Transcript

Solar Energy Development Programmatic EIS Scoping Meeting held in Albuquerque NM, June 26, 2008

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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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6:30 p.m.

Thursday,
June 26, 2008

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Santa Fe Room, 6th Floor
Drury Inn and Suites Albuquerque
4310 The 25 Way, Northeast
Albuquerque, New Mexico

KAREN SMITH, Project Manager, ANL, Facilitator

ALSO PRESENT:

DOUG DAHLE, Senior Program Manager, NREL
TOM GOW, Manager, Rio Puerco Field Office, BLM
DEBBY LUCERO, New Mexico State Office, BLM
BRAD RING, Golden Field Office, DOE

I N D E X

P R O C E E D I N G S

MS. SMITH: Hello. We're going to get started now, and I -- my name's Karen Smith. I'm with Argonne National Laboratory, and Argonne has been hired by DOE and BLM to help them prepare this programmatic environmental impact statement on solar energy development.

Welcome to our eighth scoping meeting of eleven. We've been making a good tour of the Southwest. I want to apologize. I understand there was some confusion about the start time, and so thank you for coming and hanging in there for a half hour.

Also, the restrooms are not easy to find, so if you need to, that's out the door to the left.

All right. So this evening, we're going to have a series of presentations for you, and then we're going to get into the comment period, which is probably what's of greatest interest to you folks.

Our first speaker is Tom Gow. He is the field office manager for BLM's Rio Puerco Field Office here in New Mexico.

MR. GOW: Good evening. As Karen just mentioned, my name is Tommy Gow, Tom Gow, Thomas Gow. I'll answer to all of them.

Again, I am the Rio Puerco field manager here in Albuquerque for Bureau of Land Management, and I want to thank you for being here and sharing this time with us, because time is precious to you, and to everybody else that I know. So again, thank you for being here.

And give us some good comments regarding the solar energy development programmatic environmental impact statement, and we will listen very intently. So again, thank you for being here.

MS. SMITH: Thank you, Tom.

And the next speaker I'm going to introduce is Brad Ring. He is a project manager with DOE, Department of Energy's

office in Golden, Colorado.

MR. RING: Hello, and thank you for coming tonight and being a part of this process. I want to take just a few minutes, and go over the DOE's goals and objectives.

The DOE goals are to add energy supply from diverse sources, and specifically, we're looking at renewable energy sources. These would be used to improve the quality of the environment by reducing greenhouse gases and environmental impacts. The other part of this is improvement in our national security for secure, sustainable, emission-free domestic energy.

The solar program for this year has a budget of approximately $170 million; 152 of that goes to research and development. The research and development budget is broken into two technologies. One of them is Photovoltaics, which has about a $126 million budget, and Concentrating Solar Power, which has the remainder, 26 million.

Market transformation activities account for 18 million of our budget, which is used to fund this programmatic environmental impact study, and the Solar America Initiatives for Photovoltaics and Water Heating Activities. These activities include the 25 Solar America cities, development of codes and standards, Solar America Showcases, training activities, and the Solar Decathlon.

The DOE solar program supports cost-competitive solar energy systems, and how we evaluate cost competitiveness is based on a levelized cost of energy. That's the total cost associated with a system. It comes down to cents per kilowatt hour, installation, operation and maintenance, all that goes into the overall cost.

We break our solar program into two different technologies. There's various sub-tiers within those technologies, but it's photovoltaics and concentrating solar power.

Most people are familiar with

photovoltaics, which is the direct conversion of solar energy into electricity. The other is concentrating solar power, which focuses the solar radiation onto a receiver, which heats a fluid, which can drive an engine, specifically an engine by itself, or, more routinely, in a steam turbine cycle.

PV has made significant strides in approving their technologies, but at this point, it's still considered costly. It's more focused to distributed generation for homes and businesses, while CSP, or Concentrating Solar Power, is tending to go toward the central generation, or utility scale-type projects.

DOE is collating the preparation of this programmatic EIS really to support utility scale projects, and those are projects that will provide power for thousands of homes. To do this, though, requires intense solar radiation, and the six states that are a part of this programmatic environmental impact

statement have the best solar resources in the United States.

To get this kind of power, though, with this type of technology, generally it takes about five acres per megawatt. So you can see a 250-megawatt facility would take approximately two square miles. This, coupled with BLM's managing approximately 119 million acres within these six states, makes a very good fit.

The results we expect from this programmatic EIS are: the identification of land that is appropriate for solar deployment, both from a technical standpoint, and an environmentally sound standpoint. We expect to establish policies that would apply to solar energy projects, which include best management practices.

These practices would identify important or sensitive, unique habitats in the vicinity of the projects and, to the extent feasible, design the projects to minimize or

mitigate impacts of these habitats. Additionally, each project would have its own individual environmental analysis tiered with the programmatic environmental impact statement, and what we want to get here is responsible energy generation.

Additionally, we're expecting more accurate modeling for predicting solar energy development for power, the creation of jobs, and the mitigation of climate change. Thank you.

MS. SMITH: Thank you, Brad.

The next speaker is Debby Lucero. She is a land realty specialist with BLM's New Mexico state office.

MS. LUCERO: Thank you. Okay. I'll be talking briefly about BLM's role and interest in the solar energy development program. The Bureau of Land Management is an agency within the Department of Interior that manages 258 million surface acres of public land. About 46 percent of those lands, over

119 million acres, are located within the six-state study area of the solar energy programmatic EIS. About 13.3 of those million acres are in New Mexico.

The BLM multiples-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of future and present generations. The Bureau accomplishes this by managing such activities as outdoor recreation, mineral development, livestock grazing and energy production, and by conserving natural, historical and cultural resources on the public lands. Solar energy is one of the many energy resources now being developed or considered on public lands.

To ensure the best management, the best balance of uses and research protections of America's public lands, the BLM undertakes extensive land use planning through a collaborative approach with local, state and tribal governments, the public, and stakeholder groups. The result is a set of

land use plans that provides a 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.

Executive Order 13212 directs federal agencies to expedite their actions as necessary to accelerate completion of energy-related projects, and the Energy Policy Act of 2005 sets a goal for BLM to approve 10,000 megawatts of non-hydro-power renewable energy on the public lands by 2015. As I mentioned, BLM must manage public lands for a variety of resource uses, including energy production. The federal energy mix managed by BLM already includes oil and gas, helium, geothermal, coal, wind and biomass and, soon, utility scale solar.

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

projects on public lands are authorized by BLM as rights of ways in accordance with the requirements of the Federal Land Policy and Management Act of 1976. All activities proposed on public lands 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 impacts of such development, and must consider other resource values, sensitive areas and public concerns completed through a National Environmental Policy Act process. To date, the BLM has received more than 130 applications for solar energy projects, mainly in southern California, Nevada and Arizona.

Although this meeting is not about specific projects, you will have an opportunity to comment on those projects as they are processed. Solar applications which have already been filed with BLM will be

processed on a case-by-case basis through a site-specific NEPA process. These pending applications will move forward on a parallel process with the programmatic EIS, but new applications will be deferred until completion of the programmatic EIS.

Under BLM's current solar energy policy, applications are processed on a first-come-first-served basis, each with its own site-specific NEPA process. BLM believes that, by looking programmatically at the issues associated with solar energy development, we will be able to develop 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 best suited to solar energy development, mitigation strategies, and best management practices to guide future solar energy development, and possible additional transmission corridors needed to specifically

facilitate solar energy development.

