every speaker is requested to limit his or her comments to three minutes total. If you are up here speaking when you have reached the two-and-a-

half minute mark I will show this yellow card to you. I will be sitting over here. That means you have 30 seconds to wrap up and finish your presentation.

At the three minute mark you will see the red card. That means your time is up and you should immediately conclude your remarks. And as you can see, I am sitting right next to you and I can stand up as well.

Now, we realize that you may need more time than three minutes. If you are not able to finish your remarks in three minutes and you need additional time you will have an opportunity to add to your previous comments at the end of the meeting after everybody has had a chance to speak for three minutes. There will be no sharing of time or passing of leftover time to another speaker.

Now, is everyone clear on how the comment phase of this meeting will be conducted? Okay then, we will begin with the formal comment phase of the meeting. When you

come to the podium please get close to the microphone or hold the microphone in your hand so that the court reporter can hear your comments and record them.

Now, the order of speaker I said it would be in the order it was received. But there is an exception to every rule. In tonight's setting our first speaker will be Ron Barber. He is the District Director for Congresswoman Gabrielle Giffords' office. He will be followed by Christopher Lovato and Vivian Harte.

So when your time is up if you could come and sort of be ready to speak that would speed things up. So with that I will invite Ron Barber to the podium please.

MR. BARBER: Thank you for the opportunity -- can you hear me? Am I close enough? -- the opportunity to speak on behalf of Congresswoman Gifford. She is in Washington, as you all know, and she asked me to come and present her statement to this

hearing tonight. And her statement is as follows:

I would like to thank the Bureau of Land Management and the Department of Energy Office of Energy Efficiency and Renewable Energy for convening this and other hearings in our region. I appreciate this thorough scoping process for a programmatic environmental impact statement, PEIS, on siting solar facilities on BLM-managed lands. This is an important step toward sensitive deployment of utility-scale solar projects on public lands.

I support the siting of solar arrays on public land so long as it is done carefully and with close attention to environmental impacts and other important considerations. I commend the BLM and the Department of Energy for extending the scoping process and for responding to public requests by scheduling additional hearings. Thank you for adding this hearing in Tucson to the

schedule. I am pleased that you recognize the importance of listening to recommendations and comments on this issue from members of our community.

I believe that solar power provides a viable and promising source of energy, particularly at this time of heightened concern about national energy policy. Local officials, businesspeople, environmentalists, labor leaders, academics and citizens from diverse economic, social and political backgrounds all see the potential for a solar future and they are eager to make it a reality. They see the many positive contributions to our country and the world that could be made by the expanded use of solar energy.

Promoting solar energy has been one of my highest priorities since I took office a year-and-a-half ago, and this has been driven by the belief that solar energy can help us address three major national issues. Solar

energy can help wean our nation off unreliable and expensive foreign energy. Solar energy can help us develop a new homegrown industry with reliable, high-paying jobs. And solar energy can be a major factor in addressing the mounting problem of global climate change. In short, solar energy offers an elegant solution to these complex challenges.

Public land can and should play a critical role in realizing the promise of solar energy. The American Southwest is blessed with millions of acres of sun-drenched open space, and much of that is federal land. Conducting this programmatic environmental impact statement process is a critical step toward developing a clear set of policy guidelines for the responsible siting of solar projects. With this in mind, the PEIS should examine the likely impacts of solar power projects on wildlife, both plants and animals and especially threatened and endangered species, on unique and already threatened

ecosystems, on cultural resources and archeological sites, on areas of religious significance to Native Americans, on water resources, on local economies, and on esthetics of the landscape.

In examining these areas of impact the PEIS should explore not only the environmental impacts of construction, operation and eventual decommissioning of power-generating facilities but also of the associated facilities for energy storage and transmission. It should consider the differential impact of the various technologies that could be employed for each of these activities. Furthermore, it should identify the least invasive practices for preparing land for solar facilities. Land that is already disturbed or degraded should be given preference over untouched desert.

In addition to identifying the criteria for identifying, for determining the best sites for large-scale solar it is also

imperative to identify the criteria that would make a site inappropriate. All this information should be made readily available to the public at the conclusion of the PEIS process.

I encourage the Bureau of Land Management and the Department of Energy to bring other pertinent federal departments and agencies into this process. They should at least include the Environmental Protection Agency, the U.S. Forest Service, and the U.S. Fish and Wildlife Service as federal land management agencies responsible for large tracts of public land.

In closing let me call attention to the unique and balancing act at work in this particular PEIS. When Congress passed the National Environmental Policy Act almost 40 years ago it was motivated by the belief that information about environmental impacts of projects on federal land was critical to a credible decision making process. These same

concerns remain true today.

One thing that makes this particular project unique is that there are potential environmental impacts associated even with a "no action" alternative. I am referring, of course, to the most serious, overarching environmental issue of our time, global climate change. Solar power projects on public land may represent one of our best opportunities to develop clean, renewable energy sources that will reduce our nation's carbon footprint and mitigate the effects of climate change. Ideally this mitigating environmental impact of solar energy would be addressed directly in the PEIS. Regardless of whether climate impacts are formally included or not, I urge the BLM to keep them in mind and prioritize the efficient and timely completion of this process. This PEIS is critical and must not be shortchanged. However, neither should it be drawn out longer than necessary. To do so would actually

result in greater environmental impacts than would otherwise occur. It would be regrettable and ironic for that to result from a process designed for environmental protection.