BLM believes that this programmatic EIS will be key in advancing the understandings 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.

BLM expects to amend land use plans in the six-state area to adopt the solar energy decisions made as the result of the programmatic EIS. These meetings are an important part of BLM planning process, as well as the NEPA process. We included proposed planning criteria in the *Federal Register* notice published on May 29, and we are asking for your comments on those criteria during the scoping process. Thank you.

MS. SMITH: Thank you, Debby.

Before I introduce our next speaker, I was made aware that we have some

representatives from the New Mexico state government. In particular, I understand the director of the surface resource management division of the New Mexico state land office is here, Brian Bingham.

I wanted to welcome you, Brian.

MR. BINGHAM: Well, thank you.

MS. SMITH: And I think some staff are with you.

And I didn't know if there was anybody else from the state government that we should be extending a welcome to.

PARTICIPANT: Kathy McCoy.

MR. BINGHAM: Kathy McCoy.

MS. SMITH: Kathy McCoy?

And you're with the State Legislature?

REP. McCOY: I am in the House of Representatives.

MS. SMITH: House of Representatives. Well, welcome. And we're very happy to have you here along with the

members of the public.

Our next speaker is Doug Dahle. He's with the National Renewable Energy Laboratory in Golden, Colorado. He's a senior project manager there.

NREL has been also brought on board by DOE and BLM to provide technical assistance to the solar EIS because of their expertise with respect to solar energy resources, and solar energy technologies. So Doug will be providing a presentation on those things. NREL also prepared the posters that are over here that provide a lot of detailed information, as well.

MR. DAHLE: Thank you, Karen.

Thank you for coming this evening. And it's a pleasure to be partnering with BLM and Department of Energy and Argonne again. We were fortunate to be involved in the wind programmatic EIS that was done a few years ago.

I'm going to provide basically an

overview of the technologies. I'm not going to get into the real details, but basically, a good understanding of the technologies that will be considered in the analysis and study area.

I'm going to give you a little bit of background on the geographical information resource, the solar resource itself, which is a sort of a foundation of how we do analysis of high potential sites in the study area, and then a couple of slides on federal policies that are going to have a significant impact on the facilitation and acceleration of deployment purely from an economic perspective.

Next slide. Basically, this is sort of the mix of solar technologies. Up in the upper left is something that has actually been commercialized.

You might have seen this similar plant on Brad's slide. This is a parabolic linear focusing solar technology. The mirrors

are in the shape of a parabola. The sun hits it, focuses on a tube about this big. The evacuated tube heats the thermal fluid. It's run through a heat exchanger, generates steam, and drives a conventional steam turbine. So this is a thermal electric process.

The one on the middle, this one here, is also a linear-focused technology, called a linear Fresnel lens. Instead of the parabola, they're a little flatter. In the parabolic trough, the actual tube and the mirror move. In this particular one, the tube is fixed. It's basically filled with water, and generates high-pressure steam, and the mirrors focus, moving from east to west, through the day.

The third one on the top is also a thermal electric system. It's called the Power Tower. Here, hundreds and hundreds of what's called heliostats -- these are like eight, maybe ten foot, on a side, flat mirrors. They track the sun to axis, and

focus all their energy - point-focus it - on this tower.

The other one that also is a point-focusing is the fourth one there on the top. It's called a dish Stirling engine. It's a concave mirror, very -- it's like 80 facets of mirror, focusing on about a six-foot-inch diameter area. It heats hydrogen, and runs a Stirling engine. It's a little bit -- it's different than your internal combustion engine, but basically, it generates piston movement, which drives a generator. So it's direct power. This is the only one that is -- it's thermal electric, per se, but it does not run a steam turbine.

The last two, in the upper left, is -- the second one on the top is called concentrating photovoltaics. And here, using a lot less solar cells, it -- and we'll talk about those a little bit more, but basically, it focuses energy onto small material, and generates a huge amount of power. And then

the lower right is the conventional photovoltaics.

All these technologies, in the course of this study, is really focused on utility scale. This is not the PV that might be showing up on a roof, which is called distributive generation. This is utility scale power.

Next slide. This is another view of the parabolic trough. This is one in Kramer Junction in the Mojave Desert. It's a 150-megawatt plant, and it covers about two square miles, and delivers power to Southern California Edison.

Here's another picture of the Power Tower, and one of the things that we'll talk about is the fact that, although we have PV and concentrating solar power, there are sort of two categories of that, as well. One is called dispatchable, and the other is non-dispatchable. What that means is - and I'll give you the example here - is the central

receiver on this Power Tower uses a molten salt, which is a storage medium, for thermal energy.

This particular plant, in the early '90s, had the amazing performance such that they had several days of extremely high solar radiation, stored the energy, and even were able to drive the electric generators 24 hours a day for about five days, until the clouds came in, and there just wasn't enough energy to continue to restore the thermal storage system.

The next slide kind of shows you, why is that important, particularly to the investor-owned utility that provides power. Anyway, what this is -- the red line there basically shows a typical system peak of a utility company. And interestingly enough, very common, particularly in southern California - I'm aware that Public Service of New Mexico goes through the same thing - is the peaks tend to not necessarily be

coincident with the highest solar radiation.

Yes, it peaks in the summer time with a lot of air conditioning, but there's almost commonly, across the country, that there's peaks in the morning, residential, as well as the commercial coming online, and there's also peaks after the sun has peaked.

So this is the real value of dispatchable power is that you can actually store the thermal energy, and deliver power generation beyond that peak of the sun. Dispatchable power is really the attraction, and I don't know if the Lordsburg or the Las Cruces plants that are proposed here will be using thermal storage.

So let's go to the next slide. This is the concentrating solar power we just talked about, the dish Stirling. A lot of testing has gone on at Sandia here, in Albuquerque, with this particular technology, working on the Stirling engine, refining that, refining the mirrors. Just last year, they

hit the all-time high efficiency of this system of about 38 percent, which is remarkable for the technology.

And there is a huge project in California, about 1,000 megawatts delivered to Southern California Edison and SDG&E, and this particular technology's going to be used. Each of these systems is 25 kilowatts of power. So there'll be thousands of them deployed in the Mojave and the Imperial Valley.

The next sort of concentrating solar power is concentrating photovoltaics. Basically, these mirrors -- at the point of that mirror, instead of a Stirling engine, is actually photovoltaic cells.

And let's go onto the next slide, and I'll show you there's various versions of that. One is the reflector that you just saw. What the effect of this is is it creates, believe it or not, 500 suns on this PV cell. 500 suns. What's the value of that? The idea

is you get the same amount of power of a small amount of photovoltaic cells, which is the most expensive part of photovoltaics is the cells themselves.

The same thing shows up in this, what's called refractive, and there's -- some actually were deployed at Arizona, servicing Arizona Public Service. It's the same situation. It's a little bit different than reflective; it's refractive, kind of like the lens on a fluorescent, if you've ever seen it. It's sort of a diamond shape.

That's refracting the light from the -- this is the opposite; it's refracting it in to focus on solar cells. Again, the same principle is you don't have to use as much very-high-cost solar cells to generate a large amount of power.

And then a newer technology, probably a little farther from commercial. It's called reflective and optical rod. Same principle. They generate the equivalent of

500 suns on this small amount of photovoltaic material.

Let's talk about the resource for a second. This is a map that actually shows the solar radiation. It's called direct normal. It's a component of the sunlight that you see out there, and this is mapped exactly over the BLM lands that you saw in an earlier slide.

And what we're using in the study is kilowatt-hours per meter square per day as sort of the unit of translating that sunlight into power. We're going to be using a minimum of five kilowatt-hours per meter square per day.

Just a comment right now related to that is that Lordsburg and other projects that are going on, they're going after the higher solar radiation, six and higher, typically. But in a 20-year study period, we thought, let's lower it down, because the technology in 20 years may have advanced so that a lower solar resource might be very effective.

The idea here is to use this as the first layer over the lands, and then we overlay transmission, we overlay sensitive areas, and exclude lands, things like that. And then another one, particularly for concentrating solar power, the trough systems, is slope. You need flat land for those large trough systems.

Next slide. The other technology you've provably more commonly seen, again, this is utility scale stuff, is photovoltaics, flat panels. The one on the left is the Nellis Air Force Base. It was installed just last year. It's 14.2 megawatts. That is the largest plant in the United States of photovoltaics.

This particular technology is mounted on poles, and it's a single axis. So they're set at equal to azimuth, and that's sort of the trick of photovoltaics. You want to have it based on your latitude at a certain angle so that it maximizes the sun, and these

things actually track east to west to increase the power of production.

So this is the largest one in the U.S. And it's -- one that you saw here was 960 acres. That's approaching a 100-megawatt plant if it were developed here in New Mexico.

Just another one for the utility scale is the one -- the former record holder in the world was this flat-plate fixed panel. They're not tilting or tracking the sun; they're just set to an angle that matches their latitude. And this is an 11-megawatt plant.

One of the things that is an attraction of the photovoltaics, as you can see, they're all pole-mounted or rack-mounted, so there's less disturbance necessary in terms of the land.

Next slide. The solar resource for photovoltaics is a little bit different. It's called global solar resource. The one we looked at before was called direct normal. So

it hits mirrors and reflects under the tube exactly.

It's the -- normal being 90 degrees to the surface, global is about 80 percent of that direct normal, and it includes all the scattered light, hitting clouds, the atmosphere, or whatever. So it takes -- global is direct normal plus all the scattered light, and the photovoltaic cells can absorb that energy.

Last one is just sort of the policy analysis. It has a lot to do with the economics in the deployment of solar technology. What this is showing is, on the left-hand side -- Brad talked about the levelized cost of energy is basically taking the capital costs, the permitting, hooking up to transmission, operating costs over maybe 25 or 30 years. And the levelized cost of energy is, what does it produce per kilowatt hour. That's what that term means.

Without the tax credit on the left,

you're looking at 15, 16 cents per kilowatt hour. That's pretty high, even in some of the areas like southern California, where it's 12 cents typically now.

The effect of a 30-percent investment tax credit that is set to expire at the end of this calendar year has the effect of reducing that levelized cost because of a tax credit available to the public's -- to the private sector owner of about 20 percent. So that same plant, with the federal tax credit, is going to be producing 12-, 13-, 14-cent power, which is getting pretty close to competitive today.

Here's sort of the impact of that. We have a model that will be used actually in the study. It's a linear model that has hundreds of variables, and it looks at like 350 different regions within the country having to do with utility systems, grids, where there's capacity, where there's fossil plants already tying up the lines, and things

like that.

And what this is trying to project is where -- what's the potential of solar to fit into the inner tie and the grid system in the country. Without the solar investment tax credit, we're guesstimating -- this has been run numerous times, numerous times, a lot of different assumptions -- is maybe six gigawatts, which is 6,000 megawatts, in the next 20 years.

I'll show you, the effect with the next slide is that if the investment tax credit is extended -- and it's been talked about, and has not been successful after three tries, extending it another eight years, the effect of that solar investment tax credit, we believe, would generate more like 40,000 megawatts instead of the six. So it's just a financial policy issue that we -- that has huge impact on the potential deployment of solar energy. That's all I've got.

MS. SMITH: Thank you, Doug.

Okay. So now you've heard from both DOE and BLM; they've provided their perspective on their goals and objectives for preparing the programmatic EIS, and you've heard a bit from NREL about the solar energy resources in the six-state study area that the agencies are looking at, as well as the types of technologies that are likely to be commercially viable over a 20-year planning horizon, which is also the time line that -- the time frame that the agencies are looking at.

So now I'm going to run through a set of slides. I want to make sure everybody here has a common understanding of the process that the agencies are embarking on, and inviting you to participate in.

Under the National Environmental Policy Act, the agencies are preparing an environmental impact statement. So we're going to go through a little bit of the terminology now. I'll try to keep it quick.

What is an EIS? Well, an EIS is a document that agencies prepare when they're proposing to undertake an action that might have potential significant impacts, environmental impacts, or socioeconomic impacts.

And in this document, they need to describe to the public what the proposed action is, they need to explain to the public what the purpose and need for the proposed action is, and then they need to assess the potential environmental and socioeconomic impacts of that action, and then begin to address ways in which those impacts potentially could be mitigated. They also have to identify reasonable alternatives to their proposed action, and analyze those alternatives, as well.

An EIS has to look at short-term and long-term impacts, cumulative impacts, as well as commitments of resources that might occur as a result of the activities. And

then, significantly, the agency needs to get input from the public, the stakeholders that are potentially impacted by the proposed action, and reflect how that input is incorporated into their analysis.

So why are the agencies preparing this EIS? NEPA requires that, if an agency is contemplating a major action that potentially could have impacts on the quality of the human environment, that they have to prepare an EIS. And both DOE and BLM are contemplating developing programs that are going to guide their decisions about solar energy development across the six-state area over a 20-year period, and so both agencies have determined that that constitutes a major federal action, so an EIS is required.

Now, we refer to this as a programmatic EIS, and that is distinct from a regular EIS. In a regular EIS, typically the proposed action is a very specific project, and you know where the project is being

proposed, you know what all the components of that project are, and you can assess that very clearly and specifically.

We don't have individual projects to assess under this programmatic EIS; instead, we're assessing the development of two broad, overarching programs that are going to guide decision making. So as a result, we're not looking at individual locations or individual projects, but we are looking at the components that constitute solar energy development.

We're going to look in general terms at high-level, what are the potential impacts that those technology components might incur, and then also, at the same general level, what are the ways you might potentially mitigate those impacts. So that's how a programmatic EIS is distinct from other EIS's, and that sets the context for what we're doing, what we're kicking off, here.

So we're in the scoping phase.

What is scoping? Scoping is the first phase of a programmatic -- of an EIS in which the public is invited to get involved. And it's the phase in which the agencies are seeking input from its stakeholders regarding the types of items that are listed here.

They are looking for input on their proposed action. They're looking for input on the alternatives to that proposed action they should consider. They want to know what you think the significant issues are. So what are the significant impact issues of concern, or the significant resources in the study area that you're concerned about, and want to be sure are assessed?

They also would like input on possible mitigation measures. If you have access to data, if you have generated data that you think are relevant to the EIS analysis, they would like to have that data shared with them so it can be factored into the study.

And importantly, they're seeking input on who is interested in the action, who the stakeholders are, and what the stakeholders' concerns are. That's the whole goal of scoping.