I thank you for your consideration of my recommendations.

MR. AVCI: Thank you, Ron.

Next we have Christopher Lovato. When you come to the podium please state your name and affiliation please.

MR. LOVATO: Hello. My name is Christopher Lovato. I am with a company EPPG, that's Environmentally Protective Power Generation. We are largely out of Europe, however we are doing experimentation here in Arizona. And one of the things that we are actually working on is scaleable solar power which is a great deal smaller than the scales here. Our estimates suggest that we could build and 850 megawatt system on little less than 10 acres of land. However, it would

involve including a tower some 30 meters high, so one might not want to enter that garden. But certainly it's somewhat smaller than some of the other projects here.

We are planning, hopefully, to put a test tower up by 2010 and then allow people to see it, play with it. We have one that we built in Europe already which actually is up in Sweden. But we thought we might as well try it in a fairly difficult place rather than Portugal, which is a lot nicer and sunnier, and it seemes to work fairly well. We don't -- there are largely no moving parts on the outside of it. We don't track the sun, we don't move things, we don't have liquids, we don't have oil running around tubes. But we do have a solar concentrator and then that's attached to what we call our solar thermal engine and that is then what stores the power in various ways, including magnetic levitation, flywheels and other ways.

So these things are coming along

soon and might want to be considered because they take up a great deal less space and could actually be plunked right next to traditional power stations as opposed to being out in the wilderness. So that's something maybe worth considering in the future.

So I just thought I would mention that this is coming down the pike and you will see us. Right now we are still awaiting our patent pending status in the United States and Canada but as soon as that comes through, which should be shortly, then we will be able to tell you how it works and why it works and what it does.

So thank you very much.

MR. AVCI: Thank you, Mr. Lovato.

Next Vivian Harte please.

MS. HARTE: Hello. My name is Vivian Harte and I am the Chair of the Arizona Solar Energy Association. We are a chapter of the American Solar Energy Society and our mission is to educate the public about solar

energy and to advocate for solar energy. I have a Bachelor's Degree in Sociology and a Master's Degree in Public Administration with a specialization in energy policy.

I look at energy mainly through the eyes of a sociologist. So I want to tell you what I see in sociology. The city of Tucson loses 10 billion, with a B, billion dollars a year to fossil fuels and that money goes out of our economy. We have no fossil fuels in Tucson, Arizona, and it leaves our economy.

Solar energy will help our economy by keeping that money in our economy. It will also help by training people, of course, for jobs. And the types of jobs that would be available for building utility-scale solar plants are also the types of jobs that can be transferred to construction and other high-paying jobs. So it's good for the economy for the Southwest to have these.

Fossil fuels at this time is the basis of our economy. And as we watch as the

gas prices go up, as the price of barrels of oil goes up our economy is slipping. The more that we can use renewable energy's efficiency and conservation, that will help make our economy as a whole, as a country and ultimately as a world be a stronger, more stable economy. We spend billions of dollars on wars that are directly or indirectly related to oil. We also spend millions of dollars in our military protecting the lines that the ships go through in order to bring the oil to us. That's a large economic loss to us that could be spent on other things.

America's standing in the world will be improved as we use more renewable energies. The United States is only one of two developed countries who has not yet approved the Kyoto Accords.

And last, if the United Nations' Intergovernmental Panel on Climate Change is to be believed, we have 42 more years until 2040, no, 2050 in order to decrease our use of

fossil fuels by 90 percent in order to avoid the worst climate change problems. That is something that we need to look at. This is a worldwide problem.

Now, I was in, last year I was taking care of my granddaughter in New York City and there was the very first tornado in Brooklyn that they've ever had, that they've ever known that they've ever had in the last two, three hundred years. We are having more tornados, tornados started two months early this year in the Midwest. We're having the flooding. We had Katrina. We are having Category 5 storms that we have not had in the frequency that we've ever had before. This is something that's happening.

I do want to mention, I gave this to you, you have this before you, it's a study, "The Last Straw: Water Use by Power Plants in the Arid West." It does say that the concentrating plants use approximately the same amount of water and they also use natural

gas, but with water photovoltaics don't use any. So I do want to point that out.

Thank you very much.

MR. AVCI: Thank you, Ms. Harte.

Next is Dan Patterson followed by Bruce Marcotte and Andy McKnight.

MR. PATTERSON: Thank you very much. I am Daniel Patterson. I am an ecologist and I am the Southwest Director of Public Employees for Environmental Responsibility. I formerly worked with BLM in the Mohave Desert. And I am a solar power producer. We produce solar power on our rooftop at our home in south downtown Tucson.

So I'm a big supporter of solar power. But this is critical that BLM develop some proper siting criteria for what really are large scale industrial facilities that are being looked at. Literally BLM has in front of it right now proposals that would cover hundreds of square miles of southwestern desert areas with industrial solar facilities.

And those have to be carefully considered, the best place to put those.