We've talked a lot about the proposed action and alternatives. So I'll give you a little overview of what the agencies preliminarily have defined as their proposed action and the alternatives.

Now, under NEPA, you're always required to -- agencies are always required to look at the alternatives of taking no action at all, of not doing what they're proposing to do. And that's called the no action alternative, and so this document will include a no action alternative analysis.

And maybe the best way to understand what no action is is to talk about what they are actually proposing to do. You've heard references to it, and this information, by the way, comes from the notice

of intent that was published on May 29.

So what the agencies are proposing is for each of them to develop their own program that will guide their decisions about solar energy development in the six-state study area over a 20-year period. And these programs are going to consist of policies and mitigation strategies that would potentially be applicable to solar energy projects.

So for DOE, this policy - set of policies and mitigation strategies - would apply to projects, solar energy projects, that receive funding from the DOE. So these could be projects that are on BLM-administered lands, but projects that are located elsewhere, on other federal agency lands, state lands, private or tribal lands.

So it's any project, essentially, at a utility scale that would receive funding from DOE would potentially be covered by this program they're proposing to develop.

On the other hand, what BLM is

looking at is establishing a program that would guide their decisions, specifically about solar energy development that might occur on lands they administer. And as part of the proposed action, BLM would amend land use plans throughout the six-state study area to adopt this new program so it can be implemented.

So that's the proposed action. So stepping back, no action, essentially, would be the agencies do not develop these new programs, they do not implement overarching guidance, and instead, they continue to evaluate solar energy development projects on a case-by-case basis as they currently do. And then in the case of BLM, that's subject to their current solar energy development policy.

Now, at this time, preliminarily, BLM has determined or identified a third alternative for analysis. It applies only to BLM. And at this state, DOE has not established or identified a third alternative.

So under BLM's third alternative, they're calling it a limited development alternative, and under this, BLM would limit development to those solar energy projects for which they currently have applications awaiting approval, and which BLM determines have complete plans of operation.

So you can see this is a much smaller universe of development; that's why it's called the limited development alternative. It would be far less development than could occur under either the proposed action, or the no action alternative.

So there are a number of opportunities throughout the life of an EIS in which the public can get involved. We're in scoping, the first opportunity for your involvement; it began on May 29, and it's going to extend through July 15.

And then, in about a year, the agencies anticipate releasing a draft EIS, which the public will get to review and

comment on, and then a year after that, preliminarily anticipated in the spring of 2010, a final EIS would be published.

I want to let you know about a website we've developed. It's a public information center, and the address is here on the slide. If you haven't had a chance to look at the website, I encourage you to do so.

There's a lot of good information available on the EIS, this specific one, and EIS processes in general, as well as information about solar energy resources and technologies, and we have project-specific documents that are available there.

The notice of intent is posted on this site. The slides we're presenting at scoping meetings, the posters that NREL has prepared, those are all available to download. And as the project moves forward, and new documents are generated, they will also be distributed over the website.

And important to this phase,

there's an online comment form where you can get online and enter your scoping comment. I'll mention and talk a little about that a little bit more in a minute. We keep a project schedule, and we also have an e-mail list that you can sign up for, and you'll get project updates. So you would -- we would announce things like meeting locations and times, the release of new documents, and then other project updates. If you registered online, or this evening when you signed in, you gave us your e-mail address, we'll automatically enlist you in the notification list unless you tell us you would rather not be.

There are three different ways to provide scoping comments. First one is at this meeting tonight, second one is via the online comment form I mentioned, and the third one is through the US mail. And we'll be accepting comments, just to repeat, through July 15.

If you do want to comment online, here's the specific website address. You can also navigate to that from the home page, I think, pretty easily. The form allows you to type in your comment, but if you also want to append supplemental information, it can accept up to ten megabytes of attached files.

Another way to provide a written comment is to use this comment form that we handed out as you were signing in this evening. It doesn't give you a lot of space, but if you're succinct, you can use this, and fold it up, and mail it to us to the address on the back, which is the same as the address shown here, and that address is on the website, as well.

If you have larger written packages of material, or you have reports, or other supplemental information, you can send that all by mail to that address. And of course, if you have any of those materials with you tonight, you can hand them to anybody wearing

one of our badges.

And so now we're to the part where we are going to start taking oral comments. And so here are some ground rules for us. We're going to go through the people who have signed up indicating an interest in speaking in the order that they signed up. And then when we're through that list, we'll open the floor to anybody else who may decide they have a comment to impart.

I'm going to ask you to come up and stand at the podium, speak into the microphone, and give us your name. And if you have an affiliation, please state that. And we've been holding people to a three-minute limit. At this point, I don't have a lot of people signed up, but we'll initially start with the three-minute limit, because you never know what a group of people might do.

(General laughter.)

MS. SMITH: And so if there's not a lot of speakers, and we have ample time,

people will have an opportunity to get back up and continue their comments if they'd like.

We want to reiterate that we want you to limit your comments to the scope of the programmatic EIS. We're not here to get your comments on individual solar energy projects. And again, if you have copies of your written -- your oral remarks, and you want to leave those with us, that would be great.

We have a court reporter here who is recording everything we do, and transcripts for all the scoping meetings are going to be posted on the website at some date after the final scoping meeting, which is set for July 10.

So those are the basic ground rules. Let me turn this podium.

(Pause.)

MS. SMITH: And of course, I have more rules than that to share. I have a stop watch to keep track of the time. And then if you're speaking, and you see a yellow card,

that means you have thirty seconds left of your three minutes. And then when you hit three minutes, I'll flash the red card.

Again, I don't anticipate a time management issue tonight, but that's the process, and it's been necessary in other meetings. So that's what we'll stick with.

And let's begin. The first individual who signed up indicating that they wanted to make comments was Darlene Jost.

MS. JOST: I'd like to give my time to Sharon Berg.

MS. SMITH: I'm sorry. Sharon gets three minutes, and then if we run out of other people, Sharon can have more time. But would you like to come up and comment?

MS. JOST: No.

MS. SMITH: You don't need to at this time? You don't want to --

MS. JOST: No.

MS. SMITH: Okay. And if you feel like you want to later, that's fine.

So Sharon Berg?

MS. BERG: I have a series of questions. Can you hear me?

(Pause.)

MS. BERG: First of all, can renewable power be transmitted on existing power lines or transmission lines?

(Pause.)

MS. BERG: Yes, they can?

PARTICIPANT: Yes.

MS. BERG: Okay. Cool.

MR. DAHLE: The one comment in response to that --

MS. SMITH: Doug, you need to come to a microphone.

MR. DAHLE: -- is, yes. It's the same power quality that's transmitted, but one of the issues --

MS. SMITH: Wait, please.

(Pause.)

MS. SMITH: There you go. Thank you.

MR. DAHLE: One of the issues is the availability of capacity on the lines. So that's one of the issues with the transmission systems, and they're looking at opportunities.

There are congestion areas in the electric system in this country. So even if you cited something, you may not be able to get the capacity to get it onto the transmission lines.

MS. BERG: Well, let's go to the next question. Stay right there.

MR. DAHLE: Okay.

MS. BERG: In your CD that I tried to go through, and I'm not a technical writer, nor am I a technical reader, but you talk about congestion, of which there is none in New Mexico, according to your map. So why do we need to increase our transmission lines throughout the state when there is no congestion in New Mexico?

MS. SMITH: Okay. I'm going to say, first of all, these are questions;

they're not comments.

MR. DAHLE: Yes.

MS. SMITH: So the three minutes aren't going to apply to you, which is nice. And I want to reiterate that we're commenting and asking questions. If you have questions, we're going to limit them to the scope of the programmatic solar EIS, which is distinct from transmission, although, obviously, there's an inter-relationship.

MS. BERG: There is.

MS. SMITH: Yes. Okay. So your question is --

MS. BERG: Well, you were talking about congestion, and when I look at your maps that indicate congestion throughout the eleven states, there are none in New Mexico. There's no congestion noted that --

MR. DAHLE: The --

MS. SMITH: And the maps you're --

MS. BERG: Looking on the west side, kind of down by Gila National, somewhere

in there. I don't quite understand why there's one there. But there's nothing in the Albuquerque metropolitan area.

MS. SMITH: Can I clarify something, because I don't know which maps you're referring to, since we haven't shown --

MS. BERG: It's on the website.

MS. SMITH: On the -- which website?

MS. BERG: The West-wide Energy Corridor.

MS. SMITH: Okay. And the West-wide Energy Corridor is a distinct project from the Solar Energy Corridor.

MR. DAHLE: Yes.

MS. SMITH: So I'm really going to have to keep ourselves focused on the solar energy EIS, and we can discuss maybe congestion issues after the public comment period ends.

MS. BERG: Okay. I'm assuming I -- Lynn Grundell sent a letter to the trust, it's

the Turquoise Trail Preservation Trust, and on that, she talks about utility scale power. And I believe that's what they have in Daggett. Is that the same kind of --

MR. DAHLE: That is utility scale power, no doubt about it.

MS. BERG: Okay. Fine. That's what I -- and then those are very close to the ground. What -- is there heat generated underneath those that could kill every living thing underneath those towers?

MR. DAHLE: Actually, they are not very hot at all. The mirrors are steel-backed, and reflect all the solar energy directly on those tubes.

MS. BERG: Okay.

And so I can't talk about energy corridors and all of that?

MS. SMITH: We're not here to talk about energy corridors. I'm sorry.

MS. BERG: I thought this --

MS. SMITH: We're here to talk

about solar energy --

MS. BERG: I thought this was a scoping meeting.

MS. SMITH: It is a scoping meeting for the Solar Energy Development Programmatic EIS, which is separate from the West-wide Corridor's EIS.

MS. BERG: Well, that's unfortunate.

So, Tommy?

MR. GOW: Yes.

MS. BERG: If you decide that the land there in Placitas - we'll talk specifically about that - and you decide that that is not something that you'd want to go to solar energy, can you say no to the DOE, federal government? I mean, can you tell them that this is not going to happen on this land? Do you have a choice?

MR. GOW: That's a good question. What I'm looking at is, and you've heard, is that the solar energy EIS will amend land

management plans. Okay? For the Rio Puerco, that's the 1986 resource management plan, so that one will be amended by this EIS.

You also know we are now in the process, in our infancy, of revising that plan. So in the course of that revision, yes, we're going to be looking at other locations, other alternatives. We will be analyzing, though, all the public lands within the field office area. We're going to do that.

So for me to give you a distinct yes or not at this point will very likely pre-decision that process, and I'm not going to do it.

MS. SMITH: And I could clarify. The BLM's program is separate and apart from the program DOE would establish. And so BLM retains its agency-specific decision-making authority. Does that help answer your question?

MS. BERG: And is the feeling of the agency with regard to solar energy in the

state of New Mexico?

MR. GOW: No. We're a co-agency with DOE.

MS. BERG: With DOE?

MR. GOW: Yes.

MS. SMITH: Joint.

MS. BERG: Okay.

MR. GOW: We are joint, instead of co-.

MS. BERG: So are we going to have somebody on the ground from DOE that we can call? Will it be Mr. Ring from Colorado?

MR. RING: No. That'll be handled out of the headquarters office in Washington, D.C.

MS. BERG: Okay. All right.

MS. SMITH: And we can give you that gentleman's contact information if you'd like it.

MS. BERG: Is it on the website?

MS. SMITH: No, his is not, so I can give that to you if you'd like it.

MS. BERG: Okay. When we talk about -- one of the things that concerns me is having this on federal land. You talk about applicants.

So you're going to basically say, well, this is going to be the energy corridor. You're going to decide on a center line, and you're going to decide on the width, and then you're waiting for folks to come in, applicants to come in, and with these projects, and then you're going to perhaps grant them a right of way, what you call ROWs.

So what happens beyond -- you know, I looked at this map that I got from some Placitas folks. And, frankly, it scares the bejesus out of all of us. It literally goes beyond the federal plans of BLM. So I want to know if -- is this a map that's put out by BLM, or DOE?

MR. GOW: I don't know that I've seen that one, Sharon.

MS. BERG: All right.

MR. GOW: And I don't know if that's a reference to the West-wide Energy Corridor. I don't know what it's referencing. I'm not sure.

MS. BERG: Okay. Then I pulled -- I have this map. It's called -- I will show it to you. It's called the G -- it's from the Part 3: Visual Resource Analysis Map Series, and it's Map G8. And I'm specifically interested in --

MS. SMITH: Talk into the microphone, please.

MS. BERG: Okay.

MS. SMITH: I'll take it over to her.

MS. BERG: Okay. I was --

MS. SMITH: But you need to look at it to --

MS. BERG: Yes.

MS. SMITH: Yes.

MS. BERG: I'm specifically interested in -- on the Turquoise Trail,

there's a highlighted yellow part there, and then that continues down on Route 66. And it's apparent to me that you have a planning process already, and you've drawn lines in the sand, and you're just connecting the dots, and I would like you to fill in that highlight. What does that mean?

MS. SMITH: I'm -- Sharon, excuse me. This again is specific to corridor planning. I'll show this map to Tom, but we're not within the scope of this particular meeting. I'm sorry.

MR. DAHLE: We came here tonight to talk about the solar energy development --

MS. SMITH: Yes. And I -- so I guess --

MR. DAHLE: -- not about corridors.

MS. SMITH: Sharon, if you have a comment you would like to make now on the solar PEIS -- and perhaps your comments relate to your grave concern about corridors and transmission, but if you could make that, and

I'll start the three-minute timer.

MS. BERG: Okay.

MS. SMITH: All right.

MS. BERG: All right. It's very brief.

MR. GOW: Right. Sharon, this is a map regarding to the West-wide Energy Corridor. And --

MS. SMITH: So that's not us.

MR. GOW: -- and all comments regarding this have to go to the Washington office.

MS. SMITH: Okay. So we're going to start your three minutes now. Thank you.

MS. BERG: My comment is that, if we put solar energy in the Albuquerque metropolitan area, and on land that's very close to the Sandia, that's a focal point of the Albuquerque metropolitan area. And when I look around that area, I'm going to see a lot of natural areas. Wild horse folks are very much concerned about Placitas. There's the

Golden Open Space. There's also a nature preserve, you know, the San Pedro Creek.

And I can talk further about San Pedro Creek. That is a very special area. Less than one percent of the creeks and streams in New Mexico have surface water. This is one of those areas. And when we start looking at where a possibility of solar energy may be coming to federal lands, especially in Albuquerque, we are looking at perhaps dissecting those areas. That is a grave concern for me.