In some ways many people are wondering if we're being presented with a false choice here. And one of the things I think BLM needs to look at is specifically in the purpose and needs section of your EIS is an alternative that would look at how much power could be produced through a maximum build-out of rooftop solar. That has to be considered. In every major southwestern city we have potential to produce power just like my family and I do right downtown without bulldozing desert habitat to be able to do that. I don't think that's BLM's intention. I'm not sure about DOE. But that has to be carefully considered.

Water use also has to be very carefully considered, as was mentioned by the last speaker, especially the concentrating solar facilities do use significant amounts of water and we've got to consider how much water

would be pumped out, what effect that might have on springs and riparian areas that are critical for wildlife.

On the alternatives that are there, right now I would submit I think quite convincingly that two alternatives is not a reasonable range of alternatives. BLM has got to bring in another alternative. The one I suggest is taking a look at how much solar power we can produce in existing cities, on existing rooftops, producing power where it is used, where it is generated, not losing power on the grid, not putting power on the very vulnerable grid. That should be the other alternative. Simply no action that's required by law in your proposed full build-out alternative does not meet the intention of NEPA. And I'm sure the agencies' really reasonable range of alternatives is essential. You've got to develop that.

Also these plants really should be located on existing utility corridors.

Existing utility corridors are all over the place. They certainly do exist. There is certainly some concern that DOE in many ways is trying to designate much of western Arizona as a utility corridor. We've already got utility lines and we should use them.

In some ways there is at least one good plan that BLM has that addresses solar build-out and that's the California Desert Conservation Area Plan. And its specific prescriptions for Class L lands and Class M lands with multiple use classification really is a good model that should be applied to other BLM lands in the five other states. But I would submit that the CDCA plan already provides a good guidance.

And in wrapping up my comments here, some specific areas that really should immediately be avoided for large-scale industrial solar development are units of the National Landscape Conservation System, places like Ironwood Forest National Monument, Las

Cienagas, the San Pedro River for example. Critical habitat for endangered species also should just be taken off the table. And also BLM's areas of critical environmental concern also should be dropped off.

So again a tricky issue. It's a very difficult issue for the agency. I salute you for taking on this process. And again at Public Employees for Environmental Responsibility we support BLM developing strong and reasonable environmental siting criteria for these large industrial solar facilities. We may submit additional written comments before the 15th. And if there is anything else we can do to help, please let us know.

Thank you.

MR. AVCI: Thank you, Mr. Patterson.

Next is Bruce Marcotte please.

MR. MARCOTTE: Thank you for this opportunity to speak this evening. I am a

very strong advocate of solar power and renewable energy sources. I'm a U.S. Navy veteran. I served 16 years and the majority of my time serving was in the Persian Gulf. I've escorted reflagged Kuwaiti tankers out of the Gulf into the Gulf of Sidra and out into safer waters. I put myself in danger, my fellow shipmates. I know a lot of men and women in the Marine Corps, several have died in the Persian Gulf because of our actions there trying to recover oil that we have alternatives to.

We have an abundance of solar power in the southwest United States, we should take advantage of it. And I urge that you don't focus on the minutiae of looking at the bugs and the plants but look at the big picture: we need to get off of oil and onto renewables.

Thank you very much for your time.

MR. AVCI: Thank you, Mr. McKnight. I'm sorry, that was Mr. Marcotte.

Next is Andy McKnight. He's not

here. Okay, then we'll go on with Donald Tribble and followed after him will come Eva Sargent.

MR. TRIBBLE: My name is Don Tribble. I am a 58-year-old American citizen and I am amazed that we are having to have this meeting this late in my lifetime. When I was 13 years old I built a solar oven as a science project and a Boy Scout project and baked a pot of or a pan of biscuits using solar power. And I thoroughly believed at that time that this country would be far more advanced in solar energy than we are. And it just amazes me that we are only spending or budgeting you $170 million dollars. We spend that much on our silly roads here in Arizona, and you know how good our roads are.

(Laughter.)

I just I don't mean to make light of this by any means but I don't understand why it takes two years to do something that should be a slam dunk. Sure, we're going to

try to be careful and make sure that it has a minimal impact. But at the same time it has a major impact on the lives of our descendants, the people that are going to inherit Arizona, the United States and the world. And I'm not a NIMBY, I'm not a fanatic in any way, but it just does amaze me that it has taken this long for this country to come to its senses.

Of course, I know part of the problem is big business, big money wants to keep this down because this is free. All we've got to do is develop it. The source it out there. Thank God it's out there or we wouldn't be here. So let's use it.

Thank you very much.

MR. AVCI: Thank you, Mr. Tribble.

Now we have Eva Sargent.

MS. SARGENT: That didn't work too well, now did it? I'm Eva Sargent from Defenders of Wildlife, the Tucson Office. And I want to start with a question and I think it's a question for Linda Resseguie that I

didn't have a chance to ask before. And that is that, and I will give you part of my time for this, don't worry, that you talked about how we are going to take the big map and find out where the potential is and then we're going to exclude sensitive lands. So I just wanted to ask you for a quick list of what you think would be excluded?

MS. RESSEGUIE: Irregular process here. I look to my moderator. Go with it?

MR. AVCI: Go with it.