MS. SMITH: Thank you. And I appreciate the frustration that you'd like to speak on another topic.

MS. BERG: Well, this is --

MS. SMITH: But perhaps after this meeting we can have you speak with other --

MS. BERG: Well, I will just say that this is our only chance to speak to -- you're saying to us that this is a BLM and a DOE partnership, let's say. And it's a

partnership, so we say, but you're not allowing us to address the whole partnership. And that --

MS. SMITH: I understand.

MS. BERG: -- is very frustrating.

MS. SMITH: I understand your frustration. And we're seeking comments specifically to the solar EIS, and we understand your concerns related to transmission.

Okay. So at this time, nobody else has signed up to speak, but I sense that there are some individuals in the audience who might want to make a comment on the solar programmatic EIS. Is there anybody -- ?

(Pause.)

MS. SMITH: Please come up.

REP. McCOY: I'm Kathy McCoy; I'm a State Representative for House District 22, which is -- encompasses much of this area.

I will first ask the -- I just really want to ask some questions.

MS. SMITH: Okay.

REP. McCOY: At the utility scale that we're talking about, one of the comments the gentleman made was that it's pretty close to competitive. And does that mean it's way more economical at the utility scale than residential, or only a little bit?

MR. DAHLE: It's significantly different. First of all, the thermal electric can't be done at a smaller scale.

REP. McCOY: Okay.

MR. DAHLE: Photovoltaics, for example. Obviously, the State of New Mexico has some outstanding financial incentives, but very significant with regard to photovoltaics is the economy of scale. The larger the system, the lower the unit cost. So a utility scale for photovoltaics is probably -- when I was talking 12 to 13 cents, that's the thermal electric systems, the large systems.

REP. McCOY: Right.

MR. DAHLE: Right now, if you were

to do photovoltaics on your house, maybe some incentives -- you're looking at 20, 25 cents a kilowatt hour. You get into the large scale, the 10-megawatt-type thing, like we saw at Nellis Air Force Base, there were some significant financial incentives, but without the investment tax credit and those types of things, you're looking at probably 15, 16, 17, 18 cents a kilowatt hour for photovoltaics.

REP. McCOY: Okay. So what you're saying then is, without the tax credit, it would not be economical.

MR. DAHLE: For the thermal electric --

REP. McCOY: Right.

MR. DAHLE: -- which are cheaper than photovoltaics, you're in the high teens.

REP. McCOY: Okay.

MR. DAHLE: Without the tax credit, the photovoltaics is going to be over 20, even large scale.

REP. McCOY: Okay. And then how

do -- is there some measure you can give us of how efficient the facility in Portugal is? I'm trying to get an idea if it's actually really efficient, or if it's not.

MR. DAHLE: Well, the efficiency is basically -- let me characterize it this way. The efficiency in terms of these systems are all based on, how much electricity do you get out of the sun.

REP. McCOY: Right.

MR. DAHLE: Portugal is actually very similar latitude of New Mexico, as it turns out, so they have a very good resource. The reality is the conventional technology, and that's where a lot of Brad's research and development funds is focusing and trying to get it, but basically, the sun to electricity is about 10 to 11 percent.

REP. McCOY: Okay. That's --

MR. DAHLE: The amount of energy - that kilowatt hours per meter square is the unit of energy - photovoltaics today, the

large manufacturers sell, for instance, silicon cells, expensive, but it's 10 to 11 percent.

The laboratory, National Renewable Energy Laboratory, is spending a lot of their R&D to try to get that up. If we can get it up in the 20 percent conversion range, now the cost of power's going to go down.

REP. McCOY: Okay.

MR. DAHLE: That's --

MS. SMITH: And that is a commercially viable project in Portugal, though.

MR. DAHLE: Absolutely.

REP. McCOY: Okay.

MR. DAHLE: One of the things that is -- again, it comes down to the economics. Their cost of power in Portugal is probably on the order of 20 cents a kilowatt hour. So the economics in the payback is much more attractive there than it is here in the United States.

REP. McCOY: Okay. All right. And this may not relate to this, but I'm going to ask, anyway. Are there going to be potentially any imminent domain issues on this that we should be concerned about?

MR. DAHLE: Maybe you can address that.

MS. SMITH: I'll attempt to answer. And you guys can shake your heads if I'm wrong and correct me.

But BLM-administered land would be in the scope of decision making by BLM, and so projects sited on there would not have an imminent domain issue.

DOE's projects could be sited in other locations on other kinds of lands. And so that's harder to be definitive about.

REP. McCOY: Well, I guess I have to reiterate or echo what Sharon Berg said is we've seen these maps with the federal land, a dot, and then it's blank. That's what private land is. And as somebody that represents this

area, I have a concern about that. And this is a joint effort, and you -- these questions are going to need to be addressed.

MS. SMITH: I understand, and I'll say it one more time. The individuals in this room from the agencies are not on the teams that are preparing the West-wide Energy Corridor EIS, and the comments and concerns you have - I'm not trying to dismiss them in any way - but we are not evaluating any of those decisions in the scope of this EIS. That information will be incorporated into the solar EIS, but those decisions are completely separate and apart from the work that we're here talking about this evening.

REP. McCOY: Okay. I understand.

MS. SMITH: Thank you.

REP. McCOY: Well, I hope that at some point we can get the right people here to answer these questions. And I'm not sure --

MS. SMITH: Well, I believe they had a public meeting on the draft West-wide

Energy Corridor EIS here in Albuquerque in January. So they did receive comments. They had a comment period that extended, I believe, 90 days at a minimum, and that has already occurred. So there is a website separate for that, and I can get you the URL if you're unfamiliar with it. And there are agency points of contacts that you could appeal directly to if you feel you didn't comment on the draft EIS during its comment period.

REP. McCOY: All right. Well, we would like to do that.

MS. SMITH: All right. I'll make sure you have that URL. And I can get you the contact information tonight while we're here.

REP. McCOY: All right. That would be great.

MS. SMITH: Is anyone else interested in making a comment on the solar EIS?

PARTICIPANT: I just have a quick question.

MS. SMITH: If you could come up and -- well, you can ask a question, but I want to be sure we get it on the transcript.

PARTICIPANT: I just wanted to know, is there any place we can go to find out what assumptions were made to get this levelized cost?

MS. SMITH: I believe the question is, Doug, your assumptions for calculating the levelized --

PARTICIPANT: The assumptions for the cost of fuel in the -- you know, over the course of the 20 years: the potential for CO2 credits, water usage costs for the system, because you've got to clean the solar panels and it takes a lot of water, and land lease prices, Where would we go to get those assumptions?

MR. DAHLE: The --

MS. SMITH: Hang on. I just want to repeat the question.

MR. DAHLE: Okay.

MS. SMITH: Before you answer, the question was, Where can the public get access to the many assumptions that are factored into your studies about solar energy development production curves.

MR. DAHLE: I'm trying to identify the levelized cost of energy. First is the construction cost and the capital cost of the equipment.

PARTICIPANT: Right.

MR. DAHLE: Recently -- probably about 30 percent OF the steel price, which is a big volume. So we have basically -- one of the things that I can give you in regards to -- you want to know the specific assumptions. We have a model called the Solar Analysis Model that looks at the construction cost and the personnel cost for operating. The typical 100-megawatt plant, or the one that you saw in the picture, the 150 megawatts, has about 40 employees 24/7.