MS. RESSEGUIE: Okay. The way we were characterizing sensitive lands when we started thinking about this was similar to what an earlier speaker addressed, lands within the National Landscape Conservation system such as wilderness areas, wild and scenic rivers, historic trails, those sorts, but also lands that had been designated in existing land use plans as being unsuitable for large-scale surface disturbance which is what is going to happen. It's just the way

that the utility-scale solar energy projects are going to have to be built.

And we were thinking of particular ACECs, areas of critical environmental concern, and other special management units because some of our land use plans have different terminology as far as habitat conservation areas, habitat management plans. There's a whole range of diverse descriptions out there for these special management areas. And in the Notice of Intent those were the areas that we talked about as being unsuitable in our mind for utility-scale solar energy development.

But I encourage you and any other members of the public to give us your comments on that because we have had comments from other speakers suggesting that we were trying to take too much off the table.

MS. SARGENT: Great. I would, well, I'll start by saying that Defenders of Wildlife supports the development of solar and

we support the effort of the BLM and DOE to get this PEIS done, to come up with reasonable criteria, reasonable limits and reasonable ways to mitigate.

As far as these sensitive lands or exclusions, I would encourage you to not take things off the table and, if anything, to add things because you are never going to be able to go backward, particularly on these large-scale projects. Once you blade off hundreds of acres it's going to be really hard to go backwards. You can always move the other way.

You know, my personal belief is that, like the gentleman from the European company talked about, we're going to find ways to do this smaller. And I think you can be as little permissive as you can in the beginning when you write your criteria, knowing that things will probably get smaller, things will probably get easier. It's also Congresswoman Gifford brought up the idea of sacrifice lands, and I think you ought to take a real

serious look at this and figure out what's a way that we can use these sacrifice lands and get as much power generation out of them as possible instead of using lands that might be more important for habitat.

Finally, -- oh, finally it's red -- one last thing, we also, another reason not to go too far into sensitive lands is that we may actually decide that decentralized is better. And I think we need to allow for that possibility while still doing a good job of getting these things built. So thanks.

MR. AVCI: Thank you, Ms. Sargent. Next we have Sean Sullivan followed by Jerry Estruth and after Jerry we'll have Tim Penny please.

MR. SULLIVAN: Thank you very much. My name is Sean Sullivan and I am representing the Sierra Club.

First off I'd like to say that obviously we are in support of developing clean energy. I don't think I need to go into

the reasons as to why we need to get off the fossil fuels. And we support and commend BLM and DOE for taking the responsibility to be a part of establishing more clean energy development.

We would, however, like to state that sacrificing precious resources in order to develop these new clean energy is not acceptable. There are certain areas that should be excluded from siting, areas such as national monuments, citizens proposed wilderness areas already proposed for protection and pending legislation, wildlife mitigation corridors, critical habitat, etc. We need to make sure that biologically sensitive lands are protected. And we need to make sure that the data layers that are being utilized, and this is part of my question that I was going to have but turned into a comment, you should make all GIS layers excluding site-specific cultural resources and things of that nature that are sensitive immediately

available to the public in raw data so we can see what your criteria is and see if there is any way we can help.

We suggest that development of solar energy utility-scale developments happen on only compatible area, environmentally impaired areas such as transportation corridors, producing oil and gas fields, these areas should be considered first.

We'd also suggest that best management practices be adopted, things such as minimizing disturbance and harassment of wildlife, using existing roads when available. And development should be phased in order to allow time to observe impacts. And this goes into I would like to get on the record and say that we do not support the BLM going back on its commitment to hold off on any new applications. We need to make sure that the policies that will come out of this EIS guide this process. You gave, BLM staff gave many good and valid reasons why that policy was

initially taken. And pressure from industry in our view is not a good case for reversing that policy.

I'd also like to state that you should bring in other planning efforts. You stated you were going to work with the Western Governors' Association. But also there are some instances where BLM land has been identified by local governments as environmentally important. Here in Pima County we have the Sonoran Desert Conservation Plan and there is BLM land that is in or near areas identified as critical landscape linkages. And so it's important to make sure that local communities' conservation plans are respected in this endeavor also.

Thank you very much.

MR. AVCI: Thank you, Mr. Sullivan.

Is Jerry Estruth here? Jerry? Looks like he has left.

Jim Penny? Noel Mayotte? I'm not sure if I'm -- Mayotte, M-A-Y-O-T-T-E? Looks

like they have left as well.

This concludes the list of speakers who had registered to speak. At this time I would like to ask if there is anyone who would like to come forward and provide oral comments? I see one hand there, another here, and three. So let's start with you, sir.

Since we don't have a record of you would you please clearly state your name and your affiliation for the court reporter.

MR. STEVENS: Hi, thank you. My name is Jake Stevens. I work for a company called U.S. Solar. I've been involved in the solar industry on a daily basis for the past couple of years both working with PV and currently focused on CSP solutions. I can recognize the value of both so as I look at these situations I realize that they both have their value in place.