PARTICIPANT: Right.

MR. DAHLE: A huge cost there. Water cost is a big issue. Permitting costs, interconnection costs.

PARTICIPANT: So we're comparing it against a series of gas turbines --

MS. SMITH: I'm sorry. Hang on. You've got -- we've got to get the microphone.

Doug, can you grab that microphone?

And please speak directly into it so we can pick you up. Thank you.

PARTICIPANT: But we're comparing it against a mix of hydro units, coal units, gas units, which the prices going forward -- although, you know, just which projection did you use for the mix to compare that levelized cost against?

MR. DAHLE: Well, the levelized cost that I'm talking about is actually of the solar system itself.

PARTICIPANT: Okay. So --

MR. DAHLE: But the modeling that we did looked at current costs of gas right

now, current costs of coal --

PARTICIPANT: Okay. So you used just specific today-costs?

MR. DAHLE: Correct.

PARTICIPANT: So if --

MR. DAHLE: Then -- but there is also projections, and that's the hard one. Nobody really knows what it's going to be, but they can project out coal costs, based on some trends, are going to go up. Gas costs just took a huge spike in the last two weeks.

PARTICIPANT: Right.

MR. DAHLE: Not in the model in that respect, you know, just escalating three percent a year, things like that. But that's more that linear model that looks at all the systems. The levelized cost of energy that I talked about was for solar systems specifically.

PARTICIPANT: Right. But if you're going to invest in a solar system today, you're looking at its life over the course

of -- say it's a 20-year system. It's going to last you 20 years.

MS. SMITH: It's at least 30, typically.

PARTICIPANT: Yes. So over those 30 years then, you're bringing all the money back to current day, but you're comparing against money brought back from the current power today to get your levelized cost. So, in other words, if gas continues to go up, our cost will be 20 cents.

MR. DAHLE: Right.

PARTICIPANT: And that makes today's, you know, photovoltaic system, more competitive compared to today's power.

MR. DAHLE: Basically, photovoltaic -- it's a great concept. Photovoltaic power is more expensive, utility scale in particular, than fossil fuel systems today.

PARTICIPANT: Right.

MR. DAHLE: No question about it.

That's the whole issue of trying to say, okay --

PARTICIPANT: That's assuming that oil cost will be the same, gas cost will stay the same, and --

MR. DAHLE: And we all know that that's not likely to happen. One of the benefits is it's sort of an environmental decision in terms of making that investment from the perspective is, I am not going to be dealing with fuel price increases --

PARTICIPANT: Yes. That's the --

MR. DAHLE: -- at all.

PARTICIPANT: As a utility, that's the attractive part of the photovoltaic from a dollar standpoint, that you have your fixed cost amount, and you know what it's going to be going into the future when you buy your equipment.

MR. DAHLE: That's true, but right now, if, for example, they were to bring a PV system, or one of these thermal electric

systems online, they cost more than what it currently costs to deliver power to the consumers, and they would have to go into the PUC --

PARTICIPANT: Right.

MR. DAHLE: -- to request a rate increase to rate payers to be able to offset that increased cost. That's a real challenge. The one thing that has influenced that, by the way, though, and is - has a huge impact on the interest in solar development is - and New Mexico has it in five of the six states, is a renewable portfolio standard.

And not only is it more expensive, but the bottom line is Public Service New Mexico here has to increase renewable, of its generation mix, which is primarily coal, Palo Verde and others. Wind power is big now, in this state. And there's gas peakers, peaking plants, doing the -- the bottom line is 20 percent of the power over the -- in the next ten years must be renewables.

So they're looking right now at Public Service New Mexico -- we've had several conversations with them about the Mesa del Sol which was proposed. Kirtland Air Force Base was looking at solar power. And Sandia is looking at solar power for their federal facilities.

But the fact that it's going to show up in New Mexico and the other states is because there's a renewable portfolio standard that the PUC - and there's real financial penalties if they don't meet it - they have a set -- they have kind of a ramped goal --

PARTICIPANT: So was that -- is that reflected in the -- your levelized cost comparison?

MR. DAHLE: It's an influence. It's not -- levelized cost of energy is calculating the cost of the system to install, operate it, permit --

PARTICIPANT: So just specifically the solar --

MR. DAHLE: The levelized cost that we do is actually of that solar technology.

PARTICIPANT: Okay.

MR. DAHLE: And the factor is debt, you know. There may be an equity holder, a big company, that says, I'm going to take the equity, and there's -- debt is a big, big, big factor, financed by private financial institutions.

MS. SMITH: And maybe you guys can talk some more afterwards if you have additional questions.

Is there anyone else that has a comment or a question, I guess?

MR. BERG: A question. I believe that solar energy requires significant water use. Does it not? Well, that's part of the question. At least three of your six states are in severe drought conditions: California, Arizona and New Mexico. Where are you going to get the water source?

MR. DAHLE: It's a great comment.

The -- take the plant that you saw in Mojave. A wet-cooled -- you know, using cooling towers, a wet-cooled system uses -- let me just get to the point. That particular plant uses 1,000 acre feet a year in water, most of it evaporated through the cooling towers.

MR. BERG: How much does a coal-fired plant use?

MR. DAHLE: About the same.

MS. SMITH: Could you repeat the question, please?

MR. DAHLE: About the same.

MS. SMITH: Could you repeat the question, please?

MR. DAHLE: The question was, what about coal-fired plants, and the answer is, about the same.

What we're seeing, and I think in these, the processing of applications, I was at BLM in Arizona, and we had 70 people training them on it, and that was the number one issue, and it should be yours, as well.

Water is a huge issue. It turns out there is a way to do it, and it's called air-cooled instead of water-cooled. Basically, you have this high-temperature steam. You run it through a turbine. It's still -- you still have a lower pressure, and a lower-temperature steam, but you've got to reduce it back to water to be able to use that thermal, that heat-transfer fluid from the solar plant, and flash it back into steam to run it through the turbine.

There is an air-cooled way to do this, and the effect of it is two things. One, it's about 90 percent reduction in the water use. There still will be water, if nothing else. The percentage of that 1,000 acre feet that we talked about for cleaning the mirrors is about three percent. That's going to continue to happen, and there's also some makeup water for even the dry-cooled systems.

So the essence of it is I think

that's where we're going in terms of this technology is dry-cooled systems, or air-cooled systems. The effect of it, though, is, remember, we talked about this levelized cost of energy, or whatever, you're going to lose -- the production capacity is lost by about 10 percent. But that's the tradeoff. If you don't have the water, that's -- so the cost of energy, the levelized cost of energy is going to go up by about 5 percent.

MR. BERG: Realistically, speaking short term at least, solar energy, while we say it's renewable, is in addition to current energy sources.

MS. SMITH: Excuse me. I'm going to interrupt, because you're making a good comment, and I was wondering if you'd like to come up and make the comment as part of the record, rather than -- because that's -- you're going beyond a question, and we'd like to get the comment on the record so that it can be shared. Thank you.

(Pause.)

MR. BERG: I guess my point was that, while we're talking --

MS. SMITH: Could you state your name and affiliation, please? Thank you.

MR. BERG: Lloyd Berg. I'm one of the directors of the Turquoise Trail Preservation Trust.