First I would like to commend the BLM on its taking the time to step back and try to develop a process for this. Even

though as a member of the solar industry I know it's somewhat frustrating to have the door closed as it was at one point, I do recognize the value of that. We are very pleased to see, despite the fact that we are not planning heavily to use BLM lands, if at all, for our projects, we were glad to see that that moratorium was repealed. Speaking in terms as a citizen I think the key issue there is really advance notice. And having been given six to nine months those people who had resources in play could plan in advance for that. It seems like it would have been a better policy and something that I personally would still support with some notice to again allow to step back and develop a process as you will be continuing to do.

One comment about that process. I do believe part of the goal I think for everyone is bringing down the cost of solar. One thing that is an invisible cost is the cost of waiting for permanence in processes to

occur. And I would strongly advocate as streamlined as possible of a process. And I'm sure with good considerations and definitions of what will occur in the PEIS that that's possible. It certainly will reduce the, you know, on the order of millions of dollars for projects in potential costs involved.

I do also support consideration of preferring disturbed lands over undisturbed lands. I would also like to make some comments that I believe that for most of our energy use the impacts and the land impacts of those to us as citizens are invisible. We don't see the coal top mountaintop removal mining that happens in West Virginia. We don't, you know, those aren't part of our daily life. And while, you know, 300 or 1,000 acres for a solar field is directly visible, that is the cost of the land forever and it's not an extractive resource that will continue the devastation of land on and on. And I believe that should be taken into account when

considering and weighing out the use of land and what we choose to permit as we're making long-term decisions about our land resources.

Finally, if I have the yellow card, I would also like to suggest that the BLM develop processes. One big concern I think is going to be animal migration paths for projects. And I think that there are designs, facility designs that can accommodate that such as creating gaps in facilities and so forth to permit the passage of animals through the projects. And I would recommend that there be processes by which the BLM can point to those as potential solutions to alleviate environmental issues when projects are being considered.

Finally, a lot is being said about rooftops as a potential alternative to CSP and the land impact and so forth. I think that as I learn more about the energy infrastructure requirements not only is a diversity of solutions required by the reality is is that

even at full-scale deployment for the next 10 or 20 years that the ability of PV to make a dent in the overall picture is fairly limited, particularly without significant investment in storage technologies which we are still pretty early on.

So with all that said, thank you very much, appreciate it.

MR. AVCI: Thank you.

MR. HESS: Good evening. My name is Russ Hess. I originally came out of the Pittsburgh-Cleveland area. And I made some unusual observations this evening driving down here. If you take this area here, this room is what, about 2,500 square feet. Now, Mother Nature poured down upon us today these 2,500 square feet a lot of energy and we wasted all of it, we reflected it back up. Before you start to take your precious land, why don't we utilize the land we've already screwed up?

Why not put these solar collectors or whatever you are going to have on every

roof in Pima County, then if we don't generate enough juice then we might invade your lands. But until we utilize the areas that we've screwed up industrially and otherwise. I participated in some of the copper mine closings. Well, we've got lots of area out there we could put reflectors. So before we start to screw up any more land why don't we do a better job of utilizing the land that we've already screwed up?

And what I mean by that is every rooftop. If you are going to use juice then you've got to put up a reflector and capture some of it yourself.

Thank you and good night.

MS. DUNAY: I'm Deb Dunay. I spoke earlier in regards to regional governments. And here ours is PAG. Many people have mentioned tonight sensitive areas, management plans. My major concern with all these various entities, there has to be some form of local entity that is the umbrella organization

to keep everybody on the same page. And I don't think I adequately expressed that earlier and that's why I stood up again.

So my goal is just to let everybody know that I'm with you, I think this is a great idea. But I do think we do have to have some sort of sense of order. You know, if your regional area government isn't the way you want to go there needs to be some umbrella organization in each area. And I think that the government should be a little bit more proactive. It sounds like Californians, you know, they always sort of jump up there anyway and say, Wait a minute, what are you doing in our backyard? But I think you should be proactive and identify the regional area governments in those six states and basically make it known to them that they could help facilitate this process simultaneously because your schedule would not allow a separate process, review process for them to do this. But they could be working on it simultaneously

during this EIR process to be putting together their own criteria based on their own management plans that they have sensitive areas and doing their own assessments and identification processes so that when this does go through they are on the ground and they're running, there's no lag time.

So it's just from my standpoint a little bit of a coordination issue. So that's basically it. And I wish you well in the process. We need this.

Thank you.

MR. AVCI: Thank you. Is there anybody else?

MR. MAGRUDER: Good evening. My name is Marsh Magruder, I'm from Santa Cruz County. I'm a member of Energy Commission. I'm speaking as an individual today. I have five points I would like to talk about.

The first is we are looking at whole bunch of solar plants over here. They don't work without being able to deliver their

product to customers. They should never be considered as an individual plant. They need to be considered with the wires to deliver them to their customers. That is important. Transmission is not a separate issue, transmission is inherent and is built in through generation.

We had 15 years ago in Arizona some 15 power plants that didn't have wires to connect them to the grid. About the dumbest thing that ever happened. And that's the same thing I see here. Get the transmission with them. As a matter of fact, you should prohibit anyone submitting a power plant suggestion without telling you in explicit terms the ways and routes and right-of-ways required to deliver that product to the customer.

Second point. We have this item Energy Policy Act of 2005, section 221 discussions we're having tonight. I've also been to meetings with section 368. 368 are

utility corridors on federal lands in the western United States. Why do we have two separate sets of processes? Why aren't they integrated? Why aren't they put together? I don't have the answer but I find it sort of conflicting and there should be no conflicts between 368 and 221 utility corridors. Hopefully you are agreeing between the two.

New subject. States and local people have to participate in these types of projects in the environmental impact assessments and environmental impact statement. They should not be done just by the Federal Government. We have in the state of Arizona the Arizona Power Plant and Transmission Line Siting Committee. Both of them are in the same committee. That's important, same committee, because you need to do both at the same time. And unfortunately if they are not cooperating with your NEPA process as they did in a transmission line in my county, we have the Department of Energy

going this way and we have the state going this way, and we have a Mexican standoff.

So it's important that the Game and Fish people, that the Department of Commerce, Energy Department, that the Arizona Department of Environmental Quality, that the Arizona Department of Water Resources be a full, cooperative member in your deliberations.

Next subject is reporting information. Greenhouse gases are critical, there's six of them. Avoidance of greenhouse gases should be part of the criteria in selecting alternatives. And they have to be specific and they have to be long term, cumulative direct and indirect impacts. But along with the reporting you need to also report water. Water in our state and in particular in this county is absolutely critical. Dry cooling is the only acceptable solution in certain parts of this country. Wet cooling will not work.

The last point, which is very

short, and that is consider cost -- excuse me, consider the cost of renting that land to somebody else such as the power plant. they should pay what they would pay to rent the same land from a private entity because our land is our land and we should at least charge a reasonable amount.

Thank you very much.

MR. DOWNING: Yes. I'm Ted Downing. A lot of you know me from being your state representative for a little while. And I'm glad to be here tonight. I have a background in power in an interesting way, I have 30 years of working for the World Bank and other Development Banks on power development around the world, and it's something to be in a country like Uganda where only 5 percent of the population has electricity, which is where I just came from, so you understand.

Very quickly some major points if I can. And that was referring to the 15

terrawatts of demand that's right now being used in the world. And solar within that perspective I think we all know is very small and for the foreseeable future will, unfortunately, remain small. Key points:

First is GIS transparency. I want to underline that point made earlier. I think all the criteria should come up as quickly as possible.

Number two, best management practices. I would extend that to say that I would hope to come out of the process would be some contractually-mandated agreements that if you want to develop power on BLM land these are the criteria, these are the conditions you come under. And that's part of it.

Number three, speed is important, there's an opportunity cost that's going along with delay, and I support that.

And number four, I think that as you do your modeling and assumptions we have to look to the fact that the oil industry is

receiving an estimated $250 billion in preferential treatment per year. And that's, if you want to know that's out of "The Economist" this recent issue. So with that kind of a preferential treatment I think that we can anticipate that a new administration which may come in will have a different idea about preferential treatment in terms of solar. So loosen up, relax, you know, chill out as somebody said, as you perform those assumptions.

Finally, I want to thank you for coming tonight. I want you to know that this is the state there's a new, there was a mandate earlier nationally in education which I'm not going to repeat it's name, but this is a state where we feel that no proton should be left behind.

Thank you.

MR. RICHARDS: Good evening, my name is Robbie Richards. I the owner of a company called Copernicus Energy. I am

actively developing renewable energy power plants in several western states. I had three comments I'd like to make tonight.

The first is I would like to most humbly ask and suggest that you as leaders of the BLM and DOE and NREL and Argonne as leaders I would like to suggest that you take back to your office the mandate that 100 percent of the energy that you are using in your offices comes from renewable technology. I'm assuming that we taxpayers give you a reasonably comfortable office to work in with some heating and some cooling and some lights. And I think it is prudent that our tax dollars go to support the very thing that we are here to talk about, and that is to support renewable energy.

The biggest problem I see in my personal opinion is not the technology. There's people from Europe, there's people like myself, there's all kind of technology out there. The problem for somebody like me

is getting the power to the end users. I have a very difficult time working with utilities trying to get my power that I produce to the end consumer.

As many of you might now know, we passed the Public Utility Regulatory Policy Act in 1978, 30 years ago, that says if we build this power plant the utility must allow us to connect into their grid and they must buy our power. However, many of you might not know if we build many of these types of technologies, these installations in some states, they don't have to buy our power. And most recently and just a few years ago the PURPA has been watered down in some states that requires co-generation and thermal capacity calculations that says I have to utilize for my own processes 50 percent or more of the heat that I produce in these power plants. And the laws are being bantered about that are very, very important to this.

So one part of the issue is what

we're talking about is where do we put them? As Marshall said, really the most critical issue is how do we get this power to the people that need it?

And I also challenge the individuals here that there are many, many people like me and this gentleman from Europe and many, many other people, and I'm an unabashed eco-capitalist. I believe in our democratic free enterprise system. And I will build you as many power plants as you want using renewable energy, but the difficulty is getting the support. And I need support from you folks to demand your utilities buy my renewable power. I need you to write letters to your political leaders and demand that they do not water down the PURPA legislation and the various legal mechanisms that were passed decades ago when I was a little boy in the last energy crisis. We tried to address this 30 years ago and here we are 30 years later and we're still just barely getting started to

address this problem.