MS. SMITH: Thank you.

MR. BERG: My comment, I guess, and my question is -- while we say renewable energy, any solar energy that we put out in the course of the next five or ten years is going to be in addition to the coal sources, and whatever else we're currently using. I don't think we're going to pad solar and take away coal. That's not going to happen initially. I know that's the goal down the road, but for the next five or ten or twenty years, that's not going to happen.

So whatever water source we're using for solar is going to be in addition to,

even though it's the same as coal now, whatever we're using for coal. So we're going to double the water use, in my mind, if we add solar to what we currently have. And that would be, I think, a major concern in at least three states that we're talking about.

MS. SMITH: Thank you.

Do you have a comment or a question?

(Pause.)

MS. SMITH: I have to be careful I don't create feedback with two microphones.

PARTICIPANT: Maybe a clarification for my information, too, but whenever we were talking about the three alternatives: no alternative, and the energy alternative, and then the BLM had one that was specific to BLM, it was a limited development proposal.

And I was just wondering, it's limited to those companies that have already proposed doing something with solar, and those are companies that have proven that they can

do this all the way through; they can perform the way they were supposed to.

Why would you limit these proposals to those that are already on hand when this seems like an energy industry that is coming on with new technologies and new ideas that might help in the future if they were -- had better technology five years down the road?

MS. SMITH: Well, if you'll recall, it's an alternative in the context of the NEPA analysis. The agencies are required to assess reasonable alternatives to their proposed action. That is not BLM's proposed action, so it's essentially been constructed as an end point. It's not what they're proposing to do, but it is a reasonable -- it is an action that they could take.

So they were attempting to construct a point of comparison, and if you have comments, and you want to submit them, you don't have to make them tonight, but if you want to submit comments online about the

viability of that alternative, that would be an appropriate scoping comment. But it's not their proposed action; it was constructed as something that they could elect to do, and it's a point of comparison to their proposed action.

Is this a question?

MR. ARMIJO-CASTER: I have a couple comments.

MS. SMITH: Well, why don't you come on up here then? That would be great. Please tell us who you are.

MR. ARMIJO-CASTER: Thank you. My name is Odes Armijo-Caster; I'm the president of the Renewable Energy Industries Association here in New Mexico. I want to clarify a few things that you just heard.

You know, we're talking about three or four different types of technologies. You said the CSP technology uses a lot of water. The photovoltaic technology does not. Okay? So that's a big thing.

So on the CSP technology that uses the same amount of water as a coal-fired plant, we're either going to have to build more coal-fired plants, or we're going to have to build solar plants. One of the two: CSP, or photovoltaic, or what have you.

Hopefully, we could build a lot more photovoltaic plants in our area, in Arizona and New Mexico and Colorado, that have limited amount of water resources. We built photovoltaic plants here.

In some areas where we might have large amounts of water that we could utilize -- and again, there's two differences between solar water, or water that's used for a CSP plant than one that's used for a coal-fired plant. The coal-fired plant contaminates a huge portion of that water. So that's a huge difference.

The coal-fired plant that you're going to have to build if you don't build the solar plant is going to cause a lot of

emissions, CO2 emissions, which causes adverse effects with the environment, as well.

So I don't think there's a -- you know, it's like, do we do solar, or do we not do solar; let's do coal. No, I don't think so. I don't think we have a choice.

Right now, we have a society that's using a lot of electricity. The first choice that we have is to not utilize as much electricity, become more energy efficient. The electricity that we do utilize is precious, whether it's coming from the sun, or whether it's coming from the coal, or some other fossil fuel resource.

I'm a firm believer in what BLM is trying to do. There's a lot of land area, surface area here in New Mexico that could be utilized for renewables. I think that there's, that the lady that talked earlier about some areas in our state that are precious to us and are pristine, we stay out of those areas at all costs.

I don't care if it's a coal-fired plant, or a solar plant, or a geothermal plant, or a wind plant; there are some areas in our state that we want to remain pristine. And I think that we should identify those areas that we can put up photovoltaic arrays, or CSP, or wind, or what have you in those areas that are applicable.

So again, water areas, we can use the CSP technology. In areas that are photovoltaic or -- that are dry, we could use the photovoltaic-type technologies.

My question to you is coming from a rancher's perspective. Assuming that I have a BLM land lease, how does that affect me if a plant is coming in on the lease lands that I have leased?

MR. GOW: A very good question, and that's something we're struggling with. For example, the proposal coming in down in Lordsburg, 24,000-plus acres. That's what, 37 sections, 38 sections, 37 square miles?

We're going to impact a permittee. There is no doubt. And when I say that, meaning that, when we bring in these mirrors and we put them on the ground, I'm sure these companies are not going to want a cow, a horse, a deer, elk, two-legged or four-legged varmints rubbing on those mirrors. That's a given. It's just not going to happen.

So those fields have to be fenced to keep the animals out. That's all there is to it. And now you've gone from multiple use to single use, and are we going to impact a permittee? Yes. That's the answer. So now how do we deal with it? That's what we as field managers are struggling with.

MR. ARMIJO-CASTER: The other thing that I was concerned about was, you know, the idea that you wanted to utilize megawatts instead of kilowatts. You know, you wanted these large plants instead of small plants.

We talked a little bit about capacity, and it is a fact that here in New

Mexico, we're not -- we have a lot of lines that are at capacity, so they don't have a lot of extra ability to accept electricity into the lines. If we had smaller systems on BLM land, it would make less impact on the rancher, the lessee, and we would probably have capacity on that line to handle 250 kilowatts, instead of a megawatt.

So I mean that would be a suggestion on my part is you would have less impact on the land owner or the land lessee, and you would have less impact on the distribution network if you allowed for smaller system sets to be incorporated into the BLM infrastructure.

And that's all I had.

MS. SMITH: Thank you for your comments. Could you --

MR. GOW: For that -- also, before you leave, for that, thank you. That gives me another idea.

MR. ARMIJO-CASTER: Thank you.

MS. SMITH: Thank you. Could you make sure the court reporter knows, and caught your name?

MR. ARMIJO-CASTER: Sure.

MS. SMITH: So does anybody else have a comment they would like to make?

(Pause.)

MS. SMITH: As I mentioned, this isn't the last opportunity; scoping comments will be accepted through July 15. You can send them to us by mail. You can send them to us over the internet using the online comment form.

You have a comment?

MR. KUENSTLER: Yes, ma'am. I just have a question.

MS. SMITH: That's fine. I appreciate if you could -- so we can capture it.

MR. KUENSTLER: Okay. My question was, are you all going to be going to the Lordsburg area to meet with the ranchers? Is

BLM going to meet with them down there so that they understand what is happening?

MR. GOW: Okay. That's out of my area of administration. I'm in the Rio Puerco, not in the Las Cruces district, but based on what you've just told me, I'll make sure the message gets down there to that district manager.

MR. KUENSTLER: Mr. McCormick?

MR. GOW: He's not the district manager, but I'll make sure Jim gets it.

MS. SMITH: Thank you.

Thank you, Tom.

Any other comments?

(Pause.)

MS. SMITH: Well, we really appreciate your attendance and your input this evening, and I'm sure the agencies -- I speak for them when I thank you all for coming.

(Applause.)

(Whereupon, at 7:53 p.m., this meeting concluded.)