So I challenge each of you not only in coming to these meetings, that's important, but also we need your help, the people that are developing these projects needs as much help as we can get. And I would like to ask you to please write letters, write to the paper, write to the utility, anybody you can think of to demand renewable energy. This is what you demand, not what you want.

Thank you very much.

MR. LANDIS: Hi. My name is Josh Landis. I am a contributor to evworld.com. I also would say I manage an industrial index in global new energy so I have some affiliation with or connection to some of the companies making permit applications.

Really I just wrote down a bunch of ad hoc points. I will try to deliver them succinctly.

We haven't heard too much about the income that you might expect from leasing some

of this land. I think that was a good point that was made by Marshall to get some decent money for it.

There were some good points made about the jobs that would ensue from some of these projects. I think that's also very important to keep in mind.?

I have a question. In some of the news reports somebody said something about a concern about returning some of this land back to its pristine state in 20 or 30 years. I assume we all understand that these projects are going to be around a lot longer than that.

If you need more money from us should we pressure our congressional representatives to increase your budget or something like that? If some of the hold-up is simply that then say so. If that would be an efficient use of our taxpayer funds I would love to support it.

It was a good point made about the cost of waiting. I think that's -- I think

for those of us imbued with a sense of extreme urgency about building out solar energy, whether on our rooftops or on large 10-megawatt-plus utility-size projects it's a little frustrating to even contemplate waiting a couple of years for a permit.

And I guess that's it. thank you.

MR. AVCI: Thank you. Is there anybody else who has not spoken so far but would like to speak now? Yes.

MS. WARREN: My name is Barbara Warren. I'm a local citizen and a member of some of the organizations that are represented here, Sierra Club, the American Solar Energy Society. I just wanted to reiterate and magnify the comments made about water in this area. This is another very precious resource that needs to be addressed that's rapidly disappearing and it's very critical that we consider and weigh the use of water for each of the technologies and make that information available. There's a question I wanted to

ask. A comparative analysis of how much water is required for use and transportation of water in developing these particularly concentrating solar power projects? This is very critical and must be weighed in and considered in terms of what's allowed to be produced on federal land.

Thank you.

MR. AVCI: Anybody else who has not spoken so far?

(No response.)

MR. AVCI: Okay. I see that some of you who have spoken would like to add to your comments. And I will start with Ms. Harte I believe. So please. Again state your name and affiliation.

MS. HARTE: Vivian Harte, Chair of the Arizona Solar Energy Association.

Last time I talked about the socioeconomic impacts. And I just wanted to mention a little bit about the impacts on wildlife and vegetation.

In Arizona -- well, this information by the way I got from Dan Lonetti who is with the Arizona Public Service, which is APS, in Phoenix. He's one of our board members. Evidently with the Saguaro solar plant which is in Red Rock which is northeast of here. You go up towards Phoenix. It's a concentrating solar power plant. And they've scraped all the plants out. And they have to do that because, number one, there is a lot of heat involved and, number two, there is a lot of maintenance, much more maintenance than with PVs.

With PVs what happens is in Springerville, Arizona, which is in the northeast part of the state we have a large PV plant there, the grasses are growing better and the animals are flourishing there. So it is actually a positive impact because of the shade that's there.

One other little story I heard was that the cows were coming over and scratching

themselves on the photovoltaic cells so they had to put a fence around them to protect them.

I wanted to mention, my husband and I live in two different homes so for you to understand this he has photovoltaics on his roof. And his photovoltaics are 35 to 40 years old. He's an electrical engineer. And they are running fine. They have degraded over the years but they are running fine. They run basically almost his whole home. And he doesn't know when they will ever stop working.

One other thing, and that is the question about airplanes going overhead. I understand that what happens is that the pilots see it's like a lake, like a body of water when they see concentrating solar. So because the sunlight is not going straight up it doesn't hurt their eyes.

Thank you.

Mr. PATTERSON: Thank you very much

and appreciate everyone sticking around. I only have two other brief comments that I wanted to add. I ran out of time earlier. I am Daniel Patterson, ecologist and Southwest Director of Public Employees for Environmental Responsibility.

Specifically in developing what I think should be the additional alternative that I think will be required to meet the reasonable range of alternatives mandate set out by NEPA there should be an analysis to look at available private lands for this type of development, specifically old retired ag lands that could be more suitable for this type of development. One of the reasons I think Arizona Public Service which has been getting quite a bit of good press lately for their idea of building a large facility out by Gila Bend, I think one of the reasons they're getting such broad support is they have actually purchased private lands and old ag. and looking at putting that in, which

basically eliminates the habitat loss concern. So take a look at what's available there for private lands.

And finally, in doing the cumulative global warming analysis on this which I think really should be a part of the EIS. What are we talking about? How much can this actually help us solve these big problems with global warming and related climate change?

It's important to consider, and I would hope this would be a part of the analysis, that are we talking about cutting emissions or are we talking about just reducing additional new emissions? Because just because a large solar plant is built in a place like Arizona does not mean that a coal plant is going to be taken offline somewhere else. It doesn't mean that a natural gas plant is going to be taken offline somewhere else. And so that should really be a part of the big picture: how much can we really cut

our emissions versus is this just reducing additional emissions? And that would be I think a critical piece to look at. Of course my hope would be that we could, if one of these facilities were built then somewhere else, then we could take more polluting facilities offline. I think that's the only way we're going to get ahead.

Thank you.

MR. MAGRUDER: Thank you again. My name is Marsh Magruder from Tubac, Arizona.

One thing I didn't talk about last time I was up here was utilities. They are absolutely against anything that impacts their present way of operation. Granted, they will like a power plant because they can't understand or even consider distributed generation. Distributed generation makes a stronger grid. Distributed generation restores voltage stability. Distributed generation is a better way to receive electricity because there is less transmission

loss, energy loss, especially if it's on the roof to the house, the loss is nothing. But if it's 1,000 miles away or 200 miles away, like in my case it's 15.96 percent. So almost 116 watts are required for me to receive 100.

So looking at the distance for those transmission lines is very important. The utilities get paid return on investment. They want to invest as much as possible so they can get a higher return. They have no cost incentive. They don't -- they, well, I listened to them at the Arizona Corporation Commission, they have a big issue, they don't have incentives. I'll give you an example.

They have a demand-side management program for shade trees. Who can object to a shade tree? That's going to reduce energy consumption in your house. They'll give you a $30 coupon to go buy a tree. But you have to submit a diagram of your house before you can get the coupon, tell them on the east south of the west side of the house within 15 feet

where it's going to be planted. They then will mail you the coupon. And then 30 percent die, but assuming that it lives they come out and inspect your house. It costs $65 for them to give you a $30 coupon.

Now, I'm not against trees. In fact, I think trees are very important. But this is not a cost-effective program. And they tout it and they think it's the greatest thing going. And it's not cost effective. And the public doesn't know this. They get the coupons and they're happy. They think the trees are great.

So we need to get through the facade that the utility companies put out--which is mostly for their bottom line and not the bottom line for the environment. The bottom line for them is for their shareholders. Second in that line is maybe the rate payers because they are beat on enough by the Utility Commission. And the environment doesn't count. So you really need

to watch the utility companies because I don't consider them as honest as they could be.

I tried to connect a solar system in my county four years ago. Six months of trying to figure out how to plug it in. I canceled the contract because they didn't know how to plug it in. I don't think they didn't know how to plug it in, I don't think they wanted to plug it in. And that's the problem with the utility companies, they don't want this, but the great majority of the people in the United States, as you've heard tonight, no one is opposed to solar power.

Thank you very much.

MR. AVCI: Thank you. Is there anybody else who would like to add to his or her previous comments? I saw a pair of hands. Would you come to the podium, please. And state your name and affiliation.

MR. MARCOTTE: Hello. My name is Bruce Marcotte. I don't represent anybody but myself.

Here you're talking about federally managed federal lands, public lands. There's another group of lands we have called military bases and oftentimes they will encompass thousands of square acres of land that are just fenced in and do nothing.

So let's examine the prospect of using military bases that are located throughout the country, close to cities and close to the power grid where we could set up all sorts of solar energy collection and generation systems.

Thank you.

MR. SCHWARTZCHILD: Hello, Arthur Schwartzchild again. I'm a Tucsonan.

So my understanding is that we have an impact statement where which is part of the program of getting the applications in and that there is going to be very little assessment of the environmental impact from individual applications. And the exchange between a former legislator and one of the

panelists supports that notion when you talked about reducing the redundancy. I know it wasn't meant in this way but it kind of sounds like if you don't have the applications being available to the public then maybe that will affect the comments. And I can't see how, and I don't mean to be unfair, I can't see how the comments won't be better if we have the applications.

And so I kind of object to this whole sense of it being legitimate to have an environmental impact statement. And even in the discussion before when I got here accidentally an hour early the "P" was kind of left out in terms of, well, this is an environmental impact statement. I think the "P" kind of makes it into an anti-environmental impact activity because we think we've done it and we don't have to do it when the applications come in. So I would very much think that it's much too vague.

I mean what do these different

applications have in comment? I don't think there's anything legitimately in common in between them. And so I criticize the program by being too vague. I mean, yes, it uses the public lands. Yes, it has a right-of-way component. But there's been comments about water. And so you have a right-of-way to the pumping of the water out of the ground, as a well? I think the right-of-way expression is a problem too.

I would very much, you know, like to have the applications be given public review. You have a fiduciary responsibility here. I think your fiduciary responsibility is to recognize that you can charge less than anybody else for what you're providing and, therefore, you can be an agent of great catalytic impact.

Thank you very much.

MR. AVCI: Thank you. Is there anybody else? Going once.

(No response.)

MR. AVCI: Thank you all for coming tonight. Special thanks to those of you who provided comments.

Just a reminder that the comment period for the PEIS runs through July 15. If during this time you should have additional comments or if you decide to make comments for the first time you can send in written comments by mail to the address that was shown earlier or provide your comments on the web at solareis.anl.gov.

I wish you have a safe trip back home or wherever your destination might be. It is now 8:47 by my watch and this meeting is officially adjourned.

(Whereupon, at 8:47 p.m., the meeting in the above-entitled matter was concluded.